



**PRELIMINARY DRAFT ENVIRONMENTAL ASSESSMENT
FOR THE
PROPOSED CONSTRUCTION OF THE BATTALION
OPERATIONS FACILITY
AT HUMPHREYS ENGINEER CENTER
ALEXANDRIA, VIRGINIA**

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Prepared For:

U.S. Army Corps of Engineers, Baltimore District
Department of the Army
U.S. Special Operations Command
1st Capabilities Integration Group
Humphreys Engineer Center Support Activity

Date: October 2020

EXECUTIVE SUMMARY

Pre-Draft Environmental Assessment (EA) Addressing Construction of the Special Operations Forces (SOF) Battalion Operations Facility (BOF) at Humphreys Engineer Center (HEC)

Responsible Agencies: U.S. Army Corps of Engineers (USACE)-Baltimore District, Department of the Army, U.S. Special Operations Command (USSOCOM), Humphreys Engineer Center Support Activity (HECSA)

Affected Locations: Humphreys Engineer Center, Alexandria, Virginia

The Department of the Army, USSOCOM, and HECSA propose to construct a new BOF at HEC in Alexandria, Virginia. The proposed facility would house battalion and company operations for one battalion of the 1st Capabilities Integration Group (CIG) to support the administration and operations of the brigade, battalion, and company.

The proposed BOF would be constructed on an existing athletic field and would share existing parking areas with other HEC facilities behind HEC's perimeter security fence. The Proposed Action includes construction of a 43,100 square foot, three-story BOF building. The Proposed Action includes the installation of new electrical, water, gas, sanitary sewer lines; information systems distribution; lighting; parking; curb and gutter; sidewalks; storm drainage; landscaping; and other site improvements.

This EA analyzes the potential for environmental, socioeconomic, and cultural resources impacts from the Proposed Action and the No Action Alternative; and will determine whether a Finding of No Significant Impact (FONSI) or an Environmental Impact Statement (EIS) is required. Under the No Action Alternative, the BOF would not be constructed, and the unit would continue to lack adequate space to support the administration and operations of the brigade, battalion, and company. The battalion and company would continue to occupy undersized, poorly configured space within Building 2596.

This EA analyzes impacts to the following resource areas: aesthetic and visual resources; cultural resources; air quality; biological resources; geological resources; water resources; solid and hazardous materials; infrastructure, utilities and traffic; land use; noise; community services; and socioeconomics and environmental justice. **Table ES-1** summarizes the impacts of the Proposed Action on these resources. Following the environmental review of these resources contained in this EA, it has been determined that construction of the proposed BOF at HEC would not result in significant environmental impacts. Based upon the information contained in this assessment, a FONSI is made. The preparation of an EIS is not required for this action.

TABLE ES-1. SUMMARY OF IMPACTS

Resource Area	Proposed Action Impacts	No Action Alternative Impacts
Aesthetic and Visual Resources (Section 3.2)	<ul style="list-style-type: none"> • Short-term, direct, negligible, adverse impacts from construction. • Long-term, direct, minor, beneficial impacts from operation. 	No impacts would occur.
Cultural Resources (Section 3.3)	<ul style="list-style-type: none"> • No impacts from construction or operation. 	No impacts would occur.
Air Quality (Section 3.4)	<ul style="list-style-type: none"> • Short-term, direct, negligible to minor, adverse impacts from construction. • Long-term, direct, negligible, adverse impacts from operation 	No impacts would occur.
Biological Resources (Section 3.5)	<ul style="list-style-type: none"> • Short-term, direct, negligible, adverse impacts to wildlife, vegetation, state- and federally protected species, and migratory birds from construction. • No impacts to biological resources from operation. 	No impacts would occur.
Geological Resources (Section 3.6)	<ul style="list-style-type: none"> • No impacts to geology or from radon during construction. • Short- and long-term, direct, negligible, adverse impacts to topography from construction. • Short- and long-term, direct, negligible to minor, adverse impacts to soils from construction. • No impacts to geology, topography, or soils from operations. • Long-term, direct, negligible, adverse impacts from radon during operation. 	No impacts would occur.
Water Resources (Section 3.7)	<ul style="list-style-type: none"> • Short- and long-term, direct, minor, adverse impacts to surface waters and wetlands from construction. • Short-term, direct, negligible, adverse impacts to water quality from construction. • Short- and long-term, direct, negligible beneficial impacts to the floodplain from construction and operation. • No impacts to Resource Protection Areas from construction. • Short- and long-term, direct, negligible, adverse impacts to groundwater and the coastal zone from construction. 	No impacts would occur.

Resource Area	Proposed Action Impacts	No Action Alternative Impacts
	<ul style="list-style-type: none"> • No impacts to surface waters, wetlands, Resource Protection Areas, groundwater, or the coastal zone from operation. • Long-term, direct, negligible, beneficial impacts to water quality from operation. 	
Solid and Hazardous Materials (Section 3.8)	<ul style="list-style-type: none"> • Short-term, direct, negligible, adverse impacts from construction. • No impacts from operation. 	No impacts would occur.
Infrastructure, Utilities and Traffic (Section 3.9)	<ul style="list-style-type: none"> • Short-term, direct, negligible, adverse impacts to electrical service, potable water service, sewer service, stormwater management, communications, and natural gas service from construction. • Short-term, direct, minor, adverse impacts to transportation from construction. • Long-term, direct, minor, adverse impacts to the electrical supply from operation. • Long-term, direct, minor, beneficial impacts to the potable water supply and sanitary sewer system from operation. • Long-term, direct, negligible, beneficial impacts to stormwater management from operation. • Long-term, direct, negligible, adverse impacts to the communication network and natural gas service from operation. • No impacts to transportation from operation. 	No impacts would occur.
Land Use (Section 3.10)	<ul style="list-style-type: none"> • Short- and long-term, direct, negligible, adverse impact to land use and Land Use Controls from construction. • No impacts from operation. 	No impacts would occur.
Noise (Section 3.11)	<ul style="list-style-type: none"> • Short-term, direct, minor, adverse impacts on HEC personnel and short-term, indirect, negligible, adverse 	No impacts would occur.

Resource Area	Proposed Action Impacts	No Action Alternative Impacts
	<p>impacts to noise receptors outside of the HEC boundary.</p> <ul style="list-style-type: none"> • Long-term, direct, negligible, adverse impacts from operation. 	
<p>Community Services (Section 3.12)</p>	<ul style="list-style-type: none"> • Short-term, direct, negligible, adverse impacts from construction. • Long-term, direct, negligible, adverse impacts to emergency services from operation. • Long-term, direct, minor, beneficial impacts to personnel from operation. • No impact to community resources from operation. 	<p>No impacts would occur.</p>
<p>Socioeconomics and Environmental Justice (Section 3.13)</p>	<ul style="list-style-type: none"> • Short-term, direct, negligible, beneficial impacts from construction. • No impacts to socioeconomics from operation. • No impacts to environmental justice from construction or operation. 	<p>No impacts would occur.</p>

Acronyms/Abbreviations

ABA	Architectural Barriers Act	FIRM	Flood Insurance Rate Map
ADA	Americans with Disabilities Act	FONSI	Finding of No Significant Impact
APE	Area of Potential Effects	FFE	Finished Floor Elevation
AQCR	Air Quality Control Regulations	FR	Federal Register
AR	Army Regulation	GHG	Greenhouse gas emissions
		GI	Green Infrastructure
BGEPA	Bald and Golden Eagle Protection Act	GIS	geographic information system
BMP	best management practices	gpd	gallons per day
CAA	Clean Air Act	HAP	Hazardous air pollutant
CBPA	Chesapeake Bay Preservation Act	HFC	hydrofluorocarbon
CCB	Center for Conservation Biology	HEC	Humphreys Engineer Center
CEQ	Council on Environmental Quality	HECSA	Humphreys Engineer Center Support Activity
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	HQUSACE	Headquarters-USACE
CFR	Code of Federal Regulations	HVAC	Heating, ventilation, and air conditioning
CH ₄	methane	ICIS-AIR	Integrated Compliance Information System for Air
CIG	Capabilities Integration Group	IPaC	Information for Planning and Consultation
CO	Carbon monoxide	KW	Kilowatt
CO ₂	carbon dioxide	LUC	land use controls
CWA	Clean Water Act	LUCIP	Land Use Control Implementation Plan
CZMA	Coastal Zone Management Act	LID	Low Impact Development
dB	decibel	MBTA	Migratory Bird Treaty Act
DOD	Department of Defense	MEC	munitions and explosives of concern
DPD	Department of Planning and Development	MMRP	Military Munitions Response Program
DPWES	Department of Public Works and Environmental Services	MRS	munitions response site
EA	Environmental Assessment	msl	Mean sea level
EIS	Environmental Impact Statement	µg/m ³	Micrograms per meter cubed
EISA	Energy Independence and Security Act of 2007	N/A	Not Applicable
EJSCREEN	Environmental Justice Screening and Mapping Tool	NAAQS	National Ambient Air Quality Standards
EMS	Emergency medical service	NEPA	National Environmental Policy Act
EPA	U.S. Environmental Protection Agency	NHPA	National Historic Preservation Act
ESA	Endangered Species Act	NMFS	National Marine Fisheries Service
EFH	Essential Fish Habitat	N ₂ O	Nitrous oxides
EO	Executive Order	NOx	Nitrogen dioxides
FEMA	Federal Emergency Management Agency	NOA	Notice of Availability

NOAA	National Oceanic and Atmospheric Administration	SWPPP	Stormwater Pollution Prevention Plan
NOI	Notice of Intent	TMDL	Total Maximum Daily Load
NPDES	National Pollutant Discharge System	tpy	tons per year
NRCS	Natural Resources Conservation Service	TRI	Toxic Releases Inventory
NRHP	National Register of Historic Places	TSF	Training Support Facility
NWI	National Wetlands Inventory	TSCA	Toxic Substances Control Act
NOVA Parks	Northern Virginia Regional Park Authority	UFGS	United Facilities Guide Specifications
O ₃	Ozone	USACE	U.S. Army Corps of Engineers
OCM	Office for Coastal Management	USAEC	U.S. Army Environmental Command
OSHA	Occupational Safety and Health Administration	USC	United States Code
OTR	Ozone transport region	USDA	U.S. Department of Agriculture
PCBs	polychlorinated biphenyls	USFWS	U.S. Fish and Wildlife Service
PFC	perfluorocarbon	USSOCOM	U.S. Special Operations Command
piC/L	picoCuries per liter	UXO	unexploded ordnance
PM	Particulate matter	VADCR	Virginia Department of Conservation and Recreation
PM _{2.5}	PM with an aerodynamic size less than or equal to 2.5 micrometers	VADEQ	Virginia Department of Environmental Quality
PM ₁₀	PM with an aerodynamic size less than or equal to 10 micrometers	VADGIF	Virginia Department of Game and Inland Fisheries
ppm	Parts per million	VADHR	Virginia Department of Historic Resources
ppb	Parts per billion	VDOT	Virginia Department of Transportation
R-C	Residential-Conservation	VAFWIS	Virginia Fish and Wildlife Information Service
RCRA	Resource Conservation and Recovery Act	VCRIS	Virginia Cultural Resources Information System
RMA	Resource Management Area	VOC	Volatile organic compound
RONA	Record of Non-Applicability	VPDES	Virginia Pollutant Discharge Elimination System
RPA	Resource Protection Area	VSMP	Virginia Stormwater Management Program
SF ₆	sulfur hexafluoride	WMA	Watershed Management Areas
SHPO	State Historic Preservation Office	ZAD	Zoning Administration Division
SIP	State Implementation Plan		
SO ₂	Sulfur dioxide		
SOF	Special Operations Forces		
SWCD	Soil and Water Conservation District		

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1.0 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

1.1. Introduction

Pursuant to the *National Environmental Policy Act* (NEPA) of 1969 (Title 42, United States Code [USC] §4321 et seq.), as amended, NEPA-implementing regulations of the Council on Environmental Quality (CEQ) (40 CFR 1500-1508) and 32 Code of Federal Regulations (CFR) 651, *Environmental Analysis of Army Actions*, The U.S. Army Corps of Engineers (USACE) Baltimore District, the Department of the Army, Humphreys Engineer Center Support Activity (HECSA), the U.S. Special Operations Command (USSOCOM), and the Special Operations Forces (SOF), have prepared an Environmental Assessment (EA) to evaluate the potential environmental, socioeconomic, and cultural resource impacts associated with the proposed construction of the Battalion Operations Facility (BOF) at Humphreys Engineer Center (HEC) in Alexandria, Virginia.

This EA analyzes potential environmental, socioeconomic, and cultural resources impacts from the Proposed Action and the No Action Alternative.

1.2. Background

HEC is in Alexandria, Virginia, south of Telegraph Road which forms the installation's northern border. The installation is bordered to the east by security fencing near Broadmoor Street and a residential subdivision, and to the south and southeast by Huntley Meadows Park and the Dogue Creek floodplain. A perimeter patrol road forms the southern border running west to east where Dogue Creek breaks sharp to the south. The perimeter road ends at Jeff Todd Way; however, the HEC boundary continues along the same alignment and terminates at McCracken Road. McCracken Road generally forms the western boundary running north until the road intersects with Telegraph Road.

HEC, a USACE civil works installation, comprises approximately 580 acres and is located immediately north of, but not part of, adjoining Fort Belvoir, and approximately 19 miles south of the USACE Headquarters in Washington, D.C. (**Figure 1.1**). HEC is divided into two physically distinct areas by the Piney Run Creek. Approximately 80 acres in the northern portion of HEC are intended for construction of buildings, roads, and parking. The remaining southwest half of HEC largely consists of steeply sloping land and second-growth forests (HEC 2006).



(Source: Fairfax County 2016, Fairfax County 2019)

FIGURE 1.1. HUMPHREYS ENGINEER CENTER PROJECT SITE LOCATION

Four buildings, on the 80-acre developed northern portion of the property, house most of the research and administrative functions of HEC. These buildings include the Cude Building (Building 2592), Kingman Building (Building 2593), Casey Building (Building 2594), and Hall Building (Building 2596). The remaining facilities at HEC consist of several small maintenance and warehouse buildings, three concrete bunkers with administrative activities supporting its tenant organizations, and USACE. Approximately 1,000 personnel are currently employed at HEC (HEC 2006).

HECSA's mission is to operate as a Field Operating Activity of the USACE providing administrative and operational support to Headquarters-USACE (HQUSACE) and other Corps activities in the National Capital Region.

1.3. Purpose and Need

USACE is proposing the construction of a new BOF at HEC in Alexandria, Virginia. The purpose of the project is to provide a modern facility for the 1st Capabilities Integration Group (CIG) to support the administration and operations of the brigade, battalion, and company. The battalion and company are currently located within Building 2596 at HEC in space that is undersized and poorly configured.

1.4. The NEPA Process

NEPA established a national policy for the environment and the CEQ, which provides for the consideration of environmental issues in Federal agency planning and decision-making. In order to implement the NEPA policies, CEQ promulgated the *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 CFR 1500-1508, referred to as CEQ Regulations). Both NEPA and CEQ Regulations require that Federal agencies establish procedures to comply with the intended purpose of NEPA. Both also require Federal agencies to encourage and facilitate public involvement as part of the NEPA process.

Army procedures to comply with NEPA are set forth in 32 CFR 651, *Environmental Analysis of Army Actions*, and Army Regulation (AR) 200-2, *Environmental Effects of Army Actions*. USACE procedures to comply with NEPA are set forth in AR 200-2-2, *Procedures for Implementing NEPA*. These regulations establish the Army and USACE policies and responsibilities to integrate environmental considerations early in the decision-making process. Instructions on preparing NEPA documentation and carrying out public and agency coordination are provided in the subject regulations.

Under guidance provided in NEPA and 32 CFR 651, either an Environmental Impact Statement (EIS) or an EA must be prepared for many Federal actions, including major military construction

actions. If any action may significantly affect the environment, an EIS may be required. An EA provides sufficient evidence and analysis for determining whether to prepare an EIS. The contents of an EA include the need for the Proposed Action, alternatives to the Proposed Action, environmental impacts of the Proposed Action and alternatives, and documentation of public and agency coordination.

An evaluation of the environmental consequences of the Proposed Action and alternatives includes direct, indirect, and cumulative effects, as well as qualitative and quantitative (where possible) assessment of the level of significance of these effects. The EA results in either a Finding of No Significant Impact (FONSI) or a Notice of Intent (NOI) to prepare an EIS. If HEC determines that this Proposed Action may have significant impacts on the quality of the human environment, an EIS would be prepared.

1.5. Agency and Public Coordination

NEPA requires that environmental information is made available to the public during the decision-making process and prior to actions being taken. A premise of NEPA is that the quality of Federal decisions will be enhanced if proponents provide information to the public and involve the public in the planning process.

In compliance with NEPA, HECSA has notified relevant government agencies, stakeholders, and federally recognized tribes about the Proposed Action and alternatives. These agencies and groups were provided a 30-day period to comment on the Proposed Action and alternatives. A total of 12 correspondences were received during the 30-day comment period that are included in **Appendix A**. Each correspondence was reviewed, and comments were addressed in this EA, as appropriate. Comments identified several issues to address in the EA, including:

- The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) provided information on NOAA trust resources in the vicinity of HEC, including designated essential fish habitat (EFH).
- The Virginia Department of Conservation and Recreation (VADCR) provided information on natural heritage resources, including habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.
- The U.S. Environmental Protection Agency (EPA) provided comments on a wide variety of topics, including:
 - Providing a clear justification of the purpose and need for the Proposed Action in the EA.

- Conducting an alternatives analysis in the EA that includes other activities or solutions considered and the rationale for not carrying the alternatives forward for detailed study.
- Describing the potential impacts of the Proposed Action to the natural and human environment in the EA, as well as avoidance and minimization of adverse impacts.
- Considering stormwater management alternatives and avoiding placing stormwater facilities within streams and wetlands.
- Outlining in the EA the erosion and sediment control measures that would be used to protect surface waters during and after construction.
- Considering the use of low impact development (LID) design features and green infrastructure (GI) practices.
- Considering extreme weather events and resiliency in the design of the proposed BOF.
- Considering impacts to recreational activities at the site, as well as air quality and community impacts.
- Considering Executive Order (EO) 13405: Protection of Children's Health in the EA.
- Considering hazardous sites or materials at the location of the proposed BOF.
- Including consultation with VADHR in the EA.
- Addressing cumulative and indirect effects in the EA.
- Addressing environmental justice in the EA.
- Considering public outreach and participation.
- The Virginia Department of Historic Resources (VADHR) concurred that no archaeological investigations are warranted and that no historic properties would be affected by the proposed undertaking.
- The Pamunkey Indian Tribe and Monacan Indian Nation did not wish to continue consultation.
- The Fairfax County Park Authority also concurred that no archaeological work is warranted for the proposed BOF.
- The Mount Vernon Council of Citizens Association requested the design of the proposed BOF incorporate stormwater management, reduce light and noise pollution, utilize wildlife/bird friendly exterior materials, and provide ample native landscaping.
- The Virginia Department of Transportation (VDOT) and Northern Virginia Regional Park Authority (NOVA Parks) had no comments on the Proposed Action.

A Notice of Availability (NOA) has been published in local newspapers announcing the availability of the EA for public review. Due to current COVID-19 restrictions, hard copies of the EA will not be made available. Instead, the EA is available online at:

<https://www.nab.usace.army.mil/CorpsNotices/>

Comments on the EA will be received and reviewed, and revisions may be made to the EA prior to finalization.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

NEPA, and the regulations of CEQ, require all reasonable alternatives to be rigorously explored and objectively evaluated. Accordingly, this chapter summarizes the project and provides a description of the subsequently selected Proposed Action and its alternatives, including the No Action Alternative.

2.1. Proposed Action

The Proposed Action is to construct a 43,100 square foot, three-story BOF building on previously disturbed land that is currently an athletic field. The Proposed Action includes the installation of new electrical, water, gas, sanitary sewer lines; information systems distribution; lighting; parking; curb and gutter; sidewalks; storm drainage; landscaping; and other site improvements.

The proposed site is currently a grassed, athletic field containing a 5-foot high chain link fence and soccer goals. The BOF building would be located in the southern area of the existing athletic field, with the overall site shared with a new Training Support Facility (TSF) currently under design, to be located at the northern end of the athletic field. The field is bounded by John J Kingman Road on the east, maintenance buildings and associated driveway access on the south, the Hall Building (Building 2596) parking lot on the west, and the Kingman Building parking area and access road on the north.

Building Design

The proposed BOF would consist of deep foundation system grade beams, and a structural reinforced concrete slab. The building would be constructed with modular precast concrete sandwich panels, metal panels and glazing systems to add texture and scale to the building. The roof would consist of steel joists supporting a metal roof deck. An exterior pad would be incorporated into the roof for testing of satellite equipment. Measures to enhance resiliency to climate change and extreme weather events have been considered in the design of the proposed BOF, including constructing the building with a finished floor elevation (FFE) higher than the 100-year flood elevations of Dogue Creek and Piney Run.

The public areas of the BOF would comply with the Architectural Barriers Act (ABA) Accessibility Standard for Department of Defense (DOD) Facilities (ABA 2008). All unit areas would be designed for able-bodied military personnel and would meet ABA standards. All exterior and interior signage would meet installation requirements and ABA standards (ABA 2008).

The new construction would include building systems consisting of fire alarm/mass notification, fire suppression, telephone, advance communications networks, cable television, and infrastructure for electronic security systems.

Site Amenities

The BOF entrance at the northwest corner of the building is proposed to feature a courtyard that is anticipated to be a shared area between the BOF and the adjacent TSF, since the two building entrances would be adjacent to each other. Three courtyard concepts are being considered that are provided as **Figure 2.1**, **Figure 2.2**, and **Figure 2.3**. The courtyard would be an oval shaped gathering space conceptually based on the unit's insignia, such as the "spear and dagger". Ample opportunities would be provided for seating and areas to congregate, flexible areas to sit and eat, areas of quiet contemplation, and areas to observe. In the northern part of the courtyard, there would be space for active programs that would encourage team building. A unit paver pattern would be placed at the entrance of the BOF and would connect to the entrance of the new TSF, linking the two together. Native trees and shrubs would be planted within the courtyard to provide shade and screening between the courtyard and parking lot and indicate the entrances to the BOF and TSF buildings to arriving users. In addition to the landscape improvements in the courtyard, native trees and shrubs would be planted along the southern edge of the proposed mechanical yard to provide an additional screen along the parking view shed.

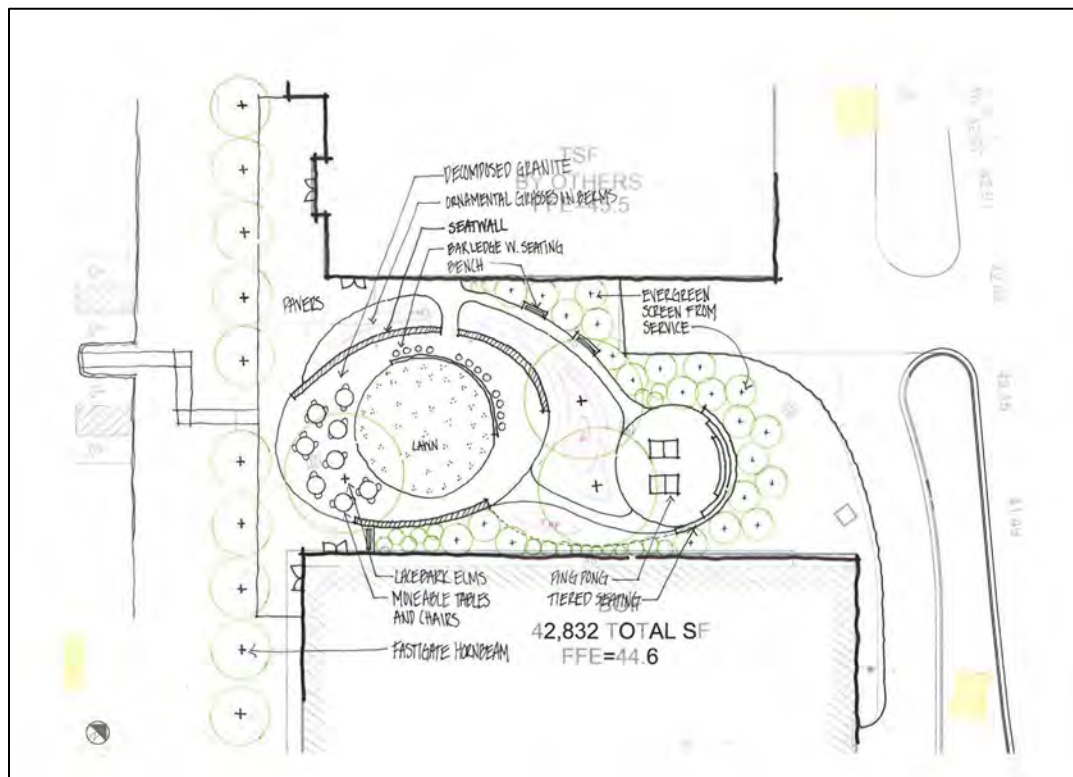


FIGURE 2.1. COURTYARD CONCEPT 1

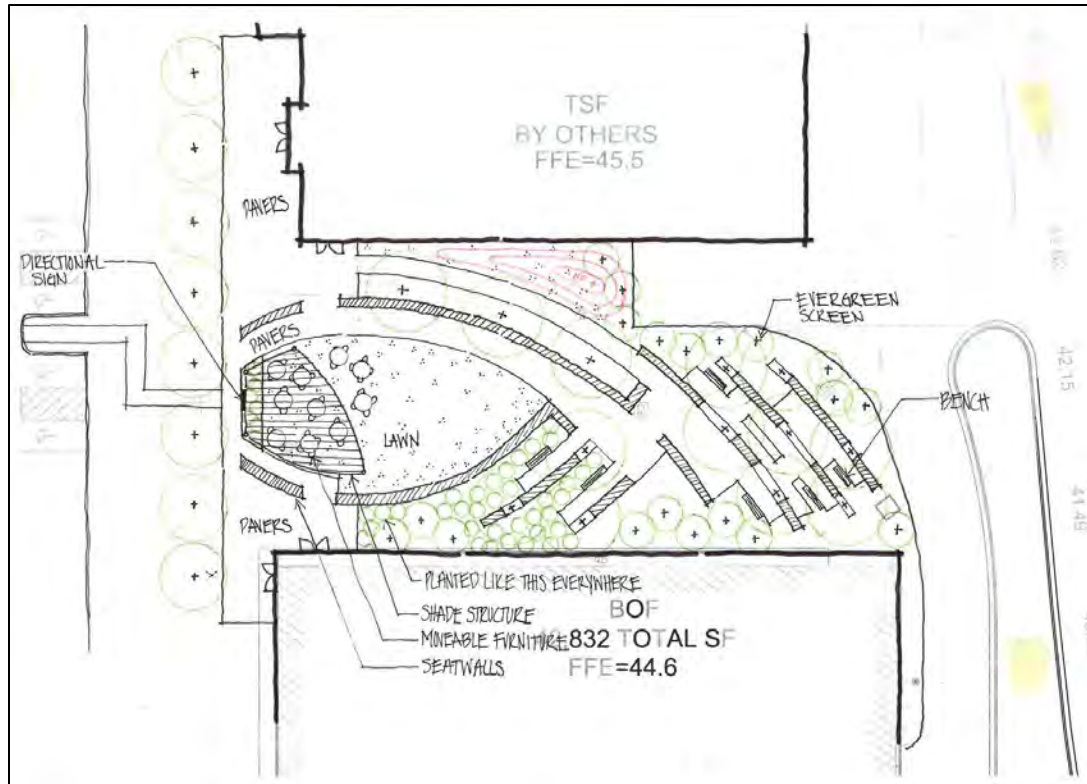


FIGURE 2.2. COURTYARD CONCEPT 2

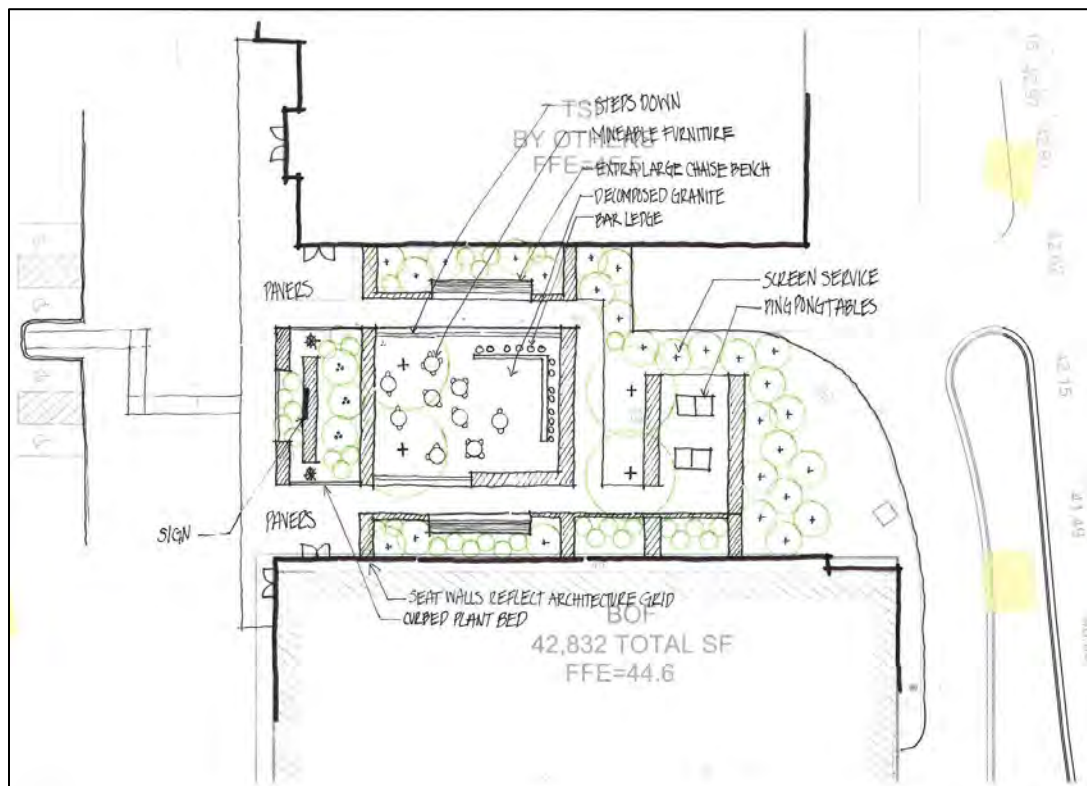


FIGURE 2.3. COURTYARD CONCEPT 3

Infrastructure Improvements

New vehicular parking is not required for the proposed BOF. The BOF personnel are currently located in Building 2596 and would move to the new BOF. Both buildings would be served by the existing Building 2596 parking lot located to the east of the proposed BOF building. Some handicap spaces would be restriped along the northern edge of the parking lot to serve the proposed BOF. A 20-foot wide access road would be provided along the northern side of the site parallel to John J Kingman Road.

Utility lines for electrical service, potable water, sanitary sewer, communications, and natural gas would be extended from existing lines to serve the proposed BOF. A stormwater bioretention facility would be constructed along the eastern edge of the BOF site to meet water quality and quantity control requirements for post-construction stormwater management to comply with the Virginia Department of Environmental Quality's (VADEQ) Virginia Stormwater Management Program (VSMP) and Section 438 of the Energy Independence and Security Act of 2007 (EISA). The bioretention facility would be planned to treat approximately 100 percent of the new impervious area from the BOF site, the TSF, and the Building 2596 parking lot and would drain to the existing culvert crossing under John J Kingman Road. The BOF storm drainage system would consist of a combination of overland flow and closed piping network.

Construction Access and Staging

Construction vehicles would access the project site by entering the installation gate on Leaf Road, then turning south on John J Kingman Road passing the Kingman and Casey buildings and associated parking areas. This route is currently the only means of access to the project site.

Contractor laydown area would occupy the southeastern most portion of the existing Building 2596 parking lot. The contractor would provide chain link construction fencing along all edges of parking and existing buildings to ensure safety and prevent damage to existing facilities.

Facility Operation

After completion of the construction, 78 personnel currently assigned to Building 2596 would transfer to the new BOF. Building 2596 would remain in operation by other new or existing tenants at HEC.

2.2. Alternatives Considered

Based on the current need of the BOF and the lack of available building space on HEC, only the Proposed Action and the No Action Alternative are carried forward for detailed analysis.

2.2.1. The Proposed Action

Under this alternative, the BOF would be constructed as described under **Section 2.1.**

2.2.2. No Action Alternative

NEPA regulations refer to the continuation of the present course of action without the implementation of, or in the absence of, the Proposed Action, as the “No Action Alternative.” Inclusion of the No Action alternative is required by the regulations to provide a baseline against which the impacts of other alternatives can be assessed.

Under the No Action Alternative, a new BOF would not be constructed at HEC. The unit would continue to lack adequate space to support the administration and operations of the brigade, battalion, and company. The battalion and company would continue to occupy undersized, poorly configured space within Building 2596. Overall, the No Action Alternative would adversely impact the unit’s mission effectiveness and readiness by continuing to operate in functionally obsolete facilities.

2.3. Alternatives Considered and Dismissed

The USACE assessed areas within HEC to identify alternative locations for the proposed BOF. No suitable alternative sites were identified.

There is limited real estate available at HEC that would not require substantial forest clearing or wetland impacts during construction. As shown on **Figure 2.4**, approximately 80 percent of the land area within HEC is forested and/or forested wetland. The developed portions of HEC make up approximately 20 percent of HEC. Constructing the proposed BOF on the athletic field within the developed portion of HEC would greatly reduce the disturbance to natural areas that would be necessary. Additionally, availability of existing utility and parking infrastructure in the vicinity of the athletic field greatly reduces the footprint of the proposed facility and the disturbance necessary for construction.

The existing Master Plan for HEC was completed in 2006 and is currently being updated. The proposed BOF has been incorporated into the master planning process and is shown on the athletic field. Further limiting alternative site opportunities, there is a need for the BOF to be proximal to the proposed TSF and the 1st CIG Headquarters which is proposed for the northwestern portion of the athletic field.,,



(Source: Fairfax County 2015, USFWS 2020c)

FIGURE 2.4. NATURAL AND DEVELOPED AREAS AT HUMPHREY ENGINEER CENTER

2.4. The Preferred Alternative

The Preferred Alternative is the Proposed Action – construction and operation of a new BOF on an existing athletic field at HEC. The Preferred Alternative is the alternative that is believed to best satisfy the purpose and need of the Proposed Action to fulfill mission requirements and responsibilities, giving consideration to economic, environmental, technical, and other factors. Under the Preferred Alternative the BOF would provide the 1st CIG with a new facility to support the administration and operations of the brigade, battalion, and company. Impacts associated with construction and operation of this facility would be negligible to minor.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1. Introduction

This section presents an analysis of the potential environmental consequences of implementing the Proposed Action, its alternative, and the No Action Alternative. Each alternative was evaluated for its potential impacts on environmental, socioeconomic, and cultural resources in accordance with CEQ guidelines at 40 CFR 1508.8.

The specific criteria for evaluating the potential environmental impacts of the Proposed Action and the No Action Alternative, are described in the following sections. The significance of environmental impacts from an action is measured in terms of its context and intensity and are described in terms of duration, whether they are direct or indirect, the magnitude of the impact, and whether they are adverse or beneficial, as further defined in the following paragraphs.

3.2. Aesthetic and Visual Resources

3.2.1. Affected Environment

HEC employs architectural design guidelines, outlined in the 2006 HEC Master Plan, to encompass the function and character of the buildings on HEC, as well as the arrangement of buildings to one another and to their environment. These standards ensure that a consistent architectural vocabulary is employed throughout HEC. The following general architectural standards are followed at HEC:

- Use simple, rectangular forms to make combined massing forms;
- Articulate entrances to buildings;
- Locate main building entrances at street elevation;
- Selecting colors that blend in with the natural surrounding; and
- Use low maintenance, durable exterior building materials that are compatible with the installation and the natural environment (HEC 2006).

In addition to architectural guidelines, HEC also utilizes landscape design standards that enhance the visual appeal of the campus by attractive, natural, and organized landscape design. Selection criteria used for landscape design include utilizing low maintenance native materials for sustainability, avoiding incompatible colors, textures, and forms, and matching the appropriate plant to the land use, situation, and environmental condition (HEC 2006).

The site of the proposed BOF is within a previously developed area of HEC. The site is approximately 3.3 acres and is primarily undeveloped, except for an existing athletic field. The site is surrounded by parking areas and associated facilities, including the Hall Building,

warehouses, and maintenance buildings to the south; the Kingman Building to the west; and the Casey Building to the north. Undeveloped deciduous woodlands are east of the site, past John J Kingman Road. Aesthetic and visual resources at the site primarily consist of the maintained athletic field and uninterrupted sight lines to the surrounding parking areas and facilities in all directions.

3.2.2. Environmental Consequences

Threshold of Significance

An alternative could significantly affect aesthetic and visual resources if it results in abrupt changes to the complexity of the landscape and skyline (i.e., in terms of vegetation, topography, or structures) when viewed from points readily accessible by the public.

3.2.3. Proposed Action

Construction

Site preparation and construction of the proposed BOF would occur over an approximately 2-year period. Construction activities would not be visible by the public due to the site's location on HEC. However, construction would be visible by employees and visitors on HEC from the surrounding parking areas, buildings, and roadways. To limit visual impacts, construction privacy fencing or similar Best Management Practices (BMPs) would be implemented by the contractor along the perimeter of the construction site. Heavy construction equipment would be visible while entering or exiting site, but views of the equipment would be mostly obstructed by the implemented BMPs.

Heavy equipment often generates fugitive dust that can cause reduced visibility and air quality concerns near construction sites and on haul routes (see **Section 3.4**). Heavy equipment can also track dirt and mud onto roadways that can be a nuisance for drivers and impact aesthetics. To minimize these impacts, exposed soils within the construction site would be sprayed with water by the contractor to prevent fugitive dust from being emitted, and construction equipment would be washed prior to leaving the construction site. Haul trucks transporting soils or other debris would utilize hopper or bucket covers and maintain reduced speeds to minimize dust while traveling on HEC roadways and on haul routes.

Construction would not be viewed by the public, and incorporation of BMPs by the contractor would minimize views of the construction site for employees and visitors on HEC. BMPs would also minimize fugitive dust, and dirt and mud, on HEC roadways. Therefore, construction of the proposed BOF is expected to have short-term, direct, negligible, adverse impacts on aesthetic and visual resources.

Operation

The proposed BOF would not be visible by the public but would be visible by employees and visitors on HEC from the Hall Building, Kingman Building, and Casey Building, and from the nearby parking areas and roadways. The proposed BOF would be designed to be consistent with the existing architectural style of the nearby recently constructed buildings on HEC, as well as the new TSF currently in design, to maintain conformance with the 2006 HEC Master Plan, which is currently in the process of being updated. The proposed BOF has been incorporated into the master planning process.

The proposed BOF, and landscaped courtyard designed to connect the building with the new TSF currently in design, would enhance the aesthetic appeal of this area of HEC through the use of well thought out, complimentary facility designs and standard landscaping practices, in an underutilized portion of HEC. Environmentally sensitive designs would be incorporated in the exterior design using native landscape plantings and a modern building façade consistent with the surrounding facilities, while modern and efficient interior spaces would improve aesthetic and visual qualities for employees and visitors within the building. Operation of the proposed BOF would include routine professional maintenance of new landscaping. These operational improvements would not only enhance the visual and aesthetic appeal of this part of HEC but would also instill in the community a greater sense of pride for activities of USACE, HECSA and other tenants at HEC (HEC 2006).

Once constructed, the proposed BOF would result in aesthetic and visual improvements on HEC by incorporating an environmentally sensitive, modern, and efficient facility that is compatible in design and feel to the surrounding buildings, as well as native landscaping, that would have long-term, direct, minor, beneficial impacts on visual and aesthetic resources on HEC.

3.2.4. No Action Alternative

The proposed BOF would not be constructed at HEC under the No Action Alternative. No impacts on visual and aesthetic resources would occur because none of the resources identified in **Section 3.2.1** would be disturbed or altered under the No Action Alternative.

3.3. Cultural Resources

3.3.1. Affected Environment

Cultural resources for the purposes of this EA as defined under the National Historic Preservation Act (NHPA) of 1966, as amended, are namely any prehistoric or historic district, archaeological site, building, structure, or object included in, or eligible for listing in the National Register of Historic Places (NRHP). Section 106 of the NHPA requires Federal agencies to consider the effects

of their proposed undertakings on historic properties within the undertaking's "area of potential effects," (APE) in coordination with the State Historic Preservation Office (SHPO) with jurisdiction on the undertaking's location, and other consulting parties, as applicable. The VADHR serves as the SHPO in Virginia.

The APE is considered the geographical area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties or prehistoric sites, if any are present. The APE for this undertaking is the approximately 3.3-acre footprint of the proposed BOF, which includes construction staging areas, AF/FP setbacks, a stormwater bioretention facility, and the building sites.

According to the 2006 HEC Master Plan, there are no historic structures on HEC due to the heavy past military usage of the northern portion of HEC that has obliterated any historically significant remains such as buildings and foundations (HEC 2006). Additionally, the VADHR Virginia Cultural Resources Information System (VCRIS) was reviewed and did not identify any historic structures on HEC (VADHR 2020).

The APE for the proposed BOF has not been surveyed for archaeological resources; however, the site has been previously developed and then demolished, making it unlikely to contain intact cultural resources. No additional archaeological work is warranted at the site according to VADHR and Fairfax County Park Authority – Planning and Development Division (2020). According to VCRIS, the nearest archaeological site registered with the VADHR, Triplett Homestead and Cemetery (VADHR ID: 44FX0739), is located approximately 785 feet west of the project site. The site has not been evaluated for eligibility for listing on the NRHP. Other archaeological sites registered with VADHR in the vicinity were determined not eligible for listing on the NRHP.

A Section 106 consultation initiation letter was sent to VADHR on May 20, 2020. In a response letter dated June 12, 2020, VADHR concurred with the determination made by the USACE that no historic properties would be affected by the proposed undertaking, fulfilling the USACE's responsibilities under Section 106 of the NHPA.

Comment on impacts to cultural resources was also requested from tribal groups. On May 27, 2020, the Monacan Indian Nation responded that they do not wish to actively participate in consultation because the proposed BOF site is outside their ancestral territory. On June 22, 2020, the Pamunkey Indian Tribe responded that they did not wish to remain a consulting party due to the prior disturbance that has occurred at the site. Copies of the letters sent to VADHR and tribal groups are included in **Appendix B**, as are the VADHR, Monacan Indian Nation, and Pamunkey Indian Tribe response letters.

3.3.2. Environmental Consequences

Threshold of Significance

The Proposed Action could have an adverse impact if it caused an unavoidable adverse effect on historic properties under Section 106. Adverse effects that can be adequately minimized or mitigated in compliance with Section 106 and in consultation with the SHPO and other applicable parties are generally considered less-than-significant impacts for the purposes of NEPA.

3.3.3. Proposed Action

Construction

There are no historic structures within the APE or on HEC. Additionally, there are no known archaeological sites within the APE; therefore, construction of the proposed BOF is not likely to impact historic structures or archaeological resources. Archaeological sites outside the limits of disturbance (44FX0739 and others deemed not eligible for evaluation by VADHR) would not be impacted. Since the site of the Proposed Action has been previously developed, construction of the BOF would not be likely to impact currently undisturbed and undocumented archaeological sites. However, if ground disturbing activities uncover intact archaeological resources, construction would be halted immediately and HECSA would follow the appropriate provisions for unanticipated discoveries specified in the Fort Belvoir Integrated Cultural Resources Management Plan, which covers HEC (Fort Belvoir 2014), should undocumented archaeological deposits or unexpected discoveries of Native American graves, lost historic cemeteries, or human remains be discovered. Overall, no impacts on cultural resources are anticipated from implementation of the Proposed Action. The VADHR concurred with the determination made by the USACE that no historic properties would be affected by the proposed undertaking (see response letter dated June 12, 2020, in **Appendix B**).

Operation

There are no historic structures on HEC with the potential to be impacted by operation of the proposed BOF. Operation of the proposed BOF would not require additional ground disturbance outside the project footprint that would have the potential to impact undisturbed and undocumented archaeological resources. Erosion control measures and stormwater management practices would be implemented as part of the facility landscape design to minimize soil erosion and the potential for archaeological resources outside the BOF to be inadvertently uncovered. No impacts on cultural resources would be expected from operation of the proposed BOF. The VADHR concurred with the determination made by the USACE that no historic properties would be affected by the proposed undertaking (see response letter dated June 12, 2020, in **Appendix B**).

3.3.4. No Action Alternative

Under the No Action Alternative, the proposed BOF would not be constructed at HEC. No direct or indirect impacts on cultural resources would occur because none of the resources identified in **Section 3.3.1** would be disturbed.

3.4. Air Quality

3.4.1. Affected Environment

Air quality is regulated at the Federal level through the Clean Air Act (CAA). The EPA adopted the CAA in 1970 and its amendments in 1977 and 1990. Pursuant to the CAA, EPA has established national air quality standards to protect public health and welfare. These standards, known as National Ambient Air Quality Standards (NAAQS) (40 CFR 50), represent the maximum allowable concentrations of selected pollutants in ambient air. NAAQS were developed for six criteria pollutants (**Table 3.1**):

- Carbon monoxide (CO)
- Lead
- Nitrogen dioxides (NO_x)
- Ozone (O₃)
- Sulfur Dioxide (SO₂)
- Particulate matter (PM), divided into two size classes:
 - Aerodynamic size less than or equal to 10 micrometers (PM₁₀)
 - Aerodynamic size less than or equal to 2.5 micrometers (PM_{2.5})

NAAQS include Primary Standards that protect public health, including protecting the health of “sensitive” populations such as asthmatics, children, and the elderly, and the Secondary Standards that protect public welfare including protection against decreased visibility and damage to animals, crops, vegetation, and buildings (EPA 2020a).

The CAA requires EPA to classify Air Quality Control Regions (AQCR) with respect to each criteria pollutant, depending on whether the area’s monitored air quality meets the national standards. A region that is meeting the air quality standard for a given pollutant is designated as being in “attainment” for that pollutant. If the region does not meet the air quality standard, it is designated as being in “nonattainment” for that pollutant (EPA 2017a). Ozone nonattainment areas are categorized based on the severity of pollution: marginal, moderate, serious, severe, or extreme (EPA 2018a). An area that was designated as nonattainment and has been re-designated to attainment and has a Federal-approved maintenance plan is in “maintenance” for that pollutant (EPA 2017a). Areas may be designated as attainment for some standards and nonattainment or maintenance for others.

TABLE 3.1. NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Primary Standards	Secondary Standards	Standard Form
O ₃	8 hours	0.070 ppm	0.070 ppm ^a	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
PM ₁₀	24 hours	150 µg/m ³	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
PM _{2.5}	Annual arithmetic mean 24 hours	12 µg/m ³	15 µg/m ³	Annual mean, averaged over 3 years
		35 µg/m ³	35 µg/m ³	98 th percentile, averaged over 3 years
CO	8 hours 1 hour	9 ppm	—	Not to be exceeded more than once per year
		35 ppm	—	
NO ₂	Annual arithmetic mean 1 hour	0.053 ppm	0.053 ppm	Annual mean 98 th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		100 ppb	—	
SO ₂	3 hours 1 hour	—	0.5 ppm	Not to be exceeded more than once per year 99 th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		0.075 ppm ^b	—	
Pb	Calendar quarter Rolling 3-month average	1.5 µg/m ³ (certain areas)	1.5 µg/m ³ ^c	Not to be exceeded
		0.15 µg/m ³	—	

Key: ppm – parts per million; ppb – parts per billion; µg/m³ – micrograms per meter cubed

Source: EPA 2020a

The CAA mandates that state agencies adopt State Implementation Plans (SIP) to eliminate or reduce the severity and number of violations of the NAAQS and to achieve and maintain attainment with the NAAQS.

HEC is located in Fairfax County, Virginia, within the National Capital Interstate AQCR (DC-MD-VA AQCR). The DC-MD-VA AQCR is in an ozone transport region (OTR) that includes 12 states and Washington D.C. Fairfax County is designated as marginal nonattainment for the 2015 8-hour O₃ NAAQS and in attainment for all other criteria pollutants (EPA 2020a; EPA 2020b). As of 15 April 2019, the DC-MD-VA AQCR has been designated as in attainment for 2008 8-Hour O₃ NAAQS (EPA 2019a).

Clean Air Act Conformity. The 1990 amendments to the CAA require Federal agencies to ensure that their actions conform to the SIP in a nonattainment area. The EPA Final Conformity Rule implements Section 176(c) of the CAA, as amended in 42 USC 7506(c). Under the conformity provisions of the CAA, no Federal agency can approve or undertake a Federal action or project unless it has been demonstrated to conform to the applicable air quality attainment plan or SIP. These conformity provisions were enacted so that Federal agencies would not interfere with efforts to attain the NAAQS.

EPA established "*de minimis*" emission levels for fine particle pollution (40 CFR 93.153). These emissions thresholds are used to determine whether EPA's General Conformity regulations apply to a project. The *de minimis* levels for the ozone precursors for marginal O₃ nonattainment areas are 100 tons per year (tpy) for NO_x and 50 tpy for volatile organic compounds (VOCs). A Federal action is exempt from the General Conformity requirements if the action's total new emissions are below the *de minimis* threshold.

The total emissions associated with construction and operation of the BOF are below *de minimis* levels, and, therefore, the Proposed Action does not require a formal conformity determination. A Record of Non-Applicability (RONA) for General Conformity is provided in **Appendix C**, which details the emissions estimates and the methodology used.

Hazardous Air Pollutants. In addition to the criteria pollutants, EPA regulates air toxic or hazardous air pollutant (HAP) emissions. Controlling air toxic emissions became a national priority with the passage of the CAA Amendments of 1990, whereby Congress mandated that EPA regulate 188 HAPs. Unlike the NAAQS for criteria pollutants, Federal ambient air quality standards do not exist for non-criteria pollutants.

Greenhouse Gas Emissions and Climate Change. Greenhouse gas emissions (GHG) include both naturally occurring and anthropogenic gases that trap heat in the earth's atmosphere. GHG include, but are not limited to, carbon dioxide (CO₂), methane (CH₄), nitrous oxides (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). These gases trap the energy from the sun and help maintain the temperature of the Earth's surface, creating a process known as the greenhouse effect (EPA 2020c).

EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHG meet the definition of air pollutants under the existing CAA and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. On December 7, 2009, EPA signed the Final Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the CAA. The endangerment finding states that current and projected concentrations of the six key GHG in the atmosphere (CO₂, CH₄, N₂O, HCFC, PFC, and SF₆) could threaten the public health and welfare of current and future generations. Furthermore, EPA found that GHG from motor vehicles contribute to the GHG concentrations that threaten public health and welfare.

On June 26, 2019, CEQ published *Draft National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions* in the Federal Register (FR) (84 FR 30097), and the public comment period ended on August 26, 2019. The draft guidance discusses how NEPA analysis and documentation should address GHG emissions. If finalized, the guidance would

replace the final guidance CEQ issued on August 1, 2016, entitled *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews*, which was withdrawn on April 5, 2017, for further consideration pursuant to EO 13783 of March 28, 2017, *Promoting Energy Independence and Economic Growth*.

EO 13693, *Planning for Federal Sustainability in the Next Decade*, was also rescinded on March 17, 2018, and replaced by EO 13834, *Efficient Federal Operations*. EO 13834 directs Federal facilities and agencies to continue tracking and reporting on energy greenhouse gas emissions. As such, this EA estimates CO₂ levels associated with the Proposed Action as appropriate for disclosure purposes. Additionally, this EA considers CO₂ as the representative GHG emission.

Current GHG emission sources at HEC include mobile combustion engines and other insignificant sources of emissions. Due to the small size of HEC, air quality data is not available. HEC does not currently have a Title V air quality permit.

3.4.2. Environmental Consequences

Threshold of Significance

A project could have a significant air quality impact if it would result in emissions that exceed applicability thresholds, be regionally significant, or contribute to a violation of any Federal, state, or local air regulations.

3.4.3. Proposed Action

Construction

HEC has considered net emissions generated from all direct and indirect sources of air emission that are reasonably foreseeable. *Direct emissions* are emissions that are caused by a Federal action and occur at the same time and place as the action. *Indirect emissions* are defined as reasonably foreseeable emissions that are caused by the action but might occur later in time and/or be farther removed in distance from the action itself, and that the Federal agency can practicably control. Specifically, direct emissions would result from the construction, demolition and site work related to the Proposed Action. There are no anticipated indirect emissions associated with the Proposed Action.

As previously discussed, the DC-MD-VA AQCR is currently in nonattainment for the 2015 8-hour O₃ NAAQS. Construction associated with the Proposed Action would result in emissions of precursors of this nonattainment air pollutant. Therefore, a review was conducted to determine if the Proposed Action is subject to the General Conformity regulations (**Appendix C**).

Emissions from heavy construction equipment associated with the construction of the proposed BOF were estimated for activities involving site clearing and grading, building construction, and asphalt paving (**Table 3.2**). Information regarding the number of pieces and types of construction equipment to be used on the project, the number of days equipment would be used, and the approximately daily operating time (hours) were obtained from 30 percent design cost estimates for the Proposed Action. The calculations are based on a 22-month construction schedule. Emissions were also calculated for worker vehicle emissions, paving off-gas emissions, and fugitive dust emissions.

As shown in **Table 3.2**, the total estimated emissions for construction of the Proposed Action would be below the General Conformity *de minimis* thresholds. Therefore, construction would have short-term, direct, negligible to minor, adverse impacts on air quality.

TABLE 3.2. TOTAL EMISSIONS FROM CONSTRUCTION OF THE PROPOSED ACTION

Phases	Total Estimated Construction Emissions (tpy)					
	CO	NO _x	PM	SO ₂	VOC	CO ₂
Heavy Construction Equipment Emissions	0.5484	0.5891	0.0264	0.0018	0.0991	168.5670
Worker Vehicle Emissions	0.6125	0.0539	0.0246	0.0015	0.0754	170.8598
Paving Off-Gas Emission	N/A	N/A	N/A	N/A	0.00024	N/A
Fugitive Dust Emissions	N/A	N/A	4.356	N/A	N/A	N/A
Total Emissions	1.1609	0.643	4.407	0.0033	0.1747	339.4268
General Conformity Rule (GCR) <i>de minimis</i> Emission Levels	100	100	100	100	50	N/A

Note: N/A = Not Applicable

Operation

Operation of the proposed BOF would generate negligible amounts of emissions, primarily from operation of two high-efficiency gas-fired condensing boilers and a 1000/1250KW whole-building, back-up diesel generator. The generator would be used for emergency purposes only and would only operate under those circumstances unless it is being operated for testing or maintenance purposes. In addition, mobile emission sources would not increase because employees at the proposed BOF are currently located in Building 2596 and there would be no changes in traffic volumes. Therefore, operation of the BOF would not involve substantive new non-mobile or mobile emission sources. Generally, emissions from operational activities would be expected to be lower than the construction-related emissions, and therefore operation of the facility would not lead to an exceedance of the General Conformity *de minimis* thresholds. Therefore, the operation of the proposed BOF would have long-term, direct, negligible, adverse impacts on air quality.

3.4.4. No Action Alternative

Under the No Action Alternative, the proposed BOF would not be constructed at HEC. No direct or indirect impacts on air quality would occur because none of the resources identified in **Section 3.4.1** would be disturbed under the No Action Alternative.

3.5. Biological Resources

Biological resources include both plants and animals, including species protected under the Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), and Bald and Golden Eagle Protection Act (BGEPA), which may occur at the site of the proposed BOF.

3.5.1. Affected Environment

Vegetation. The location of the proposed BOF is within an area of HEC characterized as the Urban Land plant community type, which generally includes open lands, woodland borders, maintained turf grass, and landscaped areas. The project site is located on an athletic field composed of turf grass. Turf areas at HEC are comprised of tall fescue grass (*Festuca arundinacea*) and Kentucky bluegrass (*Poa pratensis*) (Fort Belvoir 2019). There are no trees on the project site.

The plant communities to the north of the Urban Land area are primarily categorized as Tulip Poplar Mixed Hardwood Forest. These are upland forests with Tulip poplar (*Liriodendron tulipifera*) as the dominant species; however, white oak (*Quercus alba*), American beech (*Fagus grandifolia*), and northern red oak (*Quercus rubra*) can also be found. Understory species include American beech, red maple (*Acer rubrum*), and flowering dogwood (*Cornus florida*). To the south, the predominant plant community is characterized as Hardwood Forest. These forests are dominated by tulip poplar, red maple, and sweet gum (*Liquidambar styraciflua*) in areas of well-drained soils and green ash (*Fraxinus pennsylvanica*), willow oak (*Quercus phellos*), pin oak (*Quercus palustris*), sycamore (*Platanus occidentalis*), river birch (*Betula nigra*), sweet gum, and red maple in poorly drained areas (Fort Belvoir 2019).

Wildlife. According to the Virginia Department of Game and Inland Fisheries' (VADGIF) Virginia Fish and Wildlife Information Service (VAFWIS) online system, there are 701 terrestrial and aquatic animal species with the potential to occur within a 3-mile radius of the project site (VAFWIS 2020a). The project site is located on an athletic field within the developed portion of HEC and provides little habitat value when compared to the surrounding forested areas.

State and Federally Protected Species. According to the U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) website, the location of the proposed BOF is within the range of one federally threatened species, the northern long-eared bat (*Myotis*

septentrionalis) (USFWS 2020a). The northern long-eared bat roosts in the cavities or beneath the bark of both living and dead trees. Their winter hibernacula include caves and mines (USFWS ECOS 2020). Although suitable habitat may be located elsewhere at HEC, the proposed BOF location does not provide roosting or hibernating habitat for the northern long-eared bat.

According to the NMFS, NOAA trust resources such as federally listed species, critical habitat, and EFH are not likely to be present at the proposed BOF site. However, Piney Run drains to the Potomac River, which is designated EFH for eight Federally listed species. Also, the Potomac River is designated an anadromous fish use area by the VADGIF (NOAA-NMFS 2020).

According to VAFWIS, 13 of the 701 animal species with the potential to occur within a 3-mile radius of the project site are protected on the state or Federal level. These include the northern long-eared bat, as well as two other federally listed species that did not appear on the IPaC species list due to range: the Atlantic sturgeon (*Acipenser oxyrinchus*) and the yellow lance (*Elliptio lanceolate*). **Table 3.3** provides the 13 state and federally protected species with the potential to occur in the vicinity of the project site.

TABLE 3.3. STATE AND FEDERALLY PROTECTED SPECIES THAT MAY POTENTIALLY OCCUR WITHIN 3 MILES OF THE PROJECT SITE

Common Name	Scientific Name	Federal Listing	State Listing
Northern long-eared bat	<i>Myotis septentrionalis</i>	Threatened	Threatened
Atlantic sturgeon	<i>Acipenser oxyrinchus</i>	Endangered	Endangered
Yellow lance	<i>Elliptio lanceolate</i>	Threatened	Threatened
Little brown bat	<i>Myotis lucifugus</i>	—	Endangered
Tri-colored bat	<i>Perimyotis subflavus</i>	—	Endangered
Brook floater	<i>Alasmidonta varicosa</i>	—	Endangered
Wood turtle	<i>Glyptemys insculpta</i>	—	Threatened
Peregrine falcon	<i>Falco peregrinus</i>	—	Threatened
Loggerhead shrike	<i>Lanius ludovicianus</i>	—	Threatened
Henslow’s sparrow	<i>Centronyx henslowii</i>	—	Threatened
Appalachian grizzled skipper	<i>Pyrgus wyandot</i>	—	Threatened
Migrant loggerhead shrike	<i>Lanius ludovicianus migrans</i>	—	Threatened
Spotted turtle	<i>Clemmys guttata</i>	—	Collection Concern

Source: VAFWIS 2020a

The Atlantic sturgeon is an endangered anadromous fish that has previously be documented within the Potomac River near Fort Belvoir but has not been documented within Dogue Creek (Fort Belvoir 2019). The small wetland within the project site and the intermittent stream that flows under John J Kingman Road do not provide suitable habitat for the sturgeon.

Two species of mussels were identified by VAFWIS to have suitable habitat within 3 miles of the BOF site: the federally and state-threatened yellow lance and the state-endangered brook floater (*Alasmindonta varicose*). Both the yellow lance and the brook floater are usually found in clean,

fast-moving water in substrates swept free of sediments. The on-site wetland and intermittent stream that flows under John J Kingman Road are unlikely to provide these conditions. In addition, the VAFWIS does not list the Dogue Creek watershed within which the yellow lance or brook floater is known or likely to occur (VAFWIS 2020b; VAFWIS 2020c).

Two state-endangered bat species, the little brown bat (*Myotis Lucifugus*) and the tri-colored bat (*Perimyotis subflavus*), were identified as having a potential range within 3 miles of the project site. The little brown bat and the tri-colored bat have both been recorded at Fort Belvoir, which suggests that they may be present in similar habitat at the adjacent HEC. The little brown bat was once commonly documented at Fort Belvoir prior to the spread of white-nose syndrome, which has made their occurrence less frequent. However, the tri-colored bat is still frequently documented foraging and roosting at Fort Belvoir despite the onset of white-nose syndrome. Since 1998, bat populations have been monitored within Fort Belvoir using acoustic devices and mist net surveys (Fort Belvoir 2018). The little brown bat roosts in caves, rocks, buildings, and trees, but hibernates primarily in caves, mines, and abandoned tunnels (VAFWIS 2020d). The tri-colored bat can be found roosting in caves in the winter as well as trees and buildings, both in cleared and wooded areas, during the summer months; this bat species uses caves as hibernacula. The tri-colored bat is one of the most common bats in the state and has fairly unrestrictive requirements for roosting sites. However, the population has been greatly reduced by the onset of white-nose syndrome (VAFWIS 2020e). Although suitable habitat may be located elsewhere at HEC, the proposed BOF site does not provide roosting or hibernating habitat for the little brown bat or tri-colored bat.

VAFWIS identified two state-listed turtle species potentially found within 3 miles of the project site. The first is the state-threatened wood turtle (*Gleptemys insculpata*), which is found along streams in deciduous woodlands. The species is highly terrestrial but must remain in moist habitats as they are more susceptible to water loss through evaporation compared to other terrestrial turtle species (VAFWIS 2020f). Although suitable habitat does not occur within the project site, the wood turtle has been observed several times in the vicinity of Dogue Creek. (Fort Belvoir 2018). The second turtle species listed by the VAFWIS is the spotted turtle (*Clemmys guttata*), which is listed as a collection concern. Within Fort Belvoir, the species is found in flooded forest wetlands; however, the species travels across other landscape features when moving between wetlands and could therefore occur within the project site (Fort Belvoir 2018).

Four state-threatened bird species were identified by the VAFWIS to potentially occur within 3 miles of the project site: the peregrine falcon (*Falco peregrinus*), the loggerhead shrike (*Lanius ludovicianus*), the migrant loggerhead shrike (*Lanius ludovicianus migrans*), and Henslow's sparrow (*Ammodramus henslowii*). The peregrine falcon is found in inland, coastal, and aquatic areas. This species traditionally nests in rocky cliffs, though it has been known to nest in

manmade structures such as bridge piers and nest platforms. In Virginia, the peregrine falcon is an uncommon transient and winter visitor (VAFWIS 2020g). Within Fort Belvoir, the peregrine falcon has been spotted occasionally along the shoreline (Fort Belvoir 2018). The loggerhead shrike is widespread but rare within Virginia. The species can be found in grazed or mowed grasslands with available perching areas. The loggerhead shrike nests in eastern red cedar (*Juniperus virginiana*) or hawthorn trees, as well as thorny shrubs (VAFWIS 2020h). The migrant loggerhead shrike is a subspecies of the loggerhead shrike that migrates outside of the Coastal Plain and Piedmont physiographic provinces to breed. The subspecies has similar nesting and feeding habits but can be distinguished by morphology (VAFWIS 2020i). Within Virginia, Henslow's sparrow is a summer resident and rare transient. This species typically nests within ground depressions or in a grass tussock surrounded by vegetation. Henslow's sparrow breeds in weedy fields primarily but can occur in moist grass areas within pine woods during the winter (VAFWIS 2020j). While the project site does not provide suitable nesting habitat for these species, the loggerhead shrike, migrant loggerhead shrike, and Henslow's sparrow could occur within the site while searching for food. It is unlikely that the peregrine falcon would occur within the project site outside of transient individuals.

VAFWIS identified the Appalachian grizzled skipper (*Prygus wyandot*) as the only state-listed insect species that potentially occurs within a 3-mile radius of the project site. The Appalachian grizzled skipper is generally found in open areas with shale soils but can sometimes occur in artificially cleared areas. As such, this species could potentially occur in the project site. The Appalachian grizzled skipper primarily uses dwarf cinquefoil (*Potentilla canadensis*) as its larval food plant (VADCR 2020a).

Migratory Birds. The USFWS IPaC search determined that 19 species of migratory birds protected under the MBTA that may occur in the vicinity of the project site. Eighteen of these species are considered Birds of Conservation Concern (USFWS 2020a). Birds of Conservation Concern are migratory bird species that are likely to become candidates for listing under the ESA if additional conservation is not undertaken (USFWS 2020b). Of these Birds of Conservation Concern, seven have been observed within the neighboring Fort Belvoir, suggesting the potential for their presence in similar habitat at HEC: black-billed cuckoo (*Coccyzus erythrophthalmus*), Kentucky warbler (*Oporornis formosus*), prairie warbler (*Setophaga discolor*), prothonotary warbler (*Protonotaria citrea*), red-headed woodpecker (*Melanerpes erythrocephalus*), rusty blackbird (*Euphagus carolinus*), and wood thrush (*Hylocichla mustelina*). In particular, the wood thrush has been observed south of the project site (Fort Belvoir 2018).

In addition to the Birds of Conservation Concern, the USFWS IPaC search also listed the bald eagle (*Haliaeetus leucocephalus*) as potentially occurring in the vicinity of the project site. The bald eagle, along with the golden eagle (*Aquila chrysaetos*), is protected by the BGEPA and the MBTA.

No bald eagle nests have been documented within HEC; the closest documented nests are located along the Potomac River over 2.5 miles away (Center for Conservation Biology [CCB] 2020). Although the golden eagle has been observed at Fort Belvoir, which is adjacent to HEC, the eagle occurrences were very infrequent and in locations far from the project site (Fort Belvoir 2018).

3.5.2. Environmental Consequences

Threshold of Significance

The threshold of significance would be exceeded if the alternative would jeopardize the continued existence of any federally listed threatened or endangered species or result in destruction of critical habitat; decrease the available habitat for commonly found species to the extent that the species could no longer exist in the area; eliminate a sensitive habitat such as breeding areas, habitats of local significance, or rare or state-designated natural communities needed for the survival of a species; or substantially degrade or minimize habit.

3.5.3. Proposed Action

Construction

Vegetation. Construction of the proposed BOF would require 3.32 acres of ground disturbance, the majority of which is currently maintained turf grass. No trees or natural habitats would be impacted. Therefore, short-term, direct, negligible, adverse impacts to vegetation would be expected.

Wildlife. Removal of turf grass during construction would not result in noticeable impacts to wildlife because of the minimal habitat value provided. Any animals using the athletic field for foraging or grazing would likely be able to move to other suitable habitats in the vicinity when construction is initiated. Construction vehicles and equipment would generate noise that could disturb wildlife within adjacent habitat areas, but these impacts would be temporary. Construction activities are therefore anticipated to result in short-term, direct, negligible, adverse impacts to wildlife.

State and Federally Protected Species. The project site, which primarily consists of a portion of an athletic field, is not likely to provide suitable habitat for most of the state- or federally protected species. Removal of the open field and turf grass could reduce feeding opportunities for several of the bat and bird species during construction, but there are no trees to provide roosting or nesting opportunities. According to a letter received from the VADCR Division of Natural Heritage dated June 18, 2020, construction of the proposed BOF facility would not affect any documented state-listed plants or insects (VADCR 2020b).

State- or federally protected aquatic species are not likely to occur in the wetland or intermittent stream on-site; however, erosion and sediment controls would be implemented during construction to prevent sediment transport to nearby waterways, including Dogue Creek and Piney Run, that may provide suitable habitat for these species, and to minimize potential impacts on downstream water quality and designated EFH. Noise associated with construction could potentially disturb protected species if they are in adjacent habitats; however, these impacts would be temporary. Although some species, including the spotted turtle, may be located within the site temporarily as they travel between available habitat, they are rare in occurrence and would likely avoid active construction sites. Time of year restrictions could be established for construction work to minimize exposure to state- and federally protected species. As a result, short-term, direct, negligible, adverse impacts to state- and federally protected wildlife species are anticipated during construction of the proposed BOF.

Migratory Birds. The open athletic field at the site of the proposed BOF could provide feeding opportunities for migratory birds. Construction would not be expected to impact migratory birds because these species would be able to relocate to other suitable habitats if disturbed. Noise generated during construction would potentially disturb migratory bird species in adjacent habitat areas, but these impacts would be temporary. Therefore, it is anticipated that construction would result in short-term, direct, negligible, adverse impacts to migratory bird species.

Operation

Vegetation. Operation of the facility once construction is complete would not be anticipated to result in long-term impacts to vegetation. Native trees, shrubs, and other landscaping would provide some replacement vegetation and would be maintained appropriately. There would be no impacts to vegetation from operation of the BOF.

Wildlife. Landscaping would provide opportunities for wildlife to potentially roost, feed, or nest, and would not be impacted by day-to-day operation of the BOF. No highly reflective exterior materials would be used in the facility design to avoid impacts to birds and other wildlife. Therefore, there would be no impacts to wildlife.

State and Federally Protected Species. No impacts to state- or federally protected species would occur during operation of the proposed facility.

Migratory Birds. No impacts to migratory bird species are anticipated from the operation of the BOF.

3.5.4. No Action Alternative

Under the No Action Alternative, the proposed BOF would not be constructed at HEC. No direct impacts on biological resources would occur because none of the resources identified in **Section 3.5.1** would be disturbed under the No Action Alternative.

3.6. Geological Resources

3.6.1. Affected Environment

Geology. The proposed BOF is located within the Coastal Plain Physiographic Province. The Coastal Plain is defined by unconsolidated deposits of sand, gravel, clay, and silt. These highly permeable materials allow for the storage of more ground water than the other Physiographic Provinces within Virginia (VADEQ 2020a). Approximately 26% of Fairfax County is located within the Coastal Plain. This province is further divided into the High Coastal Plain and the Low Coastal Plain; the proposed BOF site is located within the Low Coastal Plain, which occurs between sea level and 150 feet above mean sea level (msl) [Fairfax County Department of Public Works and Environmental Services (DPWES) and Northern Virginia Soil and Water Conservation District (SWCD) 2013]. The proposed BOF site is on the border of the Piedmont Province, which includes other sections of HEC.

The underlying sediments of the section of HEC that contains the proposed BOF site consist of the Shirley Formation. The Shirley Formation is comprised of riverine terrace, relict baymouth barrier, and bay-floor plain deposits that include light- to dark-gray, bluish gray and brown sand, silt, gravel, clay, and peat. These deposits were inset below depositional surfaces of the Chuckatuck Formation. This formation dates to the Middle Pleistocene of the Quaternary period. The Shirley Formation ranges from 0 to 80 feet in thickness (Mixon et al. 1989).

Topography on the site is relatively flat. The half of the site that is the current location of the athletic field is uniformly flat at an elevation of 45 feet above msl. This area is slightly higher than the adjacent parking lot to the south, which is approximately 40 feet above msl, and there is a steep slope (3:1) that leads from the field to the parking lot. The highest elevation within the site occurs at the large spoil hill in the southeastern half of the project site, which peaks at 51 feet above msl. The lowest elevation, approximately 30 feet above msl, occurs in the easternmost corner of the site and is associated with the culvert that drains offsite (Stantec 2019).

Soils. According to the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service's (NRCS) web soil survey, the soils beneath the proposed BOF consist of Urban Land (USDA NRCS 2020). Urban Land (Soil Map Unit 95) is defined by impervious, man-made surfaces,

such as pavement, over soils disturbed by previous development (Fairfax County DPWES and Northern Virginia SWCD 2013). Urban Land is not classified as Prime Farmlands soils.

Radon. The EPA recommends mitigation for homes and buildings with a radon level greater than four picoCuries per liter (pCi/L) of air. The EPA identified Fairfax County as Zone 1 for high potential radon risk, where the average potential radon levels could be greater than four pCi/L of air. The Fairfax County Health Department conducted a study to further identify the areas of risk within the county; the study resulting in the production a radon potential map that highlighted areas within the county where the risk of elevated radon was low to moderate. HEC is located within an area deemed to have the lowest radon potential, where there is only a 14% chance of radon levels at or above four pCi/L of air (Fairfax County DEH 2020).



(Source: Fairfax County 2016, Fairfax County 2018, Fairfax County 2020)

FIGURE 3.1. SOILS NEAR THE PROPOSED ACTION

3.6.2. Environmental Consequences

Threshold of Significance

Impacts to geology, topography, and soils are evaluated in this section. The impacts to geology are analyzed based on potential changes caused by the Proposed Action to bedrock, unique sensitive landforms, or rock formations. The impacts on topography are analyzed based on potential changes to surface features, including steep slopes. Impacts on soils are analyzed based on potential changes to soil type, erosion, and sedimentation.

3.6.3. Proposed Action

Construction

Geology. Construction activities would require some grading of soil to construct the BOF building and an associated storage building, as well as the installation of new electrical, water, gas, sanitary sewer lines; information systems distribution; lighting; parking; curb and gutter; sidewalks; storm drainage; landscaping; and other site improvements. The buildings would be constructed with a concrete slab supported by a deep foundation system. Although these activities could disturb bedrock, it would not be significant enough to alter geologic formations or the underlying rock composition. Therefore, construction of the proposed BOF would not impact geology.

Topography. During construction, the site would be graded to allow for a finished floor elevation of 44.6 feet above msl. The building elevation would be higher than the surrounding grades to allow for drainage away from the building to the stormwater management system. Although there would be slight alterations to the topography on site, changes would be minimal. Therefore, there would be short- and long-term, direct, negligible, adverse impacts to topography.

Soils. Construction of the proposed BOF and associated amenities would require the disturbance of approximately 3.32 acres through clearing, grading, and excavation of soils. Construction would also increase the potential for erosion; however, erosion and sediment controls would be established to minimize sediment transport offsite. These controls may include the use of silt fencing, inlet protection, and other appropriate methods that comply with the standards of the VADEQ. In addition, entrances used during construction would be stabilized to prevent sediments from being tracked onto existing pavements by construction vehicles (Stantec 2019).

Construction activities would also impact the ability of soils on site to produce vegetation. Disruption or removal of the topsoil would remove nutrients and reduce the quality of the soil to establish vegetation. Proposed structures and paved areas would remove soils that would

otherwise produce vegetation. To mitigate for decreases in soil quality, topsoil could be replaced during landscaping. Therefore, construction of the proposed BOF would result in short- and long-term, direct, negligible to minor, adverse impacts to soils.

Radon. Construction activities would not result in impacts from radon. Radon, if present in the soils, would require time to build up to dangerous levels and would not pose a risk in the open air where it becomes diluted (EPA 2019b).

Operation

Geology. No impacts on geology would be expected from the operation of the proposed BOF.

Topography. No impacts on topography would be expected from the operation of the proposed BOF.

Soils. During operation of the BOF, landscaping would be maintained to provide vegetative cover and soil stabilization on the site to prevent erosion. Therefore, there would be no impacts to soil from operation of the facility.

Radon. The facility is within an area designated to be at high risk for potential radon exposure; however, further studies from the Fairfax County Health Department determined that the site is within a lower risk area. Still, the potential of radon to build up to hazardous levels could occur within the completed facility's lower levels and would result in long-term, direct, minor, adverse impacts. However, radon mitigation measures, such as using radon-resistant construction techniques or a radon health assessment, could be used to prevent or reduce any impacts from radon potentially present in the soil. With proper mitigation measures for radon, if necessary, operation of the BOF would result in long-term, direct, negligible, adverse impacts.

3.6.4. No Action Alternative

Under the No Action Alternative, the proposed BOF would not be constructed at HEC. No direct or indirect impacts on geological resources would occur because none of the resources identified in **Section 3.6.1** would be disturbed under the No Action Alternative.

3.7. Water Resources

This section addresses surface water, water quality, wetlands, floodplains, Resource Protection Areas (RPA), groundwater and coastal zone management. It also considers water quality programs that are enforced as part of water resources protection regulations at the local, state and Federal level. Evaluation of water resources examines the quantity and quality of the resource and its demand for various purposes.

3.7.1. Affected Environment

Surface Waters. Surface water on the BOF site drains to the south and collects in a ditch at the eastern corner of the property. The ditch drains to an intermittent stream that flows through a culvert under John J Kingman Road. A small wetland area has established within the ditch at the upstream end of the culvert. The stream is a headwater tributary of Dogue Creek that flows eastward offsite. The length of the intermittent stream channel within the BOF site that will be impacted by construction of the proposed BOF is approximately 100 linear feet. Dogue Creek is a stream on the eastern boundary of HEC approximately 1,175 feet from the proposed BOF site. Piney Run, a tributary of Dogue Creek, runs through the middle of HEC. Piney Run is located parallel to the project site approximately 1,190 feet to the southwest.

The proposed BOF site and HEC are located within the Dogue Creek watershed. This watershed is approximately 19.4 square miles and drains into the Potomac River. Major streams and tributaries include Piney Run, North Fork, and Barnyard run (Fairfax County DPWES 2020). There are approximately 32 miles of stream within the Dogue Creek watershed. Approximately 70 percent of the watershed has been developed and is 19 percent impervious. The Dogue Creek watershed is divided into five Watershed Management Areas (WMA): Barnyard Run, Piney Run, North Fork, Dogue Creek – Mainstem, and Potomac. The proposed BOF site is in the Dogue Creek – Mainstem WMA. This WMA is approximately 5.9 square miles and contains 10.2 miles of stream. The Dogue Creek – Mainstem WMA has 784 acres of impervious surface, which is 20.8 percent of its total area (Fairfax County DPWES 2011).

According to the Virginia Department of Health – Office of Drinking Water the proposed BOF site is not within the watershed of any public surface water intakes and there are no surface water intakes within a 5-mile radius (2020).

Water Quality. The EPA requires every state to monitor water quality under the Clean Water Act (CWA). Section 303(d) of the CWA requires each state to submit a priority list that provides the Total Maximum Daily Load (TMDL) for impaired waters. Additionally, Virginia is required by Section 305(b) of the CWA to create a biennial report on the quality of its navigable waters. To meet these requirements, the VADEQ approved the *Final 2018 305(b)/303(d) Water Quality Assessment Integrated Report* in September 2019. The report states that Piney Run is a Category 4A impaired stream for *E. coli* bacteria; Category 4A describes impaired waters that have a TMDL approved by the EPA. The EPA approved the Piney Run TMDL for *E. coli* in 2004. Dogue Creek is listed as a Category 5A impaired water for *E. Coli*, meaning that an EPA-approved TMDL is needed and that Virginia water quality standards have not been attained. Dogue Creek is also listed as a Category 4A impaired stream for polychlorinated biphenyls (PCBs) in fish tissue and dissolved oxygen (VADEQ 2019).

The National Pollutant Discharge Elimination System (NPDES) was established by Section 402 of the CWA to limit the discharge of pollutants into water resources. In Virginia, the NPDES is administered by the VADEQ as the Virginia Pollutant Discharge Elimination System (VPDES) (VADEQ 2020c). There are no VPDES permits currently for HEC (VADEQ 2020d).

Wetlands. There is a small wetland area within a ditch at the upstream end of the culvert under John J Kingman Road that drains to an intermittent stream at the eastern corner of the proposed BOF site. This wetland is approximately 620 square feet and would be impacted by construction of the proposed BOF. Additional wetlands within HEC include two forested wetlands in the woods to west of the site. The USFWS' National Wetland Inventory (NWI) mapper shows several wetlands near the site, generally associated with Dogue Creek or Piney Run; the nearest wetland shown is a 6.19-acre forested wetland approximately 680 feet southeast of the proposed BOF site (USFWS 2020c).

Floodplains. As shown on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) number 51059C0385E, the majority of HEC is outside of regulated floodplains; however, portions of HEC are within the 100- and 500-year floodplains associated with Dogue Creek (FEMA 2010). The location of the proposed BOF facility is within Zone X, which are areas of minimal flood hazard. The Dogue Creek floodplain boundary is approximately 1,600 feet southeast of the project site at an elevation of 26 feet. **Figure 3.2** provides the locations of regulated floodplains in the vicinity of the Proposed Action.

In 2019, the USACE performed a flood study on Piney Run and determined that a portion of the site is within the 500-year floodplain. However, the proposed building footprint is above the 500-year floodplain elevation.

Resource Protection Areas. The Chesapeake Bay Preservation Act (CBPA) was enacted in the state of Virginia to manage land use and planning to improve water quality for the Chesapeake Bay. This act established Chesapeake Bay Preservation Areas, which are areas that have the potential to impact water quality protection of the Chesapeake Bay and its tributaries. These environmentally sensitive areas are generally classified as Resource Protection Areas (RPAs), areas that protect and benefit water quality, and Resource Management Areas (RMAs), areas that could impact water quality without proper management (VADEQ 2020e). In Fairfax County, all areas not designated as an RPA are considered an RMA [Fairfax County Code §118-1-7(c)].

The proposed BOF site is not located within an RPA. HEC contains portions of the RPA associated with Dogue Creek and Piney Run. These RPAs are located approximately 680 feet to the east and 720 feet southwest of the project site, respectively.



(Source: FEMA 2020, Fairfax County 2016, Fairfax County 2019)

FIGURE 3.2. FLOODPLAINS NEAR THE PROPOSED ACTION



(Source: Fairfax County 2016, Fairfax County 2019, Fairfax County 2020)

FIGURE 3.3. RESOURCE PROTECTION AREAS NEAR THE PROPOSED ACTION

Groundwater. The proposed BOF site is located over the Potomac aquifer, which is part of the Northern Atlantic Coastal Plain aquifer system. The Potomac aquifer is primarily comprised of permeable sands in the Potomac Formation but also includes hydraulically connected and permeable sediments. The Potomac aquifer underlies the majority of the Northern Atlantic Coastal Plain. In Virginia, the aquifer consists of fine to coarse, gravelly sand; the aquifer is divided into the local middle and the lower Potomac aquifers, which are separated by a clayey confining unit. The average thickness of the Potomac aquifer in Virginia is approximately 800 feet. In northern Virginia, the aquifer has hydrochemical facies of calcium plus magnesium bicarbonate (USGS 1997). There are no public groundwater wells within a 1-mile radius of the proposed BOF site according to the Virginia Department of Health – Office of Drinking Water (2020). The nearest active groundwater monitoring station is approximately 4 miles east of Fort Belvoir. Over the past 10 years, ground water levels have fluctuated between approximately 8 and 18 feet below land surface (USGS 2020).

Coastal Zone Management. The Coastal Zone Management Act (CZMA) of 1972 (16 USC §1451 et seq., as amended) provides for the protections, restoration, and responsible development of the nation’s coastal resources. The CZMA established the National Coastal Zone Management Program as a partnership between the Federal government and coastal states. Section 307 of the CZMA established the Federal consistency provision, which requires Federal actions that may have effects on coastal use or natural resources within the coastal zone be consistent with the state’s coastal management program (NOAA Office for Coastal Management [OCM] 2020). The Virginia Coastal Zone Management Program was approved in 1986. Any Federal activities that are likely to affect resources within Virginia’s coastal resource management area must be consistent with the policies of this program. The policies of this program include fisheries management, subaqueous lands management, wetlands management, dunes management, non-point source pollution control, point source pollution control, shoreline sanitation, air pollution control, and coastal lands management (VADEQ 2020f).

The entirety of Fairfax County is within Virginia’s coastal zone. As such, the development of the BOF site requires a Federal consistency determination. These reviews are conducted by the VADEQ; the Federal consistency determination has been included in **Appendix D**.

3.7.2. Environmental Consequences

Threshold of Significance

The threshold of significance for water resources would be exceeded if the alternative would result in a major physical alteration of local surface waters, a substantial degradation of water quality in violation of permitting requirements and TMDL measures, a substantial loss of wetlands

or RPA that cannot be fully mitigated, or a substantial and permanent loss of degradation of groundwater.

The threshold of significance would be exceeded if the alternative would result in substantial degradation of wetlands without mitigation, notable adverse impacts on natural and beneficial floodplain values, or inconsistencies with Virginia's Coastal Resources Management Plan.

3.7.3. Proposed Action

Construction

Surface Waters. Construction of the BOF site would require disturbance to the intermittent stream on-site, as the culvert under John J Kingman Road would be replaced due to its current state of disrepair, and riprap outfall protection would be installed. Impacts to the stream would be approximately 100 linear feet. In Virginia, activities that would have minimal impacts to the environment are covered under Virginia Water Protection (VWP) general permit regulations. Since the stream impacts would be under 300 linear feet, the VWP General Permit WP1 would be applicable (VADEQ 2020b). Therefore, the Proposed Action would result in short- and long-term, direct, minor, adverse impacts to surface waters from the disturbance to the intermittent stream. There would be no impacts on public surface water intakes from construction of the proposed BOF site according to the Virginia Department of Health – Office of Drinking Water (2020).

Water Quality. During construction, grading and other ground disturbing activities could increase the potential for soil erosion and sedimentation entering nearby waterways, including Piney Run and Dogue Creek. An erosion and sediment control plan would be established that would include BMPs such as silt fencing, stabilized construction entrances, and inlet protection to minimize the potential migration of erodible soils from the site. Construction of the BOF site would be covered under the 2019 General VPDES Permit for Discharges of Stormwater from Construction Activities due to the amount of proposed ground disturbance exceeding 1 acre. The general permit requires the development of a state approved Stormwater Pollution Prevention Plan (SWPPP). Construction vehicles and equipment could potentially produce pollutants that may impact water quality; however, compliance with the SWPPP would minimize potential impacts from runoff. Therefore, construction of the facility would result in short-term, direct, negligible, adverse impacts to water quality.

Wetlands. The small wetland area at the upstream end of the culvert under John J Kingman Road would be permanently impacted during construction. Impacts would be approximately 620 square feet. Since impacts are less than 1 acre, the VWP General Permit WP1 would be applicable. Erosion and sediment controls would be used during construction to minimize the

potential for sediment transport to other wetlands located within HEC or further offsite. As such, the construction of the BOF site would result in short- and long-term, direct, minor, adverse impacts from the removal of the wetland area.

Floodplains. There would be no impacts to the regulated floodplain of Dogue Creek as construction would occur entirely outside the flood zone. Construction of the stormwater bioretention facility would increase the storage volume of the floodplain of Piney Run to a small degree, resulting in short- and long-term, direct, negligible beneficial impacts.

Resource Protection Areas. The proposed BOF site is located outside of the RPAs associated with Piney Run and Dogue Creek. Construction would require grading and ground disturbance that could lead to sedimentation. An erosion and sediment control plan would be implemented to minimize the potential for sediment transport to RPAs during construction. In addition, a SWPPP would be developed to prevent runoff from potentially impacting RPAs. Therefore, there would be no short- or long-term impacts to RPAs from construction.

Groundwater. Construction of the BOF site would not require the withdrawal of groundwater. Conversion of the existing athletic field would increase the amount of impervious surface and reduce the potential for infiltration of stormwater into the local water table. Proposed stormwater management facilities would collect potential runoff from the new impervious areas to allow for infiltration back into the water table. Therefore, construction of the proposed BOF site would result in short- and long-term, direct, negligible, adverse impacts on groundwater. There would be no impacts on public groundwater wells from construction of the proposed BOF site according to the Virginia Department of Health – Office of Drinking Water (2020).

Coastal Zone Management. The Proposed Action would be undertaken in a manner consistent to the maximum extent practicable with enforceable polices of the Virginia Coastal Zone Management Program. A Coastal Zone Consistency Determination was submitted to the VADEQ and is included in **Appendix D**. Approval and/or recommendations from the VADEQ will be included in Appendix D once received. Therefore, short- and long-term, direct, negligible, adverse impacts to Virginia’s coastal zone are anticipated from construction.

Operation

Surface Waters. Operation of the facility would not require activities on or near surface waters. Runoff from impervious surfaces would be collected by inlets and conveyed by pipes to a proposed stormwater bioretention facility to be constructed along the eastern boundary of the site. This facility would be designed to capture and treat nearly 100 percent of stormwater from the BOF and to comply with the state approved SWPPP and Section 438 of the EISA. Water collected in the facility would eventually outfall to the existing culvert under John J Kingman Road

and conveyed to Dogue Creek. Additionally, according to the Virginia Department of Health – Office of Drinking Water, there would be no impacts on public surface water intakes from operation of the facility (2020). Therefore, there would be no impacts to surface waters from operation of the BOF.

Water Quality. The completed BOF would increase the impervious area within the project site, which in turn would increase stormwater runoff. Under Section 438 of the EISA, Federal developments that exceed 5,000 square feet must restore or maintain hydrology to pre-development levels to protect water resources (EPA 2009). Low impact design in addition to construction of the stormwater bioretention facility, in accordance with a state approved SWPPP, would prevent stormwater runoff from adversely impacting water quality to comply with Section 438 of EISA. The stormwater bioretention facility would capture and treat nearly 100 percent of stormwater collected at the BOF, TSF, and the adjacent parking lot before conveying it to Dogue Creek. As a result of the capture and treatment of stormwater during operation of the proposed BOF, the Proposed Action would result in long-term, direct, negligible, beneficial impacts to water quality.

Wetlands. Operation of the facility would not impact wetlands. No activities would occur on or near wetlands. Potential runoff would be collected in the proposed stormwater bioretention facility and prevent indirect impacts to wetlands located off the site. Therefore, there would be no impacts to wetlands from the operation of the BOF.

Floodplains. The proposed BOF site is outside of the regulated floodplain of Dogue Creek and therefore its operation would not result in any impacts. The stormwater bioretention facility would increase the storage volume of the floodplain of Piney Run to a small degree, resulting in short- and long-term, direct, negligible beneficial impacts. The proposed BOF facility would be constructed with an FFE of 44.6 feet, 9.6 feet or more above the flood elevations of both Piney Run (35 feet) and Dogue Creek (26 feet), effectively minimizing flood risk.

Resource Protection Areas. Operation of the proposed BOF would occur outside of the nearby RPAs associated with Piney Run and Dogue Creek; therefore, there would be no direct impacts to RPAs. Stormwater runoff would be collected in the proposed stormwater bioretention facility and would not indirectly impact RPAs.

Groundwater. Operation of the facility would not require the withdrawal of groundwater from the Potomac aquifer. In addition, according to the Virginia Department of Health – Office of Drinking Water, there would be no impacts on public groundwater wells from operation of the proposed BOF site (2020). Infiltration of stormwater back into the aquifer would be provided in

the landscaped areas as well as the stormwater bioretention facility; therefore, operation of the proposed BOF would not result in impacts to groundwater.

Coastal Zone Management. Operation of the proposed BOF would be consistent with the policies of the Virginia Coastal Zone Management Program. Therefore, there would be no impacts to Virginia's coastal zone during operation of the facility.

3.7.4. No Action Alternative

Under the No Action Alternative, the proposed BOF would not be constructed at HEC. No direct impacts on water resources would occur because none of the resources identified in **Section 3.7.1** would be disturbed under the No Action Alternative.

3.8. Solid and Hazardous Materials

3.8.1. Affected Environment

EPA's NEPAassist tool was used to search for the presence of EPA facilities or sites subject to environmental regulation within a 1-mile radius of the proposed BOF site. The search included the following databases: Resource Conservation and Recovery Act (RCRA) sites, which includes all generators, storage, and disposers of hazardous waste; stationary sources of air pollution regulated by the EPA Hazardous Waste sites [Integrated Compliance Information System for Air (ICIS-AIR)]; NPDES permit program water dischargers; toxic chemical releases and waste management activities included in the Toxic Releases Inventory (TRI); the National Priorities List (NPL) for superfund sites identified under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); sites included in the Brownfields Program; and sites under the purview of the Toxic Substances Control Act (TSCA) of 1976. Three RCRA sites were located within 1 mile of the project site; the Hayfield Animal Clinic is located approximately 0.5 miles northwest of the proposed BOF site and has no listed violations. The other RCRA site, Hayfield Elementary School, is located 0.7 miles north of the proposed BOF site and maintains an active, very small quantity generator with no violations. Crest Cleaners, located 0.9 miles north of the Proposed Action, is a RCRA site with a conditionally exempt small quantity generator with no recorded violations. Two sites were identified as air pollution sources. The previously mentioned Hayfield Elementary School is included as an operating source of nitric oxide and nitrogen oxide. The other site on the ICIS-AIR list is Crest Cleaners, which is an operating source of tetrachloroethylene (EPA 2020d).

HEC does not currently hold a RCRA permit and no hazardous substances are currently stored on HEC. There are also no known, documented contaminated areas on HEC (HEC 2006).

The eastern portion of the proposed BOF site was previously used for waste disposal in the past. A geophysical survey was conducted in 2019 to determine if waste, metallic debris, and concrete was present within the site using electromagnetic instruments and ground penetrating radar. The survey determined that most of the site contains some level of buried metallic or non-metallic waste. In addition, the survey detected the foundation for the former wave tank, as well as possible buried metallic drums (Pyramid Environmental & Engineering 2019).

Unexploded Ordnance. The Military Munitions Response Program (MMRP) is a program developed by the DOD to address non-operational areas that are suspected of or known to contain discarded military munitions, munitions constituents, or unexploded ordinance (UXO). When these safety hazards are in concentrations that pose an explosion hazard or environmental contamination, they are considered munitions and explosives of concern (MEC) [U.S. Army Environmental Command (USAEC) 2020]. HEC is contained within a 489-acre munitions response site (MRS) previously used to train engineers in demolition materials and technique between the years of 1940 and 1951. As part of the MMRP, this site was named Demolition Area – USACE (FTBL-025-R-01). A 2012 remedial inspection determined that soils sampled did not contain munition constituents above the risk-based criteria (USAEC 2017). Long-term management for the site was established as a Land Use Control (LUC) and is further discussed in **Section 3.10.1**.

3.8.2. Environmental Consequences

Threshold of Significance

For the purposes of the hazardous materials and wastes impact analysis, effects would be significant if they present a substantial human health or safety risk. Mitigation measures are proposed for any aspect of the action that could release hazardous substances or wastes into the environment.

3.8.3. Proposed Action

Construction

Construction of the BOF and its associated amenities would generate construction wastes that would require disposal. Additionally, site grading and ground disturbance would require the removal of soil from the site. Both construction debris and excess soil would be disposed of or recycled at facilities approved of by USACE. Construction personnel would comply with all local, state, and Federal hazardous materials regulations. In addition, construction contractors would follow guidance for construction waste disposal as outlined by the Unified Facilities Guide Specifications (UFGS), which calls for a minimum of 60 percent of construction debris or waste from landfills (UFGS-01 74 19). Construction activities would not impact nearby EPA-listed

hazardous waste or air emission facilities. Construction would result in short-term, negligible, adverse impacts from hazardous materials.

Unexploded Ordnance. Construction contractors would follow established LUC for Demolition Area – USACE to minimize impacts from MEC during construction as described in **Section 3.10.1**. In addition, construction personnel would follow safety standards for work around MEC as outlined in *USACE Engineer Manual 385-1-97, Munitions and Explosives of Concern (MEC) Activities*. A qualified UXO Safety Officer would be present during construction work. Following the necessary safety precautions and standards would result in short-term, negligible, adverse impacts from UXO during construction.

Operation

The completed BOF would be used to house battalion and company operations and is not anticipated to produce or store hazardous materials. General solid waste associated with office operations would be produced but is unlikely to burden existing solid waste disposal abilities at HEC. Therefore, operation of the proposed BOF would not result in impacts from solid or hazardous waste.

Unexploded Ordnance. No impacts from UXO would be expected from operation of the proposed BOF.

3.8.4. No Action Alternative

Under the No Action Alternative, the proposed BOF would not be constructed at HEC. No direct or indirect impacts from hazardous materials and wastes, or UXO, would occur because none of the resources identified in **Section 3.8.1** would be disturbed under the No Action Alternative.

3.9. Infrastructure, Utilities and Traffic

3.9.1. Affected Environment

Electrical. Dominion Energy provides electrical service to HEC by overhead lines that feed two transformers near a switching station to the east of the project site. From there, an underground electrical distribution system owned by the government distributes power to HEC. Dominion Energy would be installing a new electric line to HEC from the north, with a manhole planned east of the Casey Building parking lot that would be in place before construction of the proposed BOF is initiated.

Potable Water. Fairfax Water provides water service to HEC. The estimated consumption for HEC is approximately 80,000 gallons per day (gpd). A government-owned 12-inch water main enters

HEC south of Building 2594 from a Fairfax Water 24-inch main that follows the eastern border of HEC in a northwest to southeast direction. In addition, an 8-inch water main parallels the curb of the Building 2596 parking lot southwest of the project site.

Sanitary Sewer. Sanitary sewage from HEC flows into the Fairfax County sanitary sewer system. Total daily discharge from HEC is estimated to be approximately 67,800 gpd (HEC 2006). Buildings at HEC are served by a gravity sewer system. An 8-inch sewer main exists near the project site that runs in a northwest direction along the northern boundary of the Building 2596 parking lot. The 8-inch main connects to a government-owned 10-inch sewer main running northeast beyond John J Kingman Road that discharges to a 27-inch Fairfax County sewer main along the eastern boundary of HEC.

Stormwater Management. Stormwater management at HEC consists of several independent storm drainage systems. The older systems drain to outfalls while the newer or modified systems flow to stormwater detention basins. Stormwater within the project site primarily drains to the south where it flows into a ditch. The ditch conveys stormwater to a culvert under John J Kingman Road. The culvert outfalls on the east side of the road into a channel that drains to Dogue Creek. Additionally, a stormwater collection system consisting of pipes and inlets would be constructed as part of the adjacent TSF. The new system would collect stormwater from the TSF and the Building 2596 parking lot and outfall to a new stormwater bioretention facility to be constructed east of the proposed BOF site.

Communications. Verizon is the primary provider of telecommunications services to HEC. Active aerial Verizon telephone cable enters HEC from the eastern boundary. A telecommunications manhole exists northwest of Building 2596. Telecommunications would be extended from the manhole to the vicinity of the BOF project site as part of the adjacent TSF construction.

Natural Gas. Washington Gas supplies natural gas by an existing 8-inch line that runs in a northeast to southwest direction through the northern portion of HEC. A 2-inch gas line is west of the Building 2596 parking lot within a forested area adjacent to a stormwater management pond that would be extended to serve the adjacent TSF. Approximately 204,691 therms of natural gas were used from September 2005 to August 2006 at HEC for an average consumption of 17,058 therms per month (HEC 2006).

Transportation. The main entrance to HEC is provided off Telegraph Road at the unsignalized intersection with Leaf Road. Leaf Road is susceptible to congestion at rush hour because it is the only means of entering or exiting HEC and provides only one lane in either direction (HEC 2006). Leaf Road connects to John J Kingman Road, which provides access to the project site. The existing roadway network on HEC is asphalt pavement and parking primarily consist of surface

parking lots. The Building 2596 parking lot has approximately 290 parking spaces near the project site. VDOT was sent a scoping letter on May 20, 2020, regarding the proposed Project but had no comments (VDOT 2020).

3.9.2. Environmental Consequences

Threshold of Significance

An alternative could have significant effects on utility infrastructure or the transportation network if it would increase demand over capacity, requiring a substantial system expansion or upgrade, or if it would result in substantial system deterioration over the current condition.

3.9.3. Proposed Action

Construction

Electrical. During construction, the contractor would be responsible for extending electrical lines from the planned manhole east of the Casey Building parking lot to the project site. Temporary disruptions to electrical service may occur when connections are made to existing electrical lines or to the proposed BOF. Affected users would be notified in advance of any disruptions to service. In addition, construction activities could temporarily increase energy demand on HEC; however, it is not expected that current electrical capacity would be exceeded. Therefore, short-term, direct, negligible, adverse impacts to electrical service would be anticipated.

Potable Water. The 8-inch water main located along the Building 2596 parking lot would be extended to the project site to provide water service to the proposed BOF. Temporary disruptions to water service may occur when the connection is made to the existing water main or to the proposed BOF. Affected users would be notified in advance of any disruptions to service. Water needed for construction would be obtained from the existing water supply system, which is anticipated to be adequate to support the temporary increase in demand. Therefore, short-term, direct, negligible, adverse impacts to water service would be anticipated.

Sanitary Sewer. During construction, a new sewer connection would be made to the proposed BOF from the existing 8-inch sewer main that runs along the northern boundary of the Building 2596 parking lot. Temporary disruptions to sewer service may occur when the connection is made to the existing sewer main or to the proposed BOF. Affected users would be notified in advance of any disruptions to service. Therefore, short-term, direct, negligible, adverse impacts to sewer service would be anticipated.

Stormwater Management. Erosion and sediment control measures, including silt fencing, inlet protection, stabilized construction entrances, and other BMPs, would be implemented, in

accordance with a state approved SWPPP, to minimize sediment transport to Dogue Creek during ground disturbing construction activities. Implementing these measures would be expected to result in short-term, direct, negligible, adverse impacts (see **Section 3.7.2**).

Communications. Telecommunication service would be provided to the proposed BOF by extending service from a communications manhole that will be constructed as part of the adjacent TSF. Temporary disruptions to telecommunication service may occur when the connection is made to the existing service lines or to the proposed BOF. Affected users would be notified in advance of any disruptions to service. Therefore, short-term, direct, negligible, adverse impacts to communications would be anticipated.

Natural Gas. Natural gas service would be extended to serve the adjacent TSF, and gas service to the proposed BOF would also be provided by this line. Temporary disruptions to natural gas service may occur when the connection is made to the existing line or to the proposed BOF. Affected users would be notified in advance of any disruptions to service. Therefore, short-term, direct, negligible, adverse impacts to natural gas service would be anticipated.

Transportation. Construction of the proposed BOF would result in an increase in vehicular traffic on HEC from deliveries of materials and equipment and the daily commute of workers to and from the Project site. It has been estimated that 18 workers would commute to and from the site each day for up to 22 months (i.e. the estimated duration of construction). Since more than 1,000 employees work on HEC, the increase in vehicle traffic from construction workers would be minimal. Temporary road closures surrounding the project site may occur during construction that may result in intermittent traffic delays; however, the road closures would be coordinated to the extent possible to not occur during peak traffic periods. The contractor would also be asked to schedule deliveries of materials and equipment outside of peak traffic periods. Therefore, short-term, direct, minor, adverse impacts to traffic is anticipated during construction of the proposed BOF.

Operation

Electrical. The current electrical supply to HEC has adequate capacity to support the proposed BOF; however, construction of additional facilities would increase the demand for energy. To minimize this demand, the proposed BOF would be constructed following DOD high performance and sustainable building requirements that would promote energy efficiency and conserve electrical usage. Additionally, a whole-building backup generator would be installed to serve the proposed BOF in the event of an electrical power outage. Operation of the proposed BOF would have long-term, direct, minor, adverse impacts on the electrical supply at HEC.

Potable Water. The current potable water supply to HEC has adequate capacity to support the proposed BOF. There would be no increase in demand for water because employees would be relocated to the proposed BOF from Building 2596. However, the proposed BOF would be constructed following DOD high performance and sustainable building requirements that would include water saving faucets and fixtures that would reduce water usage. Therefore, long-term, direct, minor, beneficial impacts to the potable water supply would be anticipated during operation of the proposed BOF.

Sanitary Sewer. The existing sanitary sewer system at HEC has adequate capacity to support the proposed BOF. There would be no increase in sanitary sewage volumes because employees would be relocated to the proposed BOF from Building 2596. However, the proposed BOF would be constructed following DOD high performance and sustainable building requirements that would include water saving faucets and fixtures that would reduce the volume of sanitary sewage generated at HEC. Therefore, long-term, direct, minor, beneficial impacts to the sanitary sewer system would be anticipated during operation of the proposed BOF.

Stormwater Management. Construction of the proposed BOF would result in an increase in impervious surface on HEC. However, the proposed BOF would be constructed in accordance with a state approved SWPPP that would include a stormwater bioretention facility at the eastern boundary of the project site. To comply with Section 438 of the EISA the basin would be designed to capture and treat nearly 100 percent of stormwater from the BOF site, the TSF, and the adjacent parking lot. The facility would outfall to the existing culvert under John J Kingman Road and conveyed to Dogue Creek. The stormwater management proposed as part of the project would result in long-term, direct, negligible, beneficial impacts at HEC.

Communications. The existing communications network provided by Verizon has capacity to support the proposed BOF; however, construction of additional facilities would increase the demand for these services. Telecommunication service would be extended to the proposed BOF from a manhole that would be constructed as part of the adjacent TSF. Operation of the proposed BOF would have long-term, direct, negligible, adverse impacts on the communications network at HEC.

Natural Gas. The current natural gas service provided to HEC has adequate capacity to support the proposed BOF; however, construction of additional facilities would increase the demand for these services. The proposed BOF would be constructed following DoD high performance and sustainable building requirements, including energy efficient heating and cooling systems, which would reduce the demand for natural gas at HEC. Therefore, operation of the proposed BOF would have long-term, direct, negligible, adverse impacts on natural gas service at HEC.

Transportation. No impacts on traffic are expected during operation because there would be no increase in personnel at HEC. Employees would be relocated to the proposed BOF from Building 2596. Employees relocated to the proposed BOF would continue to use the Building 2596 parking lot. No additional parking would be needed. The parking lot would be restriped to provide four additional Americans with Disabilities Act (ADA) accessible spaces for the proposed BOF that would result in the loss of six privately owned vehicle spaces. However, the parking lot has adequate spaces available to accommodate employees and visitors.

3.9.4. No Action Alternative

Employees would continue to use inefficient facilities under the No Action Alternative. However, there would be no increase in demand for infrastructure because the proposed BOF would not be constructed; therefore, there would be no impacts.

3.10. Land Use

3.10.1. Affected Environment

Land Use. The proposed BOF site is an infrequently used open field. There are no formal sport leagues or regularly scheduled events on the field. HEC's land use is designated as Public Facilities, Governmental, and Institutional land, as is the areas of Fort Belvoir to its immediate south, east, and west. Northeast of HEC, land use is designated as Residential with two to three dwelling units per acre. Also, to the northeast, the Huntly Meadows Park as a land use designation of Open Space and Recreation – Public Parks. Land use is largely Residential to the northwest of HEC beyond Telegraph Road (Fairfax County Department of Planning and Development [DPD] 2018).

The 2006 Master Plan for HEC is currently being updated. The revised Master Plan will include guidelines for future development to create inviting and usable public spaces through land use regulation. The plan, which is anticipated to be finalized in December 2020, divides HEC into five different land use standards: administrative, industrial, security, open space, and flex space. The proposed BOF is included in the Administrative land use standards. Administrative use is defined in the Master Plan as land use for office and other buildings that serve either HEC or USACE, as well as other potential users. Additionally, the proposed BOF is included in the Master Plan as a short-range development project (Alliance Consulting Group 2019).

HEC and the proposed location of the BOF are in the Fairfax County Residential-Conservation (R-C) zoning district. This district was established to protect water resources and forest cover in various conservations areas, minimize impervious surfaces in public water supply watersheds,

and promote rural areas for agricultural and low-density residential use [Fairfax County Zoning Administration Division (ZAD) 2020].

Land Use Controls. LUC are non-engineered instruments, either legal or administrative controls, or engineered barriers, such as fences, used to help minimize exposure to contamination (EPA 2017b). The northeast portion of Fort Belvoir that contains HEC and the project site was identified to have previously been a 489-acre MRS. The MRS was used to train engineers in demolition materials and techniques and was used between 1940 and 1951. A remedial inspection was completed in 2012 determined that soil samples did not exhibit munition constituents above the risk-based criteria (USACE 2017). In 2019, a decision document for Demolition Area – USACE TD determined that LUC would be established to provide long term management for the site due to the unknown certainty of area where MECs were at an elevated density. These controls would be outlined in a LUC Implementation Plan (LUCIP). The required LUCs established by the decision document include the following:

- Changes in land use, construction activities, or other intrusive activities will be provided prior to their implementations and geographic information system (GIS) data will be provided
- Ground disturbing activities will require UXO construction support
- Dig permits will be required for all intrusive work
- Personnel engaged in intrusive work will be provided education materials outlined in the LUCIP
- Education materials will be available upon request and may include MEC safety recognition training
- Warning signs will be installed and maintained
- Long term monitoring to document the established LUCs including regular inspection (U.S. Department of the Army 2019)

3.10.2. Environmental Consequences

Threshold of Significance

Impacts on land use can occur when the implementation of a project creates an inconsistency between the actual use of the land and the underlying land use designation, or when a project is incompatible with adjacent or surrounding land uses (i.e. siting an industrial facility in a residential area). Land use impacts may also occur when the implementation of a project conflicts with or prevents the implementation of the goals, objectives, and policies of relevant planning documents, studies, and/or nearby, unrelated development projects.

3.10.3. Proposed Action

Construction

Land Use. Construction of the BOF buildings would comply with the Master Plan for HEC. Although the site would be converted from an infrequently used athletic field, there would be no change to the land use designation or zoning code. Conversion of the athletic field to an administrative facility would result in short- and long-term, direct, negligible, adverse impacts to land use because the courtyard concept proposed at the BOF and TSF facilities would replace any opportunities for gathering that may be lost on the athletic field.

Land Use Controls. Established LUCs would be followed during construction of the BOF site in accordance with the LUCIP. Construction workers would be informed of all LUCs and would be educated on the proper response to munitions or explosions of concern if encountered. Short-term, direct, negligible, adverse impacts would result by following established LUCs and creating a protocol for construction activities.

Operation

No impacts on land use would be expected from operation of the proposed BOF.

3.10.4. No Action Alternative

Under the No Action Alternative, the proposed BOF would not be constructed at HEC. No direct or indirect impacts on land use would occur because none of the resources identified in **Section 3.10.1** would be disturbed under the No Action Alternative.

3.11. Noise

3.11.1. Affected Environment

The *Noise Control Act* of 1972 (PL 92-574) directs Federal agencies to comply with applicable Federal, state, interstate, and local noise control regulations. The Fairfax County Code prohibits the creation of sound louder than 55 decibels (dB) in a residential area, and 60 dB in a commercial area, and prohibits the creation of any excessive noise on any street adjacent to any school, institution of learning, court, or hospital that interferes with its function (Fairfax County Code, Section 108-4-1). Construction activities are exempt from the Fairfax County ordinance, provided they occur between 7:00AM and 9:00PM.

The most commonly occurring noise at HEC is from vehicular traffic. Other sources of noise include heating, ventilation, and air conditioning systems; landscape maintenance; and other general maintenance activities. None of these sources produce excessive noise levels. There are

no noise-sensitive receptors such as schools, churches, or hospitals located within HEC. The nearest noise-sensitive receptors to the proposed BOF site and their distances from the site are included in **Table 3.4**.

TABLE 3.4. NOISE SENSITIVE RECEPTORS NEAR THE PROJECT SITE

Noise-Sensitive Receptor	Distance from Project Area (ft)
Hayfield Residential Neighborhood	890
Hayfield Community Park	3,300
Hayfield Elementary School	2,400
Hayfield Secondary school	2,800
Faith Fellowship Assembly of God	2,750

3.11.2. Environmental Consequences

Threshold of Significance

Noise impacts would be significant if the Proposed Action created long-term noise increases in areas of incompatible land use.

3.11.3. Proposed Action

Construction

Construction of the proposed BOF would create noise from construction equipment used for ground moving and site work activities, installation of new utilities, and construction of the proposed BOF. Noise produced by construction equipment would vary depending on the type, duration, and activity being performed by the specific piece of equipment. Construction equipment associated with the Proposed Action would include excavators, bulldozers, trucks, drill rigs, graders, pavers, and rollers. Construction equipment would be equipped with noise-dampening equipment operated according to the manufacturers' instructions and would be turned off and shutdown when not in use. Construction would take place during daylight hours unless there was a specific action that would directly impact construction work.

Potential impacts of noise from construction equipment on construction workers would be mitigated by following Occupational Safety and Health Administration (OSHA) regulations and USACE *Safety and Health Requirements Manual EM 385-1-1* (USACE 2014). OSHA regulations

require that employers make hearing protectors available to those employees who are exposed to work conditions at or above 85 dBA¹ (USACE 2014).

Personnel and other contractors working at HEC may experience temporary, negligible adverse impacts from construction noise while walking between facilities on HEC or to and from their vehicles. These impacts would be temporary in nature as personnel would only be exposed to noise while they were outside. The interior of facilities on HEC would provide adequate protection from noise during construction.

The Hayfield community is the closest sensitive noise receptor to the proposed BOF site, and residents of this community could experience intermittent noise associated with construction activities; however, the noise would be temporary in nature. There is a wooded buffer between HEC and the Hayfield community which would dampen some construction noise.

Overall, construction noise would have short-term, direct, minor, adverse impacts on HEC personnel and short-term, indirect, negligible, adverse impacts to noise receptors outside of HEC.

Operation

Noise generated from operation of the proposed BOF would consist of standard building noise (heating, ventilation, and air conditioning [HVAC] systems and landscaping maintenance) and would be minimal. Noise would also be generated from trucks making deliveries to the site; however, deliveries would not be expected to change the existing noise environment at HEC.

Therefore, operation of the proposed BOF would result in long-term, direct, negligible, adverse impacts to noise levels.

3.11.4. No Action Alternative

Under the No Action Alternative, the proposed BOF would not be constructed at HEC. No direct or indirect impacts on noise would occur because none of the resources identified in **Section 3.11.1** would be disturbed under the No Action Alternative.

¹ Decibels (dB) are measurements of sound on a logarithmic scale. dBA are “decibel scale readings that have been adjusted to attempt to take into account the varying sensitivity of the human ear to different frequencies of sound” (NoiseHelp 2020)

3.12. Community Services

3.12.1. Affected Environment

Emergency Services. Police protection in the surrounding communities is provided by the Fairfax County Police Department's Franconia and Mount Vernon District Stations. The Fairfax County Fire and Rescue Department's Kingstowne Fire Station 37 provides fire protection and emergency medical service (EMS) with support from the Gunston and Lorton Fire Stations. HEC receives its police and fire protection through an inter-service support agreement at Fort Belvoir.

Community Resources. HEC is a USACE Civil Works site and does not contain any residential areas, healthcare facilities, schools, childcare facilities, or religious institutions. HEC is within Fairfax County Public Schools Region 3. Four elementary schools and one secondary school within the Hayfield Pyramid are provided for the communities in the immediate vicinity of HEC. There are several registered childcare centers and home day cares within 2 miles of the entrance to HEC, and the nearest religious institution, the Faith Fellowship Assembly of God, is on Telegraph Road just 0.15 miles south of the entrance to HEC. Fort Belvoir Community Hospital is the nearest healthcare facility approximately 2.6 miles south, and Inova Mount Vernon Hospital is the nearest off-site healthcare facility located 7 miles east.

3.12.2. Environmental Consequences

Threshold of Significance

An impact on community services is deemed significant if it exceeds the ability of the current emergency and community resources to accommodate the implementation of an alternative.

3.12.3. Proposed Action

Construction

Accidental injuries to workers using machinery and heavy equipment may occur during construction of the proposed BOF. BMPs would be implemented by the contractor to minimize the potential for injuries and ensure the safety of workers is maintained throughout the construction period. These BMPs would include the use of personal protective equipment (PPE) (i.e., hard hats, reflective vests, hearing protection) and conducting specialized safety training for onsite workers. In addition, barriers such as perimeter fencing would be installed around the construction site to ensure adequate safety for employees and visitors on HEC. However, in the event an accident occurs, emergency response services at Fort Belvoir have sufficient capacity to respond without decreasing the level of service elsewhere on the installation. Local hospitals have the capacity to provide care for any workers injured at the site. Community resources, such as schools, childcare facilities, and religious institutions, would also be able to support the slight

increase in demand that may result during construction of the proposed BOF from the associated temporary increase in construction workers in the area. Therefore, there would be short-term, direct, negligible, adverse impacts on emergency services and community resources during construction of the proposed BOF.

Operation

Operation of the proposed BOF would not be anticipated to increase the burden or demand for police or fire and rescue services by Fort Belvoir emergency response personnel. Most of the daily activities conducted at the proposed BOF would be administration in nature with minimal safety risk. However, all staff would receive specialized training and PPE, as needed, to safely conduct their assigned duties without causing injury to themselves or others according to applicable safety protocols. In the event an accident occurs, emergency response services at Fort Belvoir have sufficient capacity to respond without decreasing the level of service elsewhere on the installation. Local hospitals have the capacity to provide care for any workers injured during operation of the proposed BOF. Therefore, there would be long-term, direct, negligible, adverse impacts on emergency services during operation of the proposed BOF. In general, long-term, direct, minor, beneficial impacts would result because personnel would be working in a modern and safer facility. Operation of the proposed BOF is not anticipated to impact local schools, childcare facilities, or religious institutions because the project would not increase the workforce on HEC requiring additional demand for community resources.

3.12.4. No Action Alternative

The current demand for emergency services and community resources would continue under the No Action Alternative. No impacts on emergency services or community resources would be expected.

3.13. Socioeconomics and Environmental Justice

3.13.1. Affected Environment

Socioeconomics. The proposed BOF site is located within Fairfax County in Virginia. **Table 3.5.** Population Estimates for Fairfax County and the Commonwealth of Virginia shows the population of both the county and the state according to the 2010 Census and the 2018 yearly estimate, as well as the percent change in population.

TABLE 3.5. POPULATION ESTIMATES FOR FAIRFAX COUNTY AND THE COMMONWEALTH OF VIRGINIA

Area	2010 Census	2018 Estimate	Percent Change
Fairfax County, VA	1,086,743	1,150,795	+5.9%
Virginia	8,024,617	8,517,685	+6.1%

Source: U.S. Census Bureau 2020a; U.S. Census Bureau, 2020b

The total civilian working population working within Fairfax County and Virginia are shown below in **Table 3.6**. Employment Summary The table details the individual employees by industry type. The education services, and health care and social assistance industry makes up the greatest percentage of the civilian workforce within Virginia; the industry that maintains the greatest percentage of the civilian workforce in Fairfax County is professional, scientific, and management and administrative and waste management services occupations. Outside of the civilian workforce, the Armed Forces comprise 1.7 percent and 1.1 percent of the labor force in Virginia and Fairfax County, respectively (U.S. Census Bureau 2020d; U.S. Census Bureau 2020f).

TABLE 3.6. EMPLOYMENT SUMMARY

	Virginia		Fairfax County	
Percent population 16 years and over in Labor Force (2018)	65.4%		70.6%	
Employment Categories	Population	Percent	Population	Percent
Agriculture, forestry, fishing and hunting, and mining	39,008	0.9	931	0.2
Construction	286,162	6.8	33,403	5.4
Manufacturing	294,616	7.0	14,135	2.3
Wholesale Trade	70,856	1.7	4,783	0.8
Retail Trade	423,982	10.1	47,211	7.6
Transportation and warehousing, and utilities	194,452	4.7	23,990	3.9
Information	76,293	1.8	14,892	2.4
Finance and insurance, real estate, and rental leasing	253,063	6.1	41,036	6.6
Professional, scientific, and management and administrative and waste management services	653,649	15.6	162,060	26.2
Education services, and health care and social assistance	923,908	22.1	114,571	18.5
Arts, entertainment, and recreation, and accommodation and food services	372,216	8.9	51,612	8.3
Other services, except public administration	219,960	5.3	38,947	6.3
Public Administration	372,750	8.9	71,981	11.6

Source: U.S. Census Bureau 2020c; U.S. Census Bureau 2020d; U.S. Census Bureau 2020e; U.S. Census Bureau 2020f

Environmental Justice. American Community Survey population estimates were used to determine the presence of Environmental Justice populations, as shown in **Table 3.7**. Environmental Justice Populations As established by EO 12898 *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, Federal agencies must analyze Federal actions to identify and address any, “disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations” (CEQ 1997). The percentages of Environmental Justice populations are relatively similar between the county and the state, save for Asian and Hispanic or Latino populations, which are higher.

EO 13405 *Protection of Children From Environmental Health Risks and Safety Risks* was established to ensure that Federal actions do not disproportionately affect children (EPA 2019c).

As shown in **Table 3.7. Environmental Justice Populations**, children comprise approximately 22 percent of the population in Virginia and 23.4 percent of the population in Fairfax County. There are no children present within the study area as it is currently an infrequently used athletic field. No formal events involving children occur at the field. **Section 3.12.1** provides details regarding schools and childcare facilities within the vicinity of the study area.

Additionally, EPA’s Environmental Justice Screening and Mapping Tool (EJSCREEN) was used as a screening-level analysis of demographic and environmental information within a 1-mile radius of the proposed BOF site. The analysis compares the screened area to the rest of the state and country using a variety of environmental indices. According to the EJSCREEN report, the screened area around the BOF site is at a lower percentile for the majority of environmental indices when compared to Virginia and national averages. However, this area is in the 69th percentile for lead paint in the state and 63rd percentile in the country (EPA 2018b).

TABLE 3.7. ENVIRONMENTAL JUSTICE POPULATIONS

Environmental Justice Populations	Virginia		Fairfax County	
	Population	Percent	Population	Percent
Black or African American	1,631,512	19.2	111,976	9.7
American Indian and Alaska Native	22,265	0.3	2,220	0.2
Asian	555,422	6.5	221,662	19.3
Native Hawaiian and Other Pacific Islander	5,659	0.07	1,169	0.1
Other	215,743	2.5	49,575	4.3
Two or More Races	349,504	4.1	61,041	5.3
Hispanic or Latino	812,810	9.5	188,616	16.4
Population under 18 years old	1,869,640	22.0	269,098	23.4
Population 65 years old and over	1,318,225	15.5	154,639	13.4
Population for whom poverty status is determined	884,647	10.7	67,258	5.9

Source: U.S. Census Bureau 2020g; U.S. Census Bureau 2020h; U.S. Census Bureau 2020i; U.S. Census Bureau 2020j

3.13.2. Environmental Consequences

Threshold of Significance

An impact on socioeconomics is deemed significant if it exceeds the ability of the ROI to accommodate a departure or influx of households, personnel and their families, or children, corresponding to more than half of the forecasted growth in the community.

3.13.3. Proposed Action

Construction

Socioeconomics. During construction of the proposed BOF, contractor personnel would be employed from the labor pool available in Fairfax County or the state. Due to the size of the Proposed Action, it is not anticipated that construction activities would overtax the local labor

availability. Since workers would likely be drawn from the surrounding county or state, construction personnel would not need to purchase housing during construction. Therefore, construction would not adversely impact socioeconomics.

Construction would require materials that may be purchased from local sources in the areas around the BOF site. In addition, construction personnel could patronize local business for the duration of construction. This would provide a short-term, direct, negligible, beneficial impact to socioeconomics.

Environmental Justice. Construction impacts would not have disproportionately high or adverse human health or environmental effects on minority or low-income populations or children. Therefore, there would be no adverse impacts to environmental justice populations.

Operation

Socioeconomics. Once the BOF is operational, employees would be transferred from existing buildings within HEC. Since the personnel would only be transferring to a new building from their existing workspaces, they would not need to relocate or acquire new housing. In addition, as no new personnel would relocate to the new facility from outside of the area, local businesses would not see any fluctuation in patronage from employees at HEC as a result of the Proposed Action. Therefore, there would be no impact to socioeconomics from the operation of the BOF.

Environmental Justice. There would be no human health or environmental effects on minority or low-income populations or children that would be disproportionately higher than impacts to the general populace from the operation of the BOF. Therefore, there would be no adverse impacts to environmental justice populations.

3.13.4. No Action Alternative

Under the No Action Alternative, the proposed BOF would not be constructed at HEC. No direct or indirect impacts on socioeconomics and environmental justice would occur because none of the resources identified in **Section 3.13.1** would be disturbed under the No Action Alternative.

4.0 CUMULATIVE IMPACTS

CEQ regulations require Federal agencies to assess the cumulative impacts of Federal projects during the decision-making process. Cumulative impacts result “from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (40 CFR 1508.7). This section of the EA describes the cumulative impacts that the proposed action, combined with implementation of the HEC 2019 Draft Master Plan, may have on the environment.

Past, Present, and Future Projects included in the Cumulative Impacts Analysis

Past

Historically, dense forest comprised the land that now accommodates HEC. In 1963, the Hall, Cude, and Kingman buildings were constructed to accommodate the Coastal Engineer Research Center, creating a 187-acre campus referred to as the Kingman Complex. HEC was expanded to its current 579 acres in 1980 when the site and surrounding land was deeded to the Civil Works Division of the USACE by the Secretary of the Army. The Kingman Complex was renamed to Humphreys Engineer Center in 1982 and HECSA was established by the USACE the next year. The original Hall Building was demolished in 2006 and was replaced by the current Hall Building, which was constructed in 2004-2005. Other than construction of the Hall Building parking lot in 2007-2008, and its subsequent expansion in 2012, no substantial construction has occurred on HEC since the Hall Building in 2004-2005.

Present

No projects are currently under construction at HEC.

Future

The HEC 2019 Draft Master Plan articulates “... the alignment of HEC’s mission with its overall physical form, which in turn will result in the expansion of infrastructure; the construction, rehabilitation or demolition of existing facilities; and the improvement of safety and security.” The Plan provides a vision “... to remain a safe and secure campus with resilient infrastructure and energy-efficient, multi-story facilities integrated within the natural environment.” The Draft Master Plan categories future projects and initiatives into four timeframes, including Short Range (0-5 years), Mid-Range (6-15 years), Long Range (16-20 years), and Capacity (21+ years). Projects in the short-, mid-, and long-range categories included in the cumulative impacts scenario generally involve vehicle access and safety improvements, additional parking, pedestrian access improvements and amenities, electrical upgrades, stormwater management improvements, and

building construction and renovations. Nearly 4.8 million SF of usable building space and 4,650 parking spaces, an increase of 1,923 parking spaces from present day is envisioned. Capacity projects are not considered in the cumulative impacts scenario because requirements to increase capacity at HEC beyond the 20-year horizon of the 2019 Draft Master Plan are unknown.

Cumulative Impacts Analysis

Past, present, and future development has affected and would continue to affect the natural, cultural, and social environment at HEC and in the surrounding community. Cumulative effects are described below for those resources analyzed in detail in the EA.

Aesthetic and Visual Resources

The unobtrusive nature of HEC, which has been developed set back from public rights-of-way within a densely forested natural setting, has resulted in minimal visual intrusion to the surrounding community. Within the installation, future development, as envisioned in the 2019 Draft Master Plan, will result in temporary construction-related impacts to the aesthetics of HEC and views within the installation would be impacted to varying degrees depending on the type, size, and complexity of the projects. BMPs would be incorporated during construction of future development projects, including construction of the proposed BOF, to minimize views of the construction site for employees and visitors. Construction of the proposed BOF would not be visible to the public, and except for potential future access improvements, no other future development is likely to be visible. Overall, short-term, direct, minor, adverse, cumulative impacts on aesthetics and visual resources are anticipated, as it is possible that several projects identified in the 2019 Draft Master Plan could occur with overlapping construction schedules and some may be within view of the surrounding community.

In the long-term, implementation of the 2019 Draft Master Plan would continue to require construction through the mid- and long-range implementation timeframes. These impacts would be similar to the short-term impacts described above. However, beneficial impacts are expected as implementation of the 2019 Draft Master Plan, including operation of the proposed BOF, would enhance the aesthetics of the installation through well thought out and coordinated development. Views of HEC from the surrounding community would continue to be obstructed by forest except at the entrance and other possible access locations. Overall, long-term, direct, minor, beneficial impacts on aesthetics and visual resources are anticipated.

Cultural Resources

There are no historic structures on HEC that would be impacted in the short- or long-term by implementation of the 2019 Draft Master Plan, including construction and operation of the proposed BOF. Construction could result in impacts to known and currently undisturbed and undocumented archaeological sites; however, provisions would be followed for unanticipated discoveries specified in the Fort Belvoir Integrated Cultural Resources Management Plan, which covers HEC (Fort Belvoir 2014), should undocumented archaeological deposits or unexpected discoveries of Native American graves, lost historic cemeteries, or human remains be discovered. Over the long-term, erosion control measures and stormwater management practices would be implemented as part of the landscape designs of new facilities to minimize soil erosion and the potential for archaeological resources at HEC to be inadvertently uncovered. Overall, no short- or long-term cumulative impacts to cultural resources are anticipated from implementation of the 2019 Draft Master Plan, including the proposed BOF.

Air Quality

Implementation of the HEC 2019 Draft Master Plan, including the proposed BOF, would result in construction-related air emissions from heavy equipment, worker vehicles, paving off-gas, and fugitive dust in the short- and long-term. Construction of the proposed BOF was determined to be below General Conformity *de minimis* thresholds, as described in Section 3.4.3, resulting in short-term, direct, negligible to minor, adverse impacts on air quality. However, air quality impacts could increase in intensity if construction schedules of several projects overlap during implementation of the 2019 Draft Master Plan. Overall, assuming construction schedules are coordinated to avoid multiple large-scale development projects being constructed concurrently, short-term, direct, minor, adverse, cumulative impacts to air quality are anticipated.

Over the long-term, implementation of the 2019 Draft Master Plan would continue to result in construction-related air quality impacts. In addition, new permanent stationary sources of air emissions, such as heating and cooling units and generators, and vehicle emissions from the increase in employees at HEC, would generate additional emissions and fugitive dust during operations. When combined with other planned projects, the increase in overall vehicle emissions and emissions from heating and cooling units and generators would contribute to long-term, direct, minor, adverse, cumulative impacts on air quality.

Biological Resources

Vegetation. Construction of the proposed BOF would result in negligible impacts to vegetation as the site of the facility is currently a maintained turf grass athletic field. However,

implementation of the 2019 Draft Master Plan will require forest clearing and other vegetation impacts at HEC to accommodate some of the proposed facilities. Overall, short- and long-term, direct, minor, adverse, cumulative impacts to vegetation are anticipated because much of HEC would remain forested and in a natural undisturbed condition.

Wildlife. Construction of the proposed BOF would result in negligible impacts to wildlife as the site of the facility is currently a maintained turf grass athletic field that does not provide valuable wildlife habitat. However, implementation of the 2019 Draft Master Plan will require forest clearing and other vegetation impacts at HEC to accommodate some of the proposed facilities that will reduce the availability of habitat within the installation. Overall, short- and long-term, direct, minor, adverse, cumulative impacts to wildlife are anticipated because much of HEC would remain forested and in a natural undisturbed condition, providing sufficient habitat for wildlife to utilize at the installation.

State and Federally Protected Species. Construction of the proposed BOF would result in negligible impacts as the site of the facility is currently a maintained turf grass athletic field that does not provide suitable habitat for protected species. However, implementation of the 2019 Draft Master Plan will require forest clearing and other vegetation impacts at HEC to accommodate some of the proposed facilities that will reduce the availability of potentially suitable habitat for protected species within the installation. Overall, short- and long-term, direct, minor, adverse, cumulative impacts to protected species are anticipated because much of HEC would remain forested and in a natural undisturbed condition, providing sufficient suitable habitat for protected species to utilize at the installation.

Migratory Birds. Construction of the proposed BOF would result in negligible impacts as the site of the facility is currently a maintained turf grass athletic field that does not provide suitable habitat for migratory birds. However, implementation of the 2019 Draft Master Plan will require forest clearing and other vegetation impacts at HEC to accommodate some of the proposed facilities that will reduce the availability of potentially suitable habitat for migratory birds within the installation. Overall, short- and long-term, direct, minor, adverse, cumulative impacts to migratory are anticipated because much of HEC would remain forested and in a natural undisturbed condition, providing sufficient suitable habitat for migratory birds to utilize at the installation.

Geological Resources

Geology. Construction of the proposed BOF would not impact geology; therefore, there would be no cumulative impacts.

Topography. Implementation of the HEC 2019 Draft Master Plan, including construction of the proposed BOF, would require site grading to prepare development sites and to ensure proper drainage. Short- and long-term, direct, negligible, adverse, cumulative impacts to topography would occur, as grading is expected to result in only slight alterations to topography at HEC.

Soils. Implementation of the HEC 2019 Draft Master Plan, including construction of the proposed BOF, would result in impacts to soils from clearing, grading, and excavations. Construction would also increase the potential for erosion and impact the ability of soils to produce vegetation. However, erosion and sediment controls would be implemented as part of short- and long-term development projects to minimize sediment transport offsite, and topsoil would be used in site landscaping to support healthy vegetation growth. Overall, implementation of the HEC 2019 Draft Master Plan, including the proposed BOF, would likely result in short- and long-term, direct, minor, adverse, cumulative impacts to soils.

Radon. HEC is within a high-risk area for potential radon exposure. Implementation of the HEC 2019 Draft Master Plan, including the proposed BOF, may require mitigation measures for radon that if incorporated into facility designs would be expected to result in long-term, direct, negligible, adverse, cumulative impacts during operations. No cumulative impacts would be expected to occur during construction.

Water Resources

Surface Waters. Construction of the proposed BOF would impact a short length of the intermittent stream at the site of the facility. Implementation of the 2019 Draft Master Plan is likely to impact other small tributaries; however, impacts to Piney Run and Dogue Creek would not occur. Investigations would need to be conducted to determine the location, extent, and classification of streams at HEC where development projects are proposed. Impacts to streams would be avoided and/or minimized to the extent possible, and mitigation would be conducted, if required, to compensate for unavoidable impacts. Additionally, erosion and sediment controls would be used during construction to prevent indirect impacts caused by sediment transport to surface waters outside construction areas. Overall, short- and long-term, direct, minor adverse, cumulative impacts to surface waters are anticipated, as it is assumed avoidance and minimization would ensure that the majority of streams at HEC would remain undisturbed.

Water Quality. Erosion and sediment controls would be implemented during construction of the proposed BOF, and during other development projects in the 2019 Draft Master Plan, to prevent the transport of sediment and other pollutants into nearby waterways. Additionally, stormwater management practices would be incorporated into facility designs to capture and treat

stormwater runoff before it is discharged to receiving waters. Overall, short- and long-term, direct and indirect, minor, adverse, cumulative impacts to water quality are anticipated.

Wetlands. Construction of the proposed BOF would impact a small, approximately 0.02-acre wetland, at the site of the facility. Implementation of the 2019 Draft Master Plan is likely to impact other wetland areas. Investigations would need to be conducted to determine the location, extent, and classification of wetlands at HEC where development projects are proposed. Impacts to wetlands would be avoided and/or minimized to the extent possible, and mitigation would be conducted, if required, to compensate for unavoidable impacts. Additionally, erosion and sediment controls would be used during construction to prevent indirect impacts caused by sediment transport to wetlands outside construction areas. Overall, short- and long-term, direct, minor adverse, cumulative impacts to wetlands are anticipated, as it is assumed avoidance and minimization would ensure that the majority of wetlands at HEC would remain undisturbed.

Floodplains. There would be no short- or long-term adverse impacts to floodplains from construction and operation of the proposed BOF; therefore, there would be no cumulative impacts.

Resource Protection Areas. There would be no short- or long-term impacts to RPAs from construction and operation of the proposed BOF; therefore, there would be no cumulative impacts.

Groundwater. None of the proposed development that would occur as part of the implementation of the HEC 2019 Draft Master Plan, including the proposed BOF, would require withdrawal of groundwater. Stormwater management facilities would be incorporated throughout HEC as development projects are implemented that would promote infiltration of stormwater collected from new impervious areas. Overall, short- and long-term, direct and indirect, negligible, adverse, cumulative impacts to groundwater are anticipated.

Coastal Zone Management. Implementation of the HEC 2019 Draft Master Plan, including the proposed BOF, would be completed in a manner consistent to the maximum extent practicable with enforceable policies of the Virginia Coastal Zone Management Program. Overall, short- and long-term, direct, minor, adverse, cumulative impacts to Virginia's coastal zone would be anticipated.

Solid and Hazardous Materials

There are no known contaminated areas on HEC; however, there are several regulated sites in the vicinity. Implementation of the 2019 HEC Draft Master Plan, including the proposed BOF,

would be expected to result in short-term, negligible, adverse, cumulative impacts from hazardous materials. No cumulative impacts are anticipated over the long-term, as hazardous materials are unlikely to be stored at any of the facilities proposed in the 2019 HEC Draft Master Plan, including at the proposed BOF. Additionally, UXO would be a concern during development projects associated with implementation of the 2019 HEC Draft Master Plan, including the proposed BOF. However, implementation of the necessary precautions and safety standards would result in short-term, negligible, adverse, cumulative impacts from UXO. No long-term cumulative impacts would be anticipated.

Infrastructure, Utilities and Traffic

Electrical. Construction and operation of the proposed BOF, as well as other development projects implemented as part of the 2019 Draft Master Plan, would increase the demand for energy at HEC. However, electrical improvements that are planned by Dominion Energy at HEC in the short-term, and the implementation of the 2019 Draft Master Plan over an approximate 20-year timeframe, would allow Dominion Energy to plan for the increased energy demands. Also, the use of energy efficient systems would minimize the demand for energy at HEC. Overall, short- and long-term, direct, minor, adverse, cumulative impacts on electrical service are anticipated.

Potable Water. Construction and operation of the proposed BOF, as well as other development projects implemented as part of the 2019 Draft Master Plan, would increase the demand for potable water at HEC. However, the implementation of the 2019 Draft Master Plan over an approximate 20-year timeframe, would allow Fairfax Water to plan for the increased demand for potable water. Also, the use of water saving faucets and fixtures would minimize water usage at HEC. Overall, short- and long-term, direct, minor, adverse, cumulative impacts on water service are anticipated.

Sanitary Sewer. Construction and operation of the proposed BOF, as well as other development projects implemented as part of the 2019 Draft Master Plan, would increase the volume of sanitary sewage from HEC. However, the implementation of the 2019 Draft Master Plan over an approximate 20-year timeframe, would allow Fairfax County to plan for the increased volumes to its sanitary sewer system. Also, the use of water saving faucets and fixtures would minimize sanitary sewage from HEC. Overall, short- and long-term, direct, minor, adverse, cumulative impacts on Fairfax County's sanitary sewer system are anticipated.

Stormwater Management. Construction and operation of the proposed BOF, as well as other development projects implemented as part of the 2019 Draft Master Plan, would increase stormwater runoff volumes from HEC due to increases in impervious surface. Additionally,

stormwater management practices would be incorporated into facility designs to capture and treat stormwater runoff before it is discharged to receiving waters. Additionally, erosion and sediment controls would be implemented during construction of development projects at HEC to minimize sediment transport to nearby waterways during ground disturbing activities. Overall, short- and long-term, direct and indirect, minor, adverse, cumulative impacts to on stormwater management are anticipated.

Communications. Construction and operation of the proposed BOF, as well as other development projects implemented as part of the 2019 Draft Master Plan, would increase the demand for communications services at HEC. However, implementation of the 2019 Draft Master Plan over an approximately 20-year timeframe, would allow Verizon, as well as other telecommunications providers, to plan for the increased demands. Overall, short- and long-term, direct, minor, adverse, cumulative impacts on communications services are anticipated.

Natural Gas. Construction and operation of the proposed BOF, as well as other development projects implemented as part of the 2019 Draft Master Plan, would increase the demand for natural gas at HEC. However, implementation of the 2019 Draft Master Plan over an approximate 20-year timeframe, would allow Washington Gas to plan for the increased demand. Also, the use of energy efficient systems would minimize the demand for natural gas at HEC. Overall, short- and long-term, direct, minor, adverse, cumulative impacts on natural gas service are anticipated.

Transportation. Construction and operation of the proposed BOF would result in temporary construction-related impacts to traffic on HEC from deliveries of materials and equipment and the daily commute of construction workers. Implementation of the 2019 Draft Master Plan would result in similar impacts. However, assuming construction schedules are coordinated to avoid multiple large-scale development projects being constructed concurrently, short-term, direct, minor, adverse cumulative impacts are anticipated. There would be no long-term impacts to traffic from operation of the proposed BOF because the employees would be relocated from Building 2596; therefore, there would be no long-term cumulative impacts. The 2019 Draft Master Plan includes several projects, to be implemented over the long-term, to address traffic congestion and vehicle and pedestrian safety as new facilities are constructed and the number of employees at HEC increases.

Land Use

Land Use. Implementation of the HEC 2019 Draft Master Plan, including the proposed BOF, would result in localized land use impacts on HEC. The proposed BOF would be constructed on an athletic field, while development proposed as part of the 2019 Draft Master Plan would convert forested areas and other land uses to facilities to support the USACE and other tenants at HEC.

Even though these changes to land use would occur, there would be no change to the land use designation or zoning code. Implementation of the 2019 Draft Master Plan, including the proposed BOF, would result in short- and long-term, direct, minor, adverse, cumulative impacts to land use.

Land Use Controls. LUCs would be followed during construction of development projects to be completed as part of the 2019 Draft Master Plan implementation, including the proposed BOF. Short-term, direct, negligible, adverse, cumulative impacts would be anticipated as contractor personnel would be educated on the proper response to the LUCs. There would be no impacts over the long-term from operation of the proposed BOF; therefore, there would be no long-term cumulative impacts.

Noise

Implementation of the HEC 2019 Draft Master Plan, including the proposed BOF, would result in temporary noise during construction activities. Noise-related disturbances could increase in intensity if construction schedules of several projects overlap. These disturbances would primarily occur on HEC and would not generally be noticed by the local community. Additionally, employees and visitors at HEC would likely only be affected while outside and near the construction. Overall, assuming construction schedules are coordinated to avoid multiple large-scale development projects being constructed concurrently, short-term, direct, minor, adverse, cumulative impacts from noise are anticipated.

Over the long-term, implementation of the 2019 Draft Master Plan would continue to result in construction-related noise impacts. Operation of new facilities, including the proposed BOF, would generate minimal noise, but increased traffic volumes and truck deliveries would result in long-term, direct, minor, adverse, cumulative impacts from noise.

Community Services

Implementation of the HEC 2019 Draft Master Plan, including construction of the proposed BOF, would place added pressure on emergency response services at Fort Belvoir, and local community resources, including hospitals, schools, and religious institutions. However, Fort Belvoir would have sufficient capacity to provide emergency response services to HEC, and community resources would be expected to have the capacity to accommodate the additional patronage. Overall, short- and long-term, minor, adverse, cumulative impacts are anticipated.

Socioeconomics and Environmental Justice

Socioeconomics. Implementation of the HEC 2019 Draft Master Plan, including the proposed BOF, would place a noticeable burden on the local contractor pool if construction schedules of several projects overlap. However, assuming construction schedules are coordinated to avoid multiple large-scale development projects being constructed concurrently, and the possibility for contractors to support projects through an expanded contractor pool, a short-term, direct, minor, adverse, cumulative impact to socioeconomics is anticipated. The increase in construction workers at HEC would result in short- and long-term, direct, minor, beneficial, cumulative impacts to socioeconomics as construction personal patronize local businesses.

Environmental Justice. There would be no impacts to environmental justice from construction or operation of the proposed BOF; therefore, there would be no cumulative impacts.

5.0 REFERENCES

- Architectural Barriers Act Access Board (ABA), 2008. Accessibility Standard for Department of Defense Facilities. Guide to the ADA and ABA Standards. 31 October 2008.
- Alliance Consulting Group, 2019. *Humphreys Engineering Center 2019 Master Plan Draft*. Contract #W912DR-16-D-0016, prepared for the U.S. Army Corps of Engineers, Baltimore District. May 14, 2019.
- Center for Conservation Biology (CCB), 2020. CCB Mapping Portal. Available online: <https://ccbbirds.org/maps/#eagles>. Accessed May 20, 2020.
- Council on Environmental Quality (CEQ), 1997. Environmental Justice – Guidance Under the National Environmental Policy Act. December 10, 1997.
- Fairfax County Department of Planning and Development (DPD), 2018. *Fairfax County Comprehensive Land Use Plan: Baseline Recommendations*. Prepared June 2012 by DPD; Amended November 2017.
- Fairfax County, 2015. Tree Cover – 2015. Shapefile available online: <https://www.fairfaxcounty.gov/maps/open-geospatial-data>. Accessed September 29, 2020.
- Fairfax County, 2016. Perennial Streams. Shapefile available online: <https://www.fairfaxcounty.gov/maps/open-geospatial-data>. Accessed May 20, 2020.
- Fairfax County, 2018. Soils – 2018. Shapefile available online: <https://www.fairfaxcounty.gov/maps/open-geospatial-data>. Accessed May 20, 2020.
- Fairfax County, 2019. Fairfax 2019 Aerial Photography. Shapefile available online: <https://www.fairfaxcounty.gov/nadar/services>. Accessed May 20, 2020.
- Fairfax County, 2020. Resource Protection Areas. Shapefile available online: <https://www.fairfaxcounty.gov/maps/open-geospatial-data>. Accessed May 20, 2020.
- Fairfax County Department of Public Works and Environmental Services (DPWES), 2011. *Belle Haven, Dogue Creek and Four Mile Run Watershed Management Plan*. Adopted by the Board of Supervisors January 11, 2011.

Fairfax County DPWES, 2020. *Belle Haven, Dogue Creek and Four Mile Run Watersheds*.

Available online:

<https://www.fairfaxcounty.gov/publicworks/stormwater/belle-haven-dogue-creek-and-four-mile-run-watersheds>. Accessed May 16, 2020.

Fairfax County DPWES and Northern Virginia Soil and Water Conservation District (SWCD), 2013. *Description & Interpretive Guide to Soils in Fairfax County*. Published April 2008, Revised August 2011 and May 2013. Fairfax, Virginia 22035.

Fairfax County Division of Environmental Health (DEH), 2020. Radon. Available online: <https://www.fairfaxcounty.gov/health/environment/air/radon>. Accessed May 12, 2020.

Fairfax County Park Authority – Planning and Development Division, 2020. Letter communication from Kirk W. Kincannon, CPRP, Executive Director, dated June 15, 2020.

Fairfax County Zoning Administration Division (ZAD), 2020. The Fairfax County Zoning Ordinance. Available online: <https://www.fairfaxcounty.gov/planning-development/zoning-ordinance>. Accessed May 14, 2020.

Federal Emergency Management Agency (FEMA), 2010, Flood Insurance Rate Map (FIRM) #51059C0385E. Panel 385 of 450. Effective Date September 17, 2010.

FEMA, 2020. FEMA National Flood Hazard Layer. Shapefile available online: <https://hazards.fema.gov/gis/nfhl/services>. Accessed May 20, 2020.

Fort Belvoir, 2018. *Integrated Natural Resources Management Plan*. April 2018.

Humphreys Engineering Center (HEC), 2006. Humphreys Engineering Center Master Plan.

Mixon, R.B, C.R. Bernquist, Jr, W.L. Newell, and G.H. Johnson (Mixon et al.), 1989. *Geologic Map and Generalized Cross Sections of the Coastal Plain and Adjacent Parts of the Piedmont, Virginia*. Department of the Interior U.S. Geological Survey. Prepared in cooperation with the Commonwealth of Virginia, Department of Mine, Minerals, and Energy, Division of Mineral Resources.

National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS), 2020. Letter correspondence from Ms. Karen M. Greene, Mid-Atlantic Field Offices Supervisor, dated June 10, 2020.

NOAA Office for Coastal Management (OCM), 2020. About the National Coastal Zone Management Program. Available online: <https://coast.noaa.gov/czm/about/>. Accessed May 18, 2020.

NoiseHelp, 2020. The Decibel Scale. Available online: <https://www.noisehelp.com/decibel-scale.html>. Accessed 21 May 2020.

Pyramid Environmental & Engineering, 2019. *Geophysical Investigation to Delineate Buried Waste – Proposed BOF Facility Humphreys Engineer Center*. May 24, 2019.

Stantec Consulting Services, Inc. (Stantec), 2019. Design Analyses Concept 30% Design. Battalion Operations Facility Humphreys Engineer Center Alexandria Virginia. Prepared for the U.S. Army Corps of Engineers, Baltimore District. August 1, 2019.

U.S Army Environmental Command (USAEC), 2017. *FY2016 Fort Belvoir Army Defense Environmental Restoration Program Installation Action Plan*. June 2, 2017

USAEC, 2020. Military Munitions Response Program (MMRP). Available online: <https://aec.army.mil/index.php/restore/MMRP>. Accessed May 18, 2020.

U.S. Census Bureau, 2020a. Total Population 2010. Available online: <https://data.census.gov/cedsci/table?q=United%20States>. Accessed May 6, 2020.

U.S. Census Bureau, 2020b. Total Population 2018. Available online: <https://data.census.gov/cedsci/table?q=United%20States>. Accessed May 6, 2020.

U.S. Census Bureau, 2020c. Industry by Sex for the Civilian Employed Population - Virginia. Available online: <https://data.census.gov/cedsci/table?q=United%20States>. Accessed May 15, 2020.

U.S. Census Bureau, 2020d. Comparative Economic Characteristics - Virginia. Available online: <https://data.census.gov/cedsci/table?q=United%20States>. Accessed May 15, 2020.

U.S. Census Bureau, 2020e. Industry by Sex for the Civilian Employed Population – Fairfax County, Virginia. Available online: <https://data.census.gov/cedsci/table?q=United%20States>. Accessed May 15, 2020.

U.S. Census Bureau, 2020f. Comparative Economic Characteristics – Fairfax County, Virginia. Available online: <https://data.census.gov/cedsci/table?q=United%20States>. Accessed May 15, 2020.

- U.S. Census Bureau, 2020g. Race. Available online:
<https://data.census.gov/cedsci/table?q=United%20States>. Accessed May 15, 2020.
- U.S. Census Bureau, 2020h. Hispanic or Latino Origin. Available online:
<https://data.census.gov/cedsci/table?q=United%20States>. Accessed May 15, 2020.
- U.S. Census Bureau, 2020i. Poverty Status in the Past 12 Months. Available online:
<https://data.census.gov/cedsci/table?q=United%20States>. Accessed May 15, 2020.
- U.S. Census Bureau, 2020j. ACS Demographic and Housing Estimates. Available online:
<https://data.census.gov/cedsci/table?q=United%20States>. Accessed May 15, 2020.
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), 2020. Web Soil Survey. Available online:
<https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed May 5, 2020.
- U.S. Army Corps of Engineers (USACE), 2014. Manual No. 385-1-1 Safety and Health Requirements. November 30, 2014.
- USACE, 2019. Unified Facilities Guide Specifications. Section 01 74 19 Construction Waste Management And Disposal. February 2019.
- U.S. Department of the Army, 2019. Decision Document for Demolition Area – USACE TD (FTBL-025-R-01/51105.1066) Munitions Response Site. Revised Draft Final. Fort Belvoir, Va. October 2019.
- U.S. Environmental Protection Agency (EPA), 2009. *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act*. December 2009.
- EPA, 2017a. Frequent Questions about General Conformity. Available online:
<https://www.epa.gov/general-conformity/frequent-questions-about-general-conformity#main-content>. Accessed September 29, 2020.
- EPA, 2017b. Cleanups at Federal Facilities. Available online: <https://www.epa.gov/fedfac/land-use-controls-lucs>. Accessed May 14, 2020.

- EPA, 2018a. Ozone Designations and Classification Information. Available online: <https://www.epa.gov/green-book/ozone-designation-and-classification-information>. Accessed September 29, 2020.
- EPA, 2018b. EJSCREEN: Environmental Justice Screening and Mapping Tool. Available online: <https://ejscreen.epa.gov/mapper/>. Accessed May 15, 2020.
- EPA, 2019a. USEPA. *Air Plan Approval; District of Columbia, Maryland and Virginia; Maryland and Virginia Redesignation Requests and District of Columbia, Maryland, and Virginia Maintenance Plan for Washington, DC-MD-VA 2008 Ozone Standard Nonattainment Area*. Federal Register Vol. 84, No. 72. 15 April 2019.
- EPA, 2019b. Building a New Home, Have You Considered Radon? Available online: <https://www.epa.gov/radon/building-new-home-have-you-considered-radon>. Accessed May 13, 2020.
- EPA, 2019c. Summary of Executive Order 13045 – Protection of Children From Environmental Health Risks and Safety Risks. Available online: <https://www.epa.gov/laws-regulations/summary-executive-order-13045-protection-children-environmental-health-risks-and>. Accessed June 29, 2020.
- EPA, 2020a. NAAQS Table. Available online: <https://www.epa.gov/criteria-air-pollutants/naaqs-table>. Accessed 12 May 2020.
- EPA, 2020b. Current Nonattainment Counties for all Criteria Pollutants. Available online: <https://www3.epa.gov/airquality/greenbook/ancl.html>. Accessed 12 May 2020.
- EPA, 2020c. Overview of Greenhouse Gases”. Available online: <https://www.epa.gov/ghgemissions/overview-greenhouse-gases>. Accessed 12 May 2020.
- EPA, 2020d. NEPAassist. Available online: <https://nepassisttool.epa.gov/nepassist/nepamap.aspx>. Accessed May 18, 2020.
- U.S. Fish and Wildlife Service (USFWS), 2020a. Information for Planning and Conservation (IPaC). Available online: <https://ecos.fws.gov/ipac/>. Accessed May 7, 2020.
- USFWS, 2020b. Birds of Conservation Concern. Available online: <https://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>. Accessed May 14, 2020.

- USFWS, 2020c. National Wetlands Inventory mapper. Available online:
<https://www.fws.gov/wetlands/data/mapper.html>. Accessed May 16, 2020.
- USFWS Environmental Conservation Online System (ECOS), 2020. Northern Long-Eared Bat (*Myotis septentrionalis*). Available online:
<https://ecos.fws.gov/ecp0/profile/speciesProfile?slid=9045>. Accessed May 13, 2020.
- U.S. Geological Survey (USGS), 1997. Ground Water Atlas of the United States – Segment 11: Delaware, Maryland, New Jersey, North Carolina, Pennsylvania, Virginia, West Virginia. Hydrologic Investigations Atlas 730-L. Reston, Virginia. 1997.
- USGS, 2020. National Water Information System: Web Interface. Available online:
https://nwis.waterdata.usgs.gov/va/nwis/uv/?cb_72019=on&format=gif_default&site_no=385638077220101&period=&begin_date=2010-05-11&end_date=2020-05-18. Accessed May 18, 2020.
- Virginia Department of Conservation and Recreation (VADCR), 2020. Appalachian Grizzled Skipper. Available online:
<https://www.vararespecies.org/specie/Pyrgus%20centaureae%20wyandot>. Accessed May 14, 2020.
- VADCR Division of Natural Heritage, 2020b. Letter communication from Mr. Tyler Meader, Natural Heritage Locality Liaison, dated June 18, 2020.
- Virginia Department of Environmental Quality (VADEQ), 2019. Final 2018 305(b)/303(d) Water Quality Assessment Integrated Report. Approved September 16, 2019.
- VADEQ, 2020a. Physiographic Provinces of Virginia. Available online:
<https://www.deq.virginia.gov/Programs/Water/WaterSupplyWaterQuantity/GroundwaterProtectionSteeringCommittee/PhysiographicProvincesofVirginia.aspx>. Accessed May 12, 2020.
- VADEQ, 2020b. Regulations. Available online:
<https://www.deq.virginia.gov/Programs/Water/WetlandsStreams/Regulations.aspx>. Accessed May 16, 2020.
- VADEQ, 2020c. Virginia Pollutant Discharge Elimination System Permit Program. Available online:
<https://www.deq.virginia.gov/Programs/Water/PermittingCompliance/PollutionDischargeElimination.aspx>. Accessed September 16, 2019.
- VADEQ, 2020d. VEGIS. Available online: https://apps.deq.virginia.gov/mapper_ext/. Accessed May 16, 2020.

- VADEQ, 2020e. Chesapeake Bay Preservation Act. Available online:
<https://www.deq.virginia.gov/Programs/Water/ChesapeakeBay/ChesapeakeBayPreservationAct.aspx>. Accessed May 17, 2020.
- VADEQ, 2020f. Federal Consistency Information Package. Available online:
<https://www.deq.virginia.gov/Programs/EnvironmentalImpactReview/FederalConsistencyReviews.aspx>. Accessed May 18, 2020.
- Virginia Department of Health – Office of Drinking Water, 2020. Personal email communication from Ms. Arlene Fields Warren dated June 8, 2020.
- Virginia Department of Transportation (VDOT), 2020. Personal email communication from Cina S. Dabestani, Senior Transportation Engineer, dated June 15, 2020.
- Virginia Fish and Wildlife Information Service (VAFWIS), 2020a. Geographic Search. Virginia Department of Game and Inland Fisheries. Available online:
<https://vafwis.dgif.virginia.gov/fwis/index.asp?Menu=Home.Geographic+Search>. Accessed May 12, 2020.
- VAFWIS, 2020b. Yellow Lance Species Report. Virginia Department of Game and Inland Fisheries. Available online:
https://vafwis.dgif.virginia.gov/fwis/booklet.html?Menu=_.All+Chapters&bova=060029&version=18396. Accessed May 13, 2020.
- VAFWIS, 2020c. Brook Floater Species Report. Virginia Department of Game and Inland Fisheries. Available online:
https://vafwis.dgif.virginia.gov/fwis/NewPages/VaFWIS_booklet_chapters.asp?chapter=14&chapterName=Entire&bova=060006&version=18396&pf=1&ss=1. Accessed May 14, 2020.
- VAFWIS, 2020d. Little Brown Bat Species Report. Virginia Department of Game and Inland Fisheries. Available online:
https://vafwis.dgif.virginia.gov/fwis/booklet.html?Menu=_.All+Chapters&bova=050020&version=18396. Accessed May 14, 2020.
- VAFWIS, 2020e. Tri-colored Bat Species Report. Virginia Department of Game and Inland Fisheries. Available online:
https://vafwis.dgif.virginia.gov/fwis/NewPages/VaFWIS_booklet_chapters.asp?chapter=14&chapterName=Entire&bova=050027&version=18396&pf=1&ss=1. Accessed May 14, 2020.
- VAFWIS, 2020f. Wood Turtle Species Report. Virginia Department of Game and Inland Fisheries. Available online:
https://vafwis.dgif.virginia.gov/fwis/NewPages/VaFWIS_booklet_chapters.asp

?chapter=14&chapterName=Entire&bova=030062&version=18396&pf=1&ss=1. Accessed May 14, 2020.

VAFWIS, 2020g. Peregrine Falcon Species Report. Virginia Department of Game and Inland Fisheries. Available online:
https://vafwis.dgif.virginia.gov/fwis/NewPages/VaFWIS_booklet_chapters.asp?chapter=14&chapterName=Entire&bova=040096&version=18396&pf=1&ss=1
1. Accessed May 14, 2020.

VAFWIS, 2020h. Loggerhead Shrike Species Report. Virginia Department of Game and Inland Fisheries. Available online:
https://vafwis.dgif.virginia.gov/fwis/NewPages/VaFWIS_booklet_chapters.asp?chapter=14&chapterName=Entire&bova=040293&version=18396&pf=1&ss=1
1. Accessed May 14, 2020.

VAFWIS, 2020i. Migrating Loggerhead Shrike Species Report. Virginia Department of Game and Inland Fisheries. Available online:
https://vafwis.dgif.virginia.gov/fwis/NewPages/VaFWIS_booklet_chapters.asp?chapter=14&chapterName=Entire&bova=040292&version=18396&pf=1&ss=1
1. Accessed May 14, 2020.

VAFWIS, 2020j. Henslow's Sparrow Species Report. Virginia Department of Game and Inland Fisheries. Available online:
https://vafwis.dgif.virginia.gov/fwis/NewPages/VaFWIS_booklet_chapters.asp?chapter=14&chapterName=Entire&bova=040379&version=18396&pf=1&ss=1
1. Accessed May 14, 2020

APPENDIX A
SCOPING

Sample Scoping Letter



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
HUMPHREYS ENGINEER CENTER SUPPORT ACTIVITY
7701 TELEGRAPH ROAD
ALEXANDRIA, VA 22315-3860

20 May 2020

Mr. Marcel Acosta
Executive Director
National Capital Planning Commission
401 9th Street NW Suite 500N
Washington, DC 20004

Dear Mr. Acosta:

The U.S. Army Corps of Engineers (USACE) is proposing the construction of a new Battalion Operations Facility (BOF) at Humphreys Engineer Center (HEC) in Alexandria, Virginia. The purpose of the project is to provide a facility that will house battalion and company operations for one battalion of the 1st Capabilities Integration Group to support the administration and operations of the brigade, battalion, and company. The battalion and company are currently located within another building at the HEC that is undersized and poorly configured.

The proposed project includes construction of a 42,800 square foot, three-story BOF building, and a 14,200 square foot storage building on previously disturbed land that is currently an athletic field. The project will also require new electrical, water, gas, sanitary sewer lines; information systems distribution; lighting; parking; curb and gutter; sidewalks; storm drainage; landscaping; and other site improvements.

USACE is preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA). As part of the EA scoping process, USACE is seeking input on issues to be addressed during the NEPA process, including alternatives and environmental concerns. The purpose of this letter is to notify stakeholders of an opportunity to assist the USACE in identifying issues that may occur as a result of the proposed Federal action. NEPA requires that a Federal agency provide the public with an opportunity to participate in the process of analyzing the impact of Federal actions on the human environment.

Concurrently, USACE will initiate consultation under Section 106 of the National Historic Preservation Act, 54 U.S.C. 306108, and, in addition, will partially fulfill the Section 106 public notification and consultation requirements through the NEPA scoping process. USACE will also be consulting with the Virginia Department of Historic Resources and other interested parties to identify historic properties that may potentially be affected by the implementation of the proposed action.

The initial scoping period for the BOF project is open through 19 June 2020. During this time, you are encouraged to provide written comments on the proposed action and identify potential issues or concerns for consideration in the NEPA process.



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
HUMPHREYS ENGINEER CENTER SUPPORT ACTIVITY
7701 TELEGRAPH ROAD
ALEXANDRIA, VA 22315-3860

Comments may be submitted by email or mail as follows:

Email to Mr. Victor H. Stephenson (Victor.H.Stephenson@usace.army.mil) using the subject line "HEC Battalion Operations Facility Scoping".

Mail to (postmarked by 19 June 2020):

Victor H. Stephenson
Humphries Engineer Center Support Activity
7701 Telegraph Road
Alexandria, VA 22315

If you have any questions, please contact Elizabeth Shipley at Elizabeth.A.Shipley@usace.army.mil.

Dale F. Stoutenburgh
Director



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
HUMPHREYS ENGINEER CENTER SUPPORT ACTIVITY
7701 TELEGRAPH ROAD
ALEXANDRIA, VA 22315-3860



Battalion Operations Facility at the Humphreys Engineering Center - Vicinity Map

N

— BOF Limit of Disturbance - - - HEC Boundary

0 1,250 2,500 5,000 Feet

Letters seeking comment on the scope of the the Battalation Operations Facility Environmental Assessment were sent to the following entities:

FEDERAL

The Honorable Mark R. Warner
U.S. Senator
U.S. Senate

The Honorable Tim Kaine
U.S. Senator
U.S. Senate

The Honorable Donald S. Beyer, Jr.
U.S. Congressman
U.S. House of Representatives

Mr. John A. (Jack) Bricker
State Conservationist (Virginia)
U.S. Department of Agriculture

Ms. Kimberly Damon-Randall
Deputy Regional Administrator
National Marine Fisheries Service

Mr. Sean Corson, Director
National Oceanic Atmospheric Association

Ms. Genevieve LaRouche, Project Leader
U.S. Fish and Wildlife Service

Ms. Michaela E. Noble, Director
U.S. Department of Interior

Ms. Carrie Selberg Robinson, Director
National Oceanic Atmospheric Association

Ms. Barbara Rudnick, NEPA Program Manager
U.S. Environmental Protection Agency-Region 3

Mr. Troy M. Anderson
Supervisory Fish & Wildlife Biologist
U.S. Fish and Wildlife Service

Ms. Katry Harris, Training Specialist
Advisory Council on Historic Preservation

Mr. Marcel Acosta, Executive Director
National Capital Planning Commission

COMMONWEALTH OF VIRGINIA

The Honorable Scott A. Surovell
State Senator
Senate of Virginia - District 36

Mr. Paul E. Krizek
State Delegate
Virginia House of Delegates - 44th District

Mr. Ray Fernald, Manager
Virginia Department of Game and Inland
Fisheries

Ms. Bettina Sullivan, Manager
Virginia Department of Environmental Quality

Ms. Laura McKay
Virginia CZM Program Manager
Virginia Department of Environmental Quality

Mr. Marc Holma
Architectural Historian
Virginia Department of Historic Resources

Mr. Rob Farrell
State Forester
Virginia Department of Forestry

Mr. Clyde Cristman, Director
Virginia Department of Conservation and
Recreation

REGIONAL

Mr. Kevin Casalenuovo, Park Manager
Pohick Bay Regional Park
Mr. Greg Weiler
Refuge Manager

Elizabeth Hartwell Mason Neck National
Wildlife Refuge

FAIRFAX COUNTY

The Honorable Jeffrey C. McKay
Chairman, At-Large
Fairfax County Board of Supervisors

Mr. Kirk Kincannon
Executive Director
Fairfax County Park Authority

Supervisor Daniel G. Storck
Fairfax County Board of Supervisors

Mr. Brian Nolan
Planning and Development Director
Northern Virginia Regional Park Authority

Supervisor Rodney L. Lusk
Fairfax County Board of Supervisors

Mr. Ken Quincy
Planning and Development Chairman
Fairfax County Park Authority

Ms. Jill G. Cooper
Executive Director
Fairfax County Planning Commission

Ms. Karen Sheffield, Manager
Huntley Meadows Park

Ms. Barbara Byron, Director
Fairfax County Department of Planning and
Development

Ms. Stella Koch, Chair, At-Large
Fairfax County Office of Environmental and
Energy Coordination

STAKEHOLDERS

Mr. Rick Keller, Chair
Sierra Club

Ms. Mary Rafferty, Executive Director
The Virginia Conservation Network

Chairwoman Katherine Ward, Co-chair
Mount Vernon Council of Citizens' Associations

Ms. Sandy Collins, Primary Conservator
Friends of Accotink Creek

Chairwoman Lynn Pascoe, Co-chair
Mount Vernon Council of Citizens' Associations

Mr. Tom Blackburn, President
Audobon Society of Northern Virginia

Chairman John Ribble, Co-chair
Mount Vernon Council of Citizens' Associations

Ms. Cathy Seybold, President
Hayfield Citizens Association

Scoping Comments

From: Gillespie, Joy [<mailto:Gillespie.Joy@epa.gov>]
Sent: Friday, June 19, 2020 12:05 PM
To: Stephenson, Victor H CIV USARMY CEHEC (USA) <Victor.H.Stephenson@usace.army.mil>
Cc: Rudnick, Barbara <Rudnick.Barbara@epa.gov>
Subject: [Non-DoD Source] HEC Battalion Operations Facility Scoping

Dear Mr. Stephenson:

EPA has reviewed your letter dated May 20, 2020 regarding the proposed project to construct a Battalion Operations Facility (BOF) at the Humphreys Engineer Center (HEC) in Alexandria, Virginia. The purpose of the project is to replace an undersized and poorly configured battalion and company building at the HEC site. The proposed project includes construction of a 42,800 square foot, three-story BOF building, and a 14,200 square foot storage building that will be located on what is currently an athletic field.

We understand that the study is being done in compliance with the National Environmental Policy Act (NEPA) of 1969, and the Council on Environmental Quality regulations implementing NEPA (40 CFR 1500-1508). Please find below recommendations for the scope of analysis for the proposed study.

* The NEPA document should include a clear justification of the underlying purpose and need for the proposed action. The purpose and need statement are important because it helps explain why the proposed action is being undertaken and what objectives the project intends to achieve. The purpose of the proposed action is typically the specific objective of the activity. The need should explain the underlying problem for why the project is necessary. The alternatives are developed in response to the purpose and need.

* Alternatives analysis should include the suite of other activities or solutions that were considered and the rationale for not carrying these alternatives forward for detailed study as well as what is proposed in your letter.

* The document should describe potential impacts to the natural and human environment. Existing resources should be identified, and EPA encourages that adverse impacts to natural resources, especially wetlands and other aquatic resources, be avoided and minimized. There appear to be no wetlands or streams within the study area; however, EPA notes waterways, Dogue Creek and Piney Run, and palustrine wetlands near the study site.

* Some information on resources may be gained from public websites including:

* Watershed Resource Registry1: [Blockedhttps://watershedresourcesregistry.org/states/virginia.html](https://watershedresourcesregistry.org/states/virginia.html)
* NEPAassist2: [Blockedhttps://www.epa.gov/nepa/nepassist](https://www.epa.gov/nepa/nepassist)
* EnviroMapper3: [Blockedhttps://www.epa.gov/waterdata/waters-watershed-assessment-tracking-environmental-results-system](https://www.epa.gov/waterdata/waters-watershed-assessment-tracking-environmental-results-system)
* Envirofacts4: [Blockedhttps://www3.epa.gov/enviro/](https://www3.epa.gov/enviro/)
* 303(d) Listed Impaired Waters: [Blockedhttps://www.epa.gov/exposure-assessment-models/303d-listed-impaired-waters](https://www.epa.gov/exposure-assessment-models/303d-listed-impaired-waters)

* Stormwater ponds, best management practices (BMPs) and construction staging areas should not be placed in wetlands and streams. Stormwater management alternatives that address the existing and new construction should be considered and are encouraged.

* We recommend the EA outline measures that will be taken to protect surface waters, including erosion and sedimentation control practices during construction and post-construction management and treatment of stormwater. It would be helpful to discuss how the proposed stormwater management facilities protect water quality by addressing pollutants such as runoff from impervious surface (including thermal impacts, heavy metals and petroleum/oils) and landscape pollutants (such as fertilizers, pesticides, bacteria, and sediment) from entering surface waters.

* To reduce post construction runoff volume and improve water quality, EPA recommends the incorporation of Low Impact Development (LID) design features where possible, for building design, parking, paving, landscaping, and stormwater management. Technical guidance in implementing green infrastructure (GI) practices and LID can be found at the following sites:

Blocked<https://19january2017snapshot.epa.gov/sites/production/files/2015-09/documents/eisa-438.pdf>

Blockedwww.epa.gov/greeninfrastructure

Blockedwww.epa.gov/nps/lid

Blockedwww.epa.gov/smartgrowth

Blocked<http://www.bmpdatabase.org>

* We recommend minimizing the impacts of large roof areas where possible; for example, water collection and storage from roof areas can reduce runoff and facility water use. Green roof installation could also reduce stormwater runoff, provide a building amenity, and reduce visual impacts from the facility. Additionally, measures such as roof-installation of solar panels could generate energy for the facility, reducing dependency on the local utilities and reducing long-term energy costs.

* We recommend consideration of options to reduce impact and incorporate energy efficient features in the buildings. Please consider recommendations such as those included in the LEED (Leadership in Energy and Environmental Design) Green Building Rating System. LEED is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings.

* We also recommend the document include consideration of extreme weather events in association with resiliency design.

* EPA recommends consideration of any impacts to recreational activities that may be affected by the proposed activities associated with the project study area.

* An evaluation of air quality and community impacts, including noise, light and possible traffic impacts, and impact to viewshed, should be included in the document. General conformity status should also be included in the document. It appears that the study area is within nonattainment for ozone 8-hour (2015 standard).

* Due to the close proximity to a school(s), Executive Order 13405 Protection of Children's Health EO should be considered.

* The NEPA document should also include an analysis of any hazardous sites or materials, and the status of any ongoing or past remediation efforts in the project area. This includes any groundwater contamination.

* We recommend the consultation with the State Historic Preservation Office (SHPO) be included in the EA. The EA should identify whether adverse impacts to historic resources may occur from the proposed activities and identify mitigative measures that may be taken to avoid or reduce such impacts.

* The document should address potential indirect and cumulative effects in the project areas; analysis may aid in the identification of resources that are likely to be adversely affected by multiple projects, and sensitive resources that could require additional avoidance or mitigation measures. It is suggested that a secondary and cumulative effects analysis begin with defining the geographic and temporal limits of the study; this is generally broader than the study area of the project. The cumulative impact analysis should evaluate impacts to environmental resources that have the potential to be impacted by the project (i.e. wetlands, surface water, etc).

* We suggest an indirect effects discussion on the fate to the building being replaced. Will it be razed or used for another purpose? Describe the potential impacts to the community and resources in the area as a result of this activity and how any negative impacts will be mitigated or addressed.

* We suggest, as appropriate, that the EA include a discussion of whether any Environmental Justice (EJ) communities may be affected by the project, whether those impacts are disproportionate, and whether any outreach efforts should be tailored to potential communities of concern. Please consider application of a tool developed by EPA to help users to identify areas with EJ populations:

Blocked<https://www.epa.gov/ejscreen>.

* Please consider public outreach and participation as the project moves forward.

Thank you for coordinating with EPA on this project. We look forward to working with you as more information becomes available. Please let me know if you have any questions on the recommended topics above.

Joy

Joy M. Gillespie, Life Scientist
office: 215.814.2793
Office of Communities, Tribes & Environmental Assessment
National Environmental Policy Act (NEPA) U.S. EPA Region III
1650 Arch Street (3RA12)
Philadelphia, PA 19103
Blockedwww.epa.gov

1: Watershed Resource Registry is an interactive online mapping tool that prioritizes areas for preservation and restoration of wetlands, riparian zones, terrestrial areas, and stormwater management control across an entire state. The tool is helpful for a wide variety of purposes but is especially useful for developers, natural resource planners, transportation planners, and others who are required to avoid impacting natural areas or to provide mitigation for any unavoidable impact.

2: NEPAssist is a tool that facilitates the environmental review process and project planning in relation to environmental considerations. The web-based application draws environmental data dynamically from EPA Geographic Information System databases and web services and provides immediate screening of environmental assessment indicators for a user-defined area of interest. These features contribute to a streamlined review process that potentially raises important environmental issues at the earlier stages of project development

3: The Watershed Assessment, Tracking & Environmental Results System (WATERS) unites water quality information previously available only from several independent and unconnected databases

4: Includes enforcement and compliance information

CLASSIFICATION: UNCLASSIFIED



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930-2276

June 10, 2020

Mr. Victor H. Stephenson
US Army Corp of Engineers
Humphreys Engineer Center Support Activity
7701 Telegraph Road
Alexandria, Virginia, 22315

Re: Humphreys Engineer Center, Battalion Operations Facility Scoping

Dear Mr. Stephenson:

Thank you for your recent letter requesting we identify environmental concerns under our purview that may be affected by the proposed construction of a new Battalion Operations Facility (BOF) at Humphreys Engineer Center, Alexandria, Virginia. Our comments are solicited under the National Environmental Policy Act (NEPA) to further assist in developing the scope of the environmental analysis (EA) being prepared for the project.

The proposed 14,200 sq. ft., 3-story BOF will be constructed on a vacant parcel of land currently used as an athletic field. Associated infrastructure will include the construction of parking areas, sidewalks, sanitary sewer, utilities including water, electric and gas, curb and gutter, and stormwater management areas.

Although we do not anticipate the presence of NOAA trust resources on-site, Piney Run extends onto Humphreys Engineering Center in the general project area. Piney Run drains to the Potomac River which is designated as essential fish habitat (EFH) for eight federally managed species including little skate (*Leucoraja erinacea*), Atlantic herring (*Clupea harengus*), red hake (*Urophycis chuss*), winter skate (*Leucoraja ocellata*), clearnose skate (*Raja eglanteria*), windowpane flounder (*Scophthalmus aquosus*), bluefish (*Pomatomus saltatrix*), and summer flounder (*Paralichthys dentatus*). Also, the Potomac River is designated an anadromous fish use area by the Virginia Department of Game and Inland Fisheries (VDGIF). Strict adherence to erosion and sediment control measures should be maintained throughout construction to prevent chemical pollutants (oil, grease, gas), nutrients and sediment from entering Piney Run, adversely affecting downstream water quality and EFH.

Thank you for the opportunity to review and comment on the proposed construction of the Battalion Operations Facility at Humphreys Engineering Center Alexandria, Virginia. If impacts to Piney Run or the aquatic resources of the Potomac River are anticipated, please contact



Mr. David L. O'Brien in our Virginia Field Office (david.l.obrien@noaa.gov, 804-684-7828) to further discuss the project and consultation requirements under the Magnuson-Stevens Fishery Conservation and Management Act and Fish and Wildlife Coordination Act.

Sincerely,

Karen M. Greene
Mid-Atlantic Field Offices Supervisor

cc: E. Shipley, Corps of Engineers

Matthew J. Strickler
Secretary of Natural Resources

Clyde E. Cristman
Director



COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

Rochelle Altholz
*Deputy Director of
Administration and Finance*

Russell W. Baxter
*Deputy Director of
Dam Safety & Floodplain
Management and Soil & Water
Conservation*

Thomas L. Smith
Deputy Director of Operations

June 18, 2020

Victor Stephenson
Humphreys Engineer Center Support Activity
7701 Telegraph Road
Alexandria, VA 22315

Re: HEC New Battalion Operations Facility

Dear Mr. Stephenson:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in Biotics, natural heritage resources have not been documented within the submitted project boundary including a 100 foot buffer. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources. In addition, the project boundary does not intersect any of the predictive models identifying potential habitat for natural heritage resources.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dgif.virginia.gov.

Should you have any questions or concerns, please contact me at 804-225-2429. Thank you for the opportunity to comment on this project.

600 East Main Street, 24th Floor | Richmond, Virginia 23219 | 804-786-6124

*State Parks • Soil and Water Conservation • Outdoor Recreation Planning
Natural Heritage • Dam Safety and Floodplain Management • Land Conservation*

Sincerely,

A handwritten signature in cursive script that reads "Tyler Meader".

Tyler Meader
Natural Heritage Locality Liaison

From: Dabestani, Cina [<mailto:cina.dabestani@vdot.virginia.gov>]
Sent: Monday, June 15, 2020 3:33 PM
To: Stephenson, Victor H CIV USARMY CEHEC (USA) <Victor.H.Stephenson@usace.army.mil>; rr
Environmental Impact Review <eir@deq.virginia.gov>; rr EIR Coordination
<eir.coordination@vdot.virginia.gov>; Trivedi, Rahul <rahul.trivedi@vdot.virginia.gov>
Subject: [Non-DoD Source] HEC New Battalion Operations Facility

Mr. Stephenson-

Thank you for the opportunity to review and comment on the subject project. After careful review, VDOT-
NoVa District has no comment to offer.

--

Thank you,

Cina S. Dabestani

Sr. Transportation Engineer

Transportation Planning

Virginia Department of Transportation

703 . 259 . 2991

Cina.Dabestani@VDOT.Virginia.GOV <<mailto:Cina.Dabestani@VDOT.Virginia.GOV>>

P Please consider the environment before printing this email

CLASSIFICATION: UNCLASSIFIED



FAIRFAX COUNTY PARK AUTHORITY



12055 Government Center Parkway, Suite 927 • Fairfax, VA 22035-5500
703-324-8700 • Fax: 703-324-3974 • www.fairfaxcounty.gov/parks

June 15, 2020

Victor H. Stephenson
Humphreys Engineer Center Support Activity
7701 Telegraph Road
Alexandria, Virginia 22315
Victor.H.Stephenson@usace.army.mil

Subject: Environmental Assessment (EA) Scoping Review of the Humphreys
Engineer Center (HEC) Battalion Operations Facility (BOF)

Dear Mr. Stephenson,

Thank you for the opportunity to review the Environmental Assessment (EA) Scoping documents for the Humphreys Engineer Center (HEC) Battalion Operations Facility (BOF). The Fairfax County Park Authority has reviewed the documents pertaining to the above-mentioned project and staff provides the following comments:

The project site was subject to cultural resources review which indicated that the proposed site for the BOF has been previously developed and then demolished. Therefore, no archaeological work is warranted since it is unlikely to contain any intact cultural resources. Since the provided documents indicate that the Virginia State Historic Preservation Officer (SHPO) will be consulted under Section 106 of the National Historic Preservation Act, the Park Authority has no additional comments.

If you have any questions related to the Park Authority's comments on this project, please contact Andy Galusha, Landscape Architect / Park Planner, at agalus@fairfaxcounty.gov.

Sincerely,

Kirk W. Kincannon via Andy Galusha, Deputy Director

Kirk W. Kincannon, CPRP
Executive Director



Victor H. Stephenson

Final Description of the Proposed Action and Alternatives Addressing Proposed Construction of the Training Support Facility at Humphreys Engineer Center, Alexandria, Virginia

Page 2

eCopy: Dale F. Stoutenburgh, Director, U.S. Army Corps of Engineers, Ft. Belvoir
Ken Quincy, Vice Chairman, Fairfax County Park Authority Board
Aimee L. Vosper, Deputy Director/CBD
Karen Sheffield, Manager, Huntley Meadows Park
David R. Bowden, P.E., Director, Planning and Development Division (PDD)
Anna Bentley, Manager, Park Planning Branch, PDD
Andrea L. Dorlester, Development Review Section Chief, Park Planning Branch, PDD
Liz Crowell, Manager, Archaeology and Collections Branch
Andy Galusha, Landscape Architect, Park Planning Branch, PDD
Lynne Johnson, Planning Tech, Park Planning Branch, PDD
Denise James, Chief, Environment and Development Review Branch, Planning Division,
Department of Planning and Development (DPD)
Joseph Gorney, Environmental Planner, Environment and Development Review Branch,
Planning Division, DPD
Katherine Hermann, Environmental Planner, Environment and Development Review
Branch, Planning Division, DPD
File Copy

Victor H. Stephenson

Final Description of the Proposed Action and Alternatives Addressing Proposed Construction of the Training Support Facility at Humphreys Engineer Center, Alexandria, Virginia

Page 3

\\s1b204\Planning\Park Planning\Development Plan Review\Environmental Impact Reviews\EA-Fort Belvoir HEC Battallion Operations Facility\EA-FortBelvoirHEC-BOF_Scoping-FCPA.docx

**FAIRFAX COUNTY PARK AUTHORITY - PLANNING AND DEVELOPMENT DIVISION
INTERNAL ROUTING SLIP**

TO: (if you are routing to more than one person for review/signature, please put a number next to the person's name.)

ADMIN BRANCH

- 3 Bowden, David -Director**
- ___ Bahrami, Malak, Asset/TCO Manager
- ___ Chu Mason, Cordelia, Man. Analyst
- ___ Atkinson, Will, BA III
- ___ Rudd, Kevin
- ___ Hartman, Carolyn

PROJECT MANAGEMENT BRANCH

- ___ **Paul Shirey, PMB-Manager**
- ___ Lehman, John
- ___ **Emory, Melissa, Manager**
- ___ Davis, Kelly
- ___ Mahboob, Mohammad
- ___ Rosend, Pat
- ___ Villarroel, Isabel

- ___ **Kadasi, Mohamed, Manager-Site**
- ___ Govender, Som
- ___ Li, Wendy
- ___ **McFarland, Tom, Trails**
- ___ Deleon, Ed
- ___ Linderman, Amy

- ___ **Miller, Andrew, Manager-Building**
- ___ Inman, Eric
- ___ Lynch, Heather
- ___ Maislin, Valerie

- ___ **Snyder, Keith, Manager-Energy**
- ___ Majidian, Davood

PARK PLANNING BRANCH

- 2✓ Bentley, Anna, Manager**
- 1✓ Dorlester, Andrea**
- ___ Agatone, Fariss
- ___ Cameron, Melissa
- ___ DeLuca, Andrew
- ___ Galusha, Andy
- ___ Kim, Jasmin
- ___ Iannetta, Beth
- ___ Johnson, Lynne
- ___ Roberson, Justin
- ___ Stewart, Ryan
- ___ Tipsword, Doug
- ___ Wangsgard, Samantha
- ___ Wynn, Adam

REAL ESTATE SERVICES BRANCH

- ___ Brownson, Yudhie
- ___ Burdick, Alex
- ___ Finks, Laura
- ___ Garcia, Paul
- ___ Grimsland, Donna
- ___ Kimbrell, Jeff
- ___ McNeal, Cindy
- ___ Meadows, Michelle

WRITE IN NAMES/Intern Names

aw
aw

AGENCY DIRECTOR OFFICE

- 5** Kirk Kincannon, Executive Director
- Sara Baldwin, Deputy Director/COO
- Aimee L. Vosper Deputy Director/CBD
- Barbara Gorski, Administrative Assistant
- Write in name: _____

OTHER DIVISIONS

- ___ _____, Division Director, Park Operations
- ___ Cindy Walsh, Division Director, Park Services
- ___ John Burke, Division Director, Resources Management
- ___ Bobbie Longworth, Executive Director, Park Foundation
- ___ Todd Johnson, Manager, Golf Enterprises
- ___ _____ Senior Fiscal Administrator, Financial Management
- ___ Mike Baird, Management Analyst, Financial Management and Acting Manager of Purchasing
- ___ Nicole Varnes, Revenue Team Manager, FMB
- ___ Shashi Dua, Financial Specialist IV (Financial Reporting & Fixed Assets Team), FMB
- ___ Mary Youngs, Human Capital

Write in name _____

ADMIN. ASST. PROCESSING OF DOCUMENTS

1. ___ PDD Director signature needed and return documents to me to handle
2. ___ Take PDD Director signed documents upstairs to the Director's office

Note: Documents like Purchase Orders and Contract Change Orders, etc. should be hand carried upstairs by you. See: <P:\Administration\New Employee PDD Information\Other Documents\DOCUMENT ROUTING PROCEDURES.docx>

Author Name Printed: Andy Galusha

Date: 6/15/2020

File Path & Notes:

\\s51b204\Planning\Park Planning\Development Plan Review\Environmental Impact Reviews\EA-Fort Belvoir HEC Battallion Operations Facility

Signed letter is due via email to Fort Belvior on 6/19.



The Mount Vernon Council of Citizens Associations, Inc.

P.O. Box 203, Mount Vernon, VA 22121-9998

<http://www.mvcca.org>

Victor H. Stephenson
Humphries Engineering Center Support Activity
7701 Telegraph Road
Alexandria, VA 22315

June 10, 2020

Reference: USACE 20 May 2020 letter - Battalion Operations Facility (BOF) at HEC Scoping

Dear Mr. Stephenson,

Thank you for giving the Mount Vernon Council of Citizens Associations (MVCCA) an opportunity to provide comments regarding the construction of the new Battalion Operations Facility (BOF) and associated storage facility on the Humphries Engineering Center, Ft Belvoir.

Environmental protection of the Dogue and Piney Run Creeks, the surrounding communities and forested areas is paramount. In that regard we want to make sure that the design and construction of the new buildings, parking lots and any other structures or infrastructure, including any new or widened roadways, related to the new BOF are in keeping with all best practices for retention /mitigation of stormwater run-off as well as for the reduction of light and noise pollution. Furthermore, we want to ensure that the buildings are wildlife/bird friendly by avoiding the use of glare and reflective exterior materials.

Ample installation of native trees, grasses and other plantings is also essential to ensure that this facility and its parking lots are environmentally friendly and compatible with the surrounding neighborhoods.

We look forward to working with you as you move forward with this project.

Katherine Ward

Katherine Ward
Cochair
MVCCA

APPENDIX B
SECTION 106 CONSULTATION



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
HUMPHREYS ENGINEER CENTER SUPPORT ACTIVITY
7701 TELEGRAPH ROAD
ALEXANDRIA, VA 22315-3860

20 May 2020

Julie Langan
State Historic Preservation Officer
Office of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

Re: Proposed Battalion Operations Facility at the Humphreys Engineer Center, Alexandria, Virginia

Dear Ms. Langan:

The U.S. Army Corps of Engineers (USACE) would like to initiate formal Section 106 consultation with your office in accordance with Section 36 CFR § 800.3 of the Advisory Council on Historic Preservation's regulations implementing Section 106.

USACE is proposing the construction of a new Battalion Operations Facility (BOF) at Humphreys Engineer Center (HEC) in Alexandria, Virginia. The purpose of the project is to provide a facility that will house battalion and company operations for one battalion of the 1st Capabilities Integration Group to support the administration and operations of the brigade, battalion, and company. The battalion and company are currently located within another building at the HEC that is undersized and poorly configured for their needs.

The proposed project includes construction of a 42,800 square foot, three-story BOF building, and a 14,200 square foot storage building on previously disturbed land that is currently an athletic field. The project will also require new electrical, water, gas, sanitary sewer lines; information systems distribution; lighting; parking; curb and gutter; sidewalks; storm drainage; landscaping; and other site improvements.

The Area of Potential Effect (APE) for this undertaking includes the boundaries for ground disturbance for the project and the view sheds north toward Building 2594 (the Casey Building), west toward Building 2593 (the Kingman Building), and south toward Building 3596 (the Hall Building). No architectural resources are located within the APE. The closest architectural resource, # 029-5914, a mid-twentieth century house, is located at 7912 Telegraph Road, approximately 0.8 miles to the west of the proposed BOF site. This resource was evaluated and was recommended Not Eligible for listing in the National Register of Historic Places (NRHP).

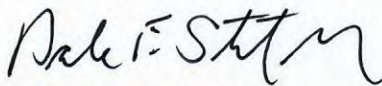
No archaeological sites have been identified by the Virginia Department of Historic Resources (VDHR) within the APE (Attachment 1). The nearest archaeological site, 44FX0670 – a historic,

isolated find, is approximately 0.2 miles north of the proposed BOF site. This site was determined not eligible for listing in the NRHP by VDHR (Enclosure 2). Site 44FX0739, the Tripplett Homestead & Cemetery, is approximately 0.25 miles northwest of the BOF site. This site has not been evaluated for eligibility in the NRHP.

No known cultural or historic sites would be impacted by this undertaking. All areas within the undertakings limits of disturbance have been previously disturbed by construction of utilities, construction and subsequent demolition of a building located near the site of the undertaking, and construction of the existing athletic field. Should archaeological artifacts or features be encountered during construction, all construction activities in the immediate vicinity of the discovery would stop and VDHR would be contacted immediately to determine appropriate treatment.

Pursuant to Section 106 of the National Historic Preservation Act, 36 Code of Federal Regulations § 800, we request your participation and comments on the proposed undertaking.

Please provide written comments within 30 days from the date of this letter to Mr. Victor H. Stephenson, Humphreys Engineer Center Support Activity, 7701 Telegraph Road, Alexandria, Virginia 22315. If you need further information, please contact Mr. Stephenson at victor.h.stephenson@usace.army.mil.



Dale F. Stoutenburgh
Director



N



Battalion Operations Facility at the Humphreys Engineering Center - Vicinity Map

— BOF Limit of Disturbance - - - HEC Boundary

0 1,250 2,500 5,000 Feet



Sample Tribal Letter



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
HUMPHREYS ENGINEER CENTER SUPPORT ACTIVITY
7701 TELEGRAPH ROAD
ALEXANDRIA, VA 22315-3860

20 May 2020

Chief Frank Adams
Upper Mattaponi Tribe
P.O. Box 184
King William, VA 23086

Re: Proposed Battalion Operations Facility at the Humphreys Engineer Center, Alexandria, Virginia

Dear Chief Adams,

The U.S. Army Corps of Engineers (USACE), in accordance with Section 36 CFR § 800.3 of the Advisory Council on Historic Preservation's regulations implementing Section 106, and Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, is requesting your participation and comments on the proposed construction of a Battalion Operations Facility (BOF) at Humphreys Engineer Center (HEC) in Alexandria, Virginia.

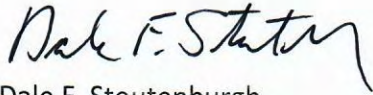
The purpose of the proposed project is to provide a facility that will house battalion and company operations for one battalion of the 1st Capabilities Integration Group to support the administration and operations of the brigade, battalion, and company. The battalion and company are currently located within another building at the HEC that is undersized and poorly configured for their needs.

The proposed project includes construction of a 42,800 square foot, three-story BOF building, and a 14,200 square foot storage building on previously disturbed land that is currently an athletic field. The project will also require new electrical, water, gas, sanitary sewer lines; information systems distribution; lighting; parking; curb and gutter; sidewalks; storm drainage; landscaping; and other site improvements.

No known cultural or historic sites would be impacted by this undertaking. All areas within the undertakings limits of disturbance have been previously disturbed by construction of utilities, construction and subsequent demolition of building located near the site of the undertaking, and construction of the existing athletic field. Should archaeological artifacts or features be encountered during construction, all construction activities in the immediate vicinity of the discovery would stop and VDHR would be contacted immediately to determine appropriate treatment.

Please provide written comments within 30 days from the date of this letter to Mr. Victor H. Stephenson, Humphreys Engineer Center Support Activity, 7701 Telegraph Road, Alexandria, Virginia 22315.



If you need further information, please contact Mr. Stephenson at victor.h.stephenson@usace.army.mil.

A handwritten signature in black ink, appearing to read "Dale F. Stoutenburgh". The signature is fluid and cursive, with a prominent initial "D" and a long, sweeping tail.

Dale F. Stoutenburgh
Director



Battalion Operations Facility at the Humphreys Engineering Center - Vicinity Map


— BOF Limit of Disturbance
 HEC Boundary
0 1,250 2,500 5,000 Feet

Letters seeking comment on the scope and cultural resource issues associated with the Battalion Operations Facility were sent to the following tribal groups:

TRIBAL

Chief Leo Henry
Tuscarora Nation of New York

Chief Gerald A. Stewart
Chickahominy Indians Easter Division

Chief Joe Bunch
United Keetowah Band of Cherokee Indians in
Oklahoma

Chief W. Frank Adams
Upper Mattaponi Indian Tribe

Chief William Harris
Catawba Indian Nation

Tribal Chief Kenneth Branham
Monacan Indian Nation

Chief Richard Sneed
Principal Chief
Eastern Band of Cherokee Indians

Chief G. Anne Richardson
Rappahannock Tribe

Mr. Terry Clouthier
Cultural Resource Director
Pamunkey Indian Tribe

Chief Samuel Bass
Nansemond Indian Tribe

Chief Stephen R. Adkins
Chickahominy Indian Tribe



COMMONWEALTH of VIRGINIA

Department of Historic Resources

2801 Kensington Avenue, Richmond, Virginia 23221

Matt Strickler
Secretary of Natural Resources

Julie V. Langan
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
www.dhr.virginia.gov

June 12, 2020

Mr. Victor H. Stephenson
U.S. Army Corps of Engineers
Humphrey Engineer Center Support Activity
7701 Telegraph Road
Alexandria, Virginia 22315

Re: Proposed Battalion Operations Facility at the Humphreys Engineer Center
Alexandria, Virginia
DHR File No. 2020-0421

Dear Mr. Stephenson:

The Department of Historic Resources (DHR) has received the Proposed Battalion Operations Facility at the Humphreys Engineer Center project (DHR File No. 2020-0421) for our review and comment. Our comments are provided to the U.S Army Corps of Engineers (Corps) as assistance in meeting its responsibilities under Section 106 of the National Historic Preservation Act. It is our understanding that the undertaking involves the construction of a 42,800 square foot Battalions Operations facility and a 14,200 square foot storage facility as well as associated infrastructure and site improvements.

DHR concurs with the Corps' determination that there are no historic resources within the Area of Potential Effects (APE) for this project. Based on the information provided, it is DHR's opinion that no historic properties will be affected by the proposed undertaking. Implementation of the undertaking in accordance with the finding of *No historic properties affected* as documented fulfills the federal agency's responsibilities under Section 106 of the National Historic Preservation Act. If for any reason the undertaking is not or cannot be conducted as proposed in the finding, consultation under Section 106 must be reopened.

Thank you for your consideration of historic resources. Please contact me at samantha.henderson@dhr.virginia.gov or (804) 482-6088 if you have any questions or if we may provide any further assistance.

Sincerely,

A handwritten signature in blue ink, appearing to read "Sam Henderson".

Samantha Henderson, Archaeologist
Review and Compliance Division

Eastern Region Office
2801 Kensington Avenue
Richmond, VA 23221
Tel: (804) 367-2323
Fax: (804) 367-2391

Western Region Office
962 Kime Lane
Salem, VA 24153
Tel: (540) 387-5443
Fax: (540) 387-5446

Northern Region Office
5357 Main Street
PO Box 519
Stephens City, VA 22655
Tel: (540) 868-7029
Fax: (540) 868-7033



COMMONWEALTH of VIRGINIA

Department of Historic Resources

Matt Strickler
Secretary of Natural Resources

2801 Kensington Avenue, Richmond, Virginia 23221

Julie V. Langan
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
www.dhr.virginia.gov

MEMORANDUM

DATE: 16 June 2020 **DHR File #** 2020-0381

TO: Mr. Dale F. Stoutenburgh
ARMY

FROM: Marc E. Holma, Architectural Historian (804) 482-6090
Office of Review and Compliance

PROJECT: Proposed construction of a new Battalion Operations Facility (BOF) at Humphrey's Engineering Center, City of Alexandria

___ This project will have an effect on historic resources. Based on the information provided, the effect will not be adverse.

___ This project will have an adverse effect on historic properties. Further consultation with DHR is needed under Section 106 of the NHPA.

___ Additional information is needed before we will be able to determine the effect of the project on historic resources. **Please see below.**

No further identification efforts are warranted. No historic properties will be affected by the project. Should unidentified historic properties be discovered during implementation of the project, please notify DHR.

___ We have previously reviewed this project. Attached is a copy of our correspondence.

___ Other (Please see comments below)

COMMENTS:

Administrative Services
10 Courthouse Ave.
Petersburg, VA 23803
Tel: (804) 862-6408
Fax: (804) 862-6196

Eastern Region Office
2801 Kensington Avenue
Richmond, VA 23221
Tel: (804) 367-2323
Fax: (804) 367-2391

Western Region Office
962 Kime Lane
Salem, VA 24153
Tel: (540) 387-5443
Fax: (540) 387-5446

Northern Region Office
5357 Main Street
PO Box 519
Stephens City, VA 22655
Tel: (540) 868-7029
Fax: (540) 868-7033



PAMUNKEY INDIAN TRIBE

Terry Clouthier
Cultural Resource
Director

TRIBAL GOVERNMENT
Tribal Office

1054 Pocahontas Trail
King William, VA 23086

(804) 843-2109
FAX (866) 422-3387

THPO File Number: 2020 – 261

Date: 06/22/2020

Dale F. Stoutenburgh
Director
Department of the Army
U.S. Army Corps of Engineers
Humphreys Engineer Center Support Activity
7701 Telegraph Road
Alexandria, VA 22315-3860

**RE: Proposed Battalion Operations Facility at the Humphreys Engineer Center,
Alexandria, Virginia**

Dear Mr. Stoutenburgh,

Thank you for contacting the Pamunkey Indian Tribe regarding the undertaking to construct a 42,800 square foot, three-story BOF building, and a 14,200 square foot storage building at Humphreys Engineer Center in Alexandria, Virginia. My office offers the following comments regarding the undertaking.

Due to the existing development of the athletic field and the related limited potential to impact sites of significance to the Tribe due to the prior disturbance associated with the existing development, my office does not wish to remain a consulting party for the remainder of the undertaking.

Should any human remains or cultural or historic properties be inadvertently discovered during this undertaking, please cease all operations and contact our office immediately to re-initiate consultation.

Thank you for considering our cultural heritage in your decision-making process.

If you have any questions feel free to email me at terry.clouthier@pamunkey.org.

Sincerely,



MONACAN INDIAN NATION

5/27/2020

USACE

Victor Stephenson

Humphreys Engineering Support Activity

7701 Telegraph Road

Alexandria, VA 22315

RE: Request for Consulting Party Status on HEC Battalion Operations Center

Dear Mr. Stephenson,

Thank you for contacting us regarding the proposed project in Alexandria, VA.

The Monacan Indian Nation is a federally recognized sovereign tribe, headquartered on Bear Mountain in Amherst County. Citizens of the Nation are descended from Virginia and North Carolina Eastern Siouan cultural and linguistic groups, and our ancestral territory includes Virginia west of the fall line of the rivers, sections of southeastern West Virginia, and portions of northern North Carolina. At this time, the active Monacan consultation areas include:

Virginia: Albemarle, Alleghany, Amherst, Appomattox, Augusta, Bath, Bedford, Bland, Buchanan, Buckingham, Campbell, Carroll, Charlotte, Clarke, Craig, Culpepper, Cumberland, Dickenson, Floyd, Fluvanna, Franklin, Frederick, Giles, Goochland, Grayson, Greene, Halifax, Henry, Highland, Lee, Loudoun, Louisa, Madison, Mecklenburg, Montgomery, Nelson, Orange, Page, Patrick, Pittsylvania, Powhatan, Prince Edward, Pulaski, Rappahannock, Roanoke, Rockbridge, Rockingham, Russell, Scott, Shenandoah, Smyth, Tazewell, Warren, Washington, Wise, and Wythe Counties, and all contiguous cities.

West Virginia: Greenbrier, Mercer, Monroe, Pendleton, Pocahontas, and Summers Counties.

North Carolina: Alamance, Caswell, Granville, Orange, Person, Rockingham, Vance, and Warren Counties.

At this time, the Nation does not wish to actively participate in this consultation project, because:

X	This project is outside our ancestral territory
	The project's impacts are anticipated to be minimal
	The project is more closely related to _____, which should be contacted to participate in consultation
	The tribal office does not currently have the capacity to participate in this project
	Other:



MONACAN INDIAN NATION

However, the Nation requests to be contacted if:

- Sites associated with native history may be impacted by this project;
- Adverse effects associated with this project are identified;
- Human remains are encountered during this project;
- Unanticipated native cultural remains are encountered during this project;
- Other tribes consulting on this project cease consultation; or
- The project size or scope becomes larger or more potentially destructive than currently described.

Please do not make any assumptions about future consultation interests based on this decision, as priorities and information may change. We request that you send any future consultation communications in electronic form to TribalOffice@MonacanNation.com AND hard copy to PO Box 960, Amherst, VA 24521. We appreciate your outreach to the Monacan Indian Nation and look forward to working with you in the future.

Respectfully,


Chief Kenneth Branham
Monacan Indian Nation

APPENDIX C

CLEAN AIR ACT QUALITY RECORD OF NON-APPLICABILITY

1 **Record of Non-Applicability**
2 **In Accordance with the Clean Air Act – General Conformity Rule for the**
3 **Proposed Construction of the Battalion Operations Facility**
4 **Humphreys Engineer Center, Virginia**
5

6 The Department of the Army, U.S. Special Operations Command (USSOCOM) and Humphreys Engineer
7 Center Support Activity are proposing the construction of a new Battalion Operations Facility (BOF) at
8 Humphreys Engineer Center (HEC) in Alexandria, Virginia. The purpose of the project is to provide a
9 facility that will house battalion and company operations for one battalion of the 1st Capabilities
10 Integration Group to support the administration and operations of the brigade, battalion, and company.
11 The battalion and company are currently located within Building 2596 at HEC in space that is undersized
12 and poorly configured.

13 The proposed project includes construction of a 42,800 square foot, three-story BOF building, and a
14 14,200 square foot storage building on previously disturbed land that is currently an athletic field. The
15 project will also require new electrical, water, gas, sanitary sewer lines; information systems
16 distribution; lighting; parking; curb and gutter; sidewalks; storm drainage; landscaping; and other site
17 improvements. The BOF would take approximately 22 months to construct.

18 The purpose of the project is to provide a facility that will house battalion and company operations for
19 one battalion of the 1st Capabilities Integration Group to support the administration and operations of
20 the brigade, battalion, and company. The battalion and company are currently located within another
21 building at HEC that is undersized and poorly configured.

22 General conformity under the Clean Air Act, Section 176 has been evaluated according to the
23 requirement of Title 40 of the Code of Federal Regulations Part 93, Subpart B. The requirements of this
24 rule are not applicable to the action because:

25 The highest total annual direct and indirect emissions from the Proposed Action have been estimated at
26 1.1609 tons of carbon monoxide (CO), 0.643 tons of nitrogen oxides (NOx), 4.407 tons of particulate
27 matter (PM), 0.0033 tons of sulfur dioxide (SO₂), and 0.1747 tons of volatile organic compounds (VOCs),
28 per year, which would be below the applicable threshold values of 50 tons for VOCs and 100 tons each
29 for NO_x, PM, CO and SO₂.

30 Supporting documentation is provided in the following text.
31
32

33 _____
34 Dale F. Stoutenburgh
35 Director
Humphreys Engineer Center Support Activity

1 EMISSIONS ESTIMATIONS AND METHODOLOGY

2 Humphreys Engineer Center (HEC) has considered foreseeable direct and indirect sources of air
 3 emissions associated with the Proposed Action. *Direct emissions* are emissions that are caused or initiated
 4 by a federal action and occur at the same time and place as the action. *Indirect emissions* are reasonably
 5 foreseeable emissions that are caused by the action but might occur later in time and/or be farther
 6 removed in distance from the action itself, and that the federal agency can practicably control. More
 7 specifically, project-related direct emissions would result from the following:

- 8 • Construction Emissions: The use of non-road equipment (e.g. bulldozers, backhoes), work
 9 vehicles, the use of volatile organic compounds (VOCs) paints, paving off-gases, and fugitive
 10 particles from surface disturbances.
- 11 • Operational Emissions: The emissions from community personnel and equipment are exempt
 12 from permitting under 9 Virginia Administrative Code (VAC) 5-80-1105 (i.e. gaseous fuel burning
 13 units with max heat input less than 50,000,000 Btu/hour and diesel generators with electrical
 14 output of 1,125 kilowatts. Notably, the portion of an action that includes major or minor new
 15 modified stationary sources that require a permit under the new source review program (Section
 16 110[a][2][c] and Section 173 of the Clean Air Act) are exempt from the General Conformity Rule
 17 (GCR).

18 No indirect emissions are anticipated due the Proposed Action.

19 PROJECT CONSTRUCTION EMISSIONS

20 The total project construction emissions associated with the use of heavy construction equipment (e.g.
 21 bulldozers, backhoes), worker vehicles, paving off-gases, and fugitive dust from surface disturbances are
 22 based on an estimated 22 month-construction schedule (approximately 660 days) and presented in **Table**
 23 **1** below. The following sections outline all the calculation and assumptions made to derive the total
 24 project emission estimations in **Table 1**. As shown in **Table 1**, the total project emissions are below the
 25 GCR *de minimis* emissions levels.

26 **TABLE 1. TOTAL EMISSIONS FROM CONSTRUCTION OF THE PROPOSED ACTION**

Phases	Total Estimated Construction Emissions (tons per year [tpy])					
	CO	NOx	PM	SO ₂	VOC	CO ₂
Heavy Construction Equipment Emissions	0.5484	0.5891	0.0264	0.0018	0.0991	168.5670
Worker Vehicle Emissions	0.6125	0.0539	0.0246	0.0015	0.0754	170.8598
Paving Off-Gas Emission	N/A	N/A	N/A	N/A	0.00024	N/A
Fugitive Dust Emissions	N/A	N/A	4.356	N/A	N/A	N/A
Total Emissions	1.1609	0.643	4.407	0.0033	0.1747	339.4268
GCR <i>de minimis</i> Emission Levels	100	100	100	100	50	N/A

27 Note: N/A – Not Applicable

28

29

1 **Heavy Construction Equipment**

2 Emissions from heavy construction equipment associated with the construction of the proposed BOF
3 were estimated for activities involving site clearing and grading, building construction, and asphalt
4 paving.

5 Information regarding the number of pieces and types of construction equipment to be used on the
6 project, the number of days equipment would be used, and the approximately daily operating time
7 (hours) were obtained from 30% design cost estimate for the Proposed Action. The calculations are
8 based on a 22 month construction schedule. This information is provided in **Table 2**.

9 **TABLE 2. ESTIMATED SCHEDULE OF CONSTRUCTION EQUIPMENT USE**

Heavy Construction Equipment Anticipated	Quantity	Days of Use	Hours Used/Day
Excavator	5	5	8
Rubber Tire Dozer	3	1	8
Tractors/Loaders/Backhoes	6	9	8
Dump Truck	3	24	8
Off Highway Trucks	5	14	8
Graders	2	2	8
Compactor	3	2	8
Cranes	6	13	8
Drill Rig	3	2	8
Generator Sets	1	35	8
Pumps	2	4.5	8
Welders	2	37	8
Trenchers	1	1.5	8
Pavers	2	1	4
Rollers	6	1.2	8

10

11 Emission factors for the heavy equipment identified in **Table 2** were obtained from the South Coast Air
12 Quality Management District (SCAQMD) Off Road – Model Mobile Source Emissions Factors for the year
13 2022 (SCAQMD 2020a). Emission factors for 2022 were used as a conservative approach to estimating air
14 emissions for the Proposed Action. These emission factors are provided in **Table 3**.

15

1 **TABLE 3. EMISSION FACTORS FOR HEAVY CONSTRUCTION EQUIPMENT**

Heavy Construction Equipment by Phase	CO	NOx	PM	SO2	VOC	CO2
Excavator	0.5104	0.3171	0.0136	0.0013	0.0648	120
Rubber Tired Dozer	0.7353	1.3612	0.0536	0.0025	0.1919	239
Tractors/loaders/backhoes	0.3599	0.2302	0.0095	0.0008	0.0384	66.8
Dumper/Haul Truck	0.0314	0.0581	0.0022	0.0001	0.0092	7.6
Off Highway Trucks	0.5447	0.6574	0.0216	0.0027	0.1303	260
Graders	0.5732	0.4657	0.0218	0.0015	0.0807	133
Compactor	0.0263	0.0314	0.0012	0.0001	0.005	4.3
Cranes	0.3822	0.5505	0.0203	0.0014	0.0798	129
Drill Rig	0.2146	0.1265	0.0044	0.0006	0.0274	54.4
Generator Sets	0.2694	0.2783	0.0117	0.0007	0.034	61
Pumps	0.264	0.2467	0.114	0.0006	0.0322	49.6
Welders	0.1773	0.1557	0.0078	0.0003	0.026	25.6
Trenchers	0.4186	0.4094	0.0284	0.0007	0.0819	58.7
Pavers	0.484	0.475	0.0296	0.0009	0.087	77.9
Rollers	0.3799	0.3198	0.0181	0.0008	0.05	67

2 **Source: SCAQMD 2020a**

3

4 To determine the heavy construction equipment emissions in tons per year, the following formula was
5 used, with information provided from **Table 2** and **Table 3**:

6
$$TPYp = (Th \times Efp \times N \times D) / C$$

7 TPYp = Tons Per Year of Pollutant

8 Th = Time (hours per day of operation)

9 Efp = Emissions Factor for the given pollutant (Information from Table 3)

10 N = Number of pieces of equipment

11 D = Days of use of equipment

12 C = Conversion from pounds (lbs) to tons

13

14 The annual heavy construction equipment emissions are presented in **Table 4** for each pollutant during
15 each phase of construction.

16

1
2**TABLE 4. ANNUAL ESTIMATED CONSTRUCTION EQUIPMENT EMISSIONS**

	Emission Factors (for year 2022)					
	CO	NO _x	PM	SO ₂	VOC	CO ₂
	(pounds per hour)					
Excavator	0.0510	0.0317	0.0014	0.0001	0.0065	12.0000
Rubber Tired Dozer	0.0088	0.0163	0.0006	0.0000	0.0023	2.8680
Tractors/loaders/backhoes	0.0777	0.0497	0.0021	0.0002	0.0083	14.4288
Dumper/Haul Truck	0.0090	0.0167	0.0006	0.0000	0.0026	2.1888
Off Highway Trucks	0.1525	0.1841	0.0060	0.0008	0.0365	72.8000
Graders	0.0092	0.0075	0.0003	0.0000	0.0013	2.1280
Compactor	0.0006	0.0008	0.0000	0.0000	0.0001	0.1032
Cranes	0.1192	0.1718	0.0063	0.0004	0.0249	40.2480
Drill Rig	0.0052	0.0030	0.0001	0.0000	0.0007	1.3056
Generator Sets	0.0377	0.0390	0.0016	0.0001	0.0048	8.5400
Pumps	0.0095	0.0089	0.0041	0.0000	0.0012	1.7856
Welders	0.0525	0.0461	0.0023	0.0001	0.0077	7.5776
Trenchers	0.0025	0.0025	0.0002	0.0000	0.0005	0.3522
Pavers	0.0019	0.0019	0.0001	0.0000	0.0003	0.3116
Rollers	0.0109	0.0092	0.0005	0.0000	0.0014	1.9296
Total Annual Emissions from Heavy Construction Equipment (tpy)	0.5484	0.5891	0.0264	0.0018	0.0991	168.5670

Note: Air emissions for CO, NO_x, PM, VOCs and CO₂ are rounded up for a conservative estimate on construction-related emissions

3
4
5**Construction Worker Vehicle Emissions**

Emissions from construction workers' vehicles were included in this analysis. Emission factors for motor vehicles were conservatively calculated using the SCAQMD EMFAC2007 Emission Factors for On-Road Passenger Vehicles & Delivery Trucks mobile emissions inventory (SCAQMD 2020b). The analysis assumed that workers would drive their vehicles 30 miles per day at an average speed of 35 miles per hour. **Table 5** details the emission factors used in this analysis.

12
13**TABLE 5. 2022 CONSTRUCTION WORKER VEHICLE EMISSION FACTORS**

	Emission Factors					
	CO	NO _x	PM	SO ₂	VOC	CO ₂
pounds/mile	0.00398	0.00035	0.00016	0.00001	0.00049	1.11020

Source: SCAQMD 2020b

14
15
16

1 **Table 6** summarizes the annual construction worker vehicle emissions. These emissions were
 2 determined using the following equation:

3 $TPY_p = (ME \times EF_p \times W) / C$

4 TPY_p = Tons Per Year of Pollutant

5 ME = Miles per employee: number of trips x miles/trip x commuting factor x days

6 Number of trips = 2; Miles/trip = 30; Commuting Factor = 0.6; Total Days = 475

7 W = Number of Workers

8 Construction Workers = 18

9 EF_p = Emission Factor for the given pollutant (pounds/mile)

10 C = Conversion from pounds (lbs) to tons

11

12 **TABLE 6. ESTIMATED ANNUAL VEHICLE EMISSIONS FROM CONSTRUCTION WORKERS' VEHICLES**

	Criteria Pollutants					
	CO	NO _x	PM	SO ₂	VOC	CO ₂
tons/year	0.6125	0.0539	0.0246	0.0015	0.0754	170.8598

13

14 **Asphalt Curing Emissions**

15 Asphalt paving would generate emissions from:

- 16
- Asphalt curing
 - Operation of on-site paving equipment
 - Operation of motor vehicles, including paving material delivery trucks
- 18

19 Because the emissions resulting from operation of onsite paving equipment, trucks, and vehicles were
 20 included in the section **Heavy Construction Equipment**, only asphalt curing-related emissions are
 21 discussed in this section. Asphalt curing-related VOC emissions were calculated based on the amount of
 22 paving for the proposed parking areas. The following assumption was used in VOC emission calculations
 23 for asphalt curing (SCAQMD 2020a).

24 $E = (\text{paved area} \times 2.62 \text{ lb. VOC/acre}) / 2,000 \text{ lbs/ton}$

25 The calculation for VOC emissions from asphalt paving is provided below:

26 Paved area (asphalt) = 0.18 acres

27 $E = (0.18 \text{ acres} \times 2.62 \text{ lb. VOC/acre}) / 2000 \text{ lb./ton}$

28 $E = 0.00024$

29

1 **Surface Disturbance**

2 The quantity of particulate emissions from construction operation is roughly proportional to the area of
3 land being worked and the type of construction activity involved. Because the composite AP-42 emission
4 factors for total suspended solids (TSS) can provide only a rough estimate of PM₁₀ emissions it is
5 recommended in the *Estimating Particulate Matter Emissions from Construction Operations* 1999 report
6 to use alternative emission factors based on different levels of the construction activity. When only the
7 area of the construction site and the project's duration are known, two PM₁₀ emission factors are available
8 (average conditions [0.11 ton/acre/month] and worst-case [0.42 ton/acre/month]). Worst-case refers to
9 construction sites with active large-scale earth moving operations (USEPA 1999). Based on assumptions
10 and the anticipated level of construction effort, the average condition PM₁₀ emission factor was used in
11 the following calculations:

12 Annual PM Emissions = PM₁₀ EF x Acres x 12 months

13 PM₁₀ EF = 0.11 tons/acre/month

14 Project Size (acres) = 3.3

15 Annual PM Emissions = (0.11 x 3.3 x 12)

16 Annual Estimated PM Emissions = 4.356 tpy

17

18 **PROJECT OPERATIONS EMISSIONS**

19 Construction and operation of the proposed BOF would generate negligible amounts of emissions. No
20 substantive new non- mobile or mobile emission sources would be created. Generally, emissions from
21 operational activities would be expected to be generally lower than the construction-related emissions,
22 and therefore operation of the Proposed Action also would not lead to an exceedance of the GCR *de*
23 *minimis* thresholds.

24

25 **References**

- 26 SCAQMD 2020a South Coast Air Quality Management District (SCAQMD). 2020. "Off- Road –
27 Model Mobile Source Emissions Factors." Available online
28 <[http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-](http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/off-road-mobile-source-emission-factors)
29 [handbook/off-road-mobile-source-emission-factors](http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/off-road-mobile-source-emission-factors)>. Accessed 10 May 2020.
- 30 SCAQMD 2020b SCAQMD. 2020. "Highest (Most Conservative) EMFAC2007 (version 2.3)
31 Emission Factors for On-Road Passenger Vehicles & Delivery Trucks –
32 Scenario Year 2020. Available online <[https://www.aqmd.gov/home/rules-](https://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/emfac-2007-(v2-3)-emission-factors-(on-road))
33 [compliance/ceqa/air-quality-analysis-handbook/emfac-2007-\(v2-3\)-](https://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/emfac-2007-(v2-3)-emission-factors-(on-road))
34 [emission-factors-\(on-road\)](https://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/emfac-2007-(v2-3)-emission-factors-(on-road))>. Accessed 10 May 2020.
- 35 USEPA 1999 U.S. Environmental Protection Agency (USEPA). 1999. *Estimating Particulate*
36 *Matter Emissions from Construction Operations*. 30 September 1999.

37

APPENDIX D
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

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COASTAL ZONE MANAGEMENT ACT
FEDERAL CONSISTENCY DETERMINATION FOR THE
BATTALION OPERATIONS FACILITY HUMPHREYS ENGINEER CENTER PROJECT

CONSISTENCY REVIEW: This Federal Consistency Determination (FCD) is being submitted for coordination and concurrence from the Virginia Department of Environmental Quality (VDEQ), including Section 401 Water Quality Certification of all project elements described below.

PROJECT DESCRIPTION

The lead federal agency for this project is the U.S. Department of the Army, U.S. Army Corps of Engineers.

The proposed project is to construct a new Battalion Operations Facility (BOF) at the Humphreys Engineer Center (HEC). The purpose of the project is to provide a facility to house battalion and company operations for one battalion of the 1st Capabilities Integration Group to support the administration and operations of the brigade, battalion, and company. The battalion and company are currently located within another building at HEC that is undersized and poorly configured.

HEC is located in Alexandria, Virginia, south of Telegraph Road, which forms the northern border of the installation. The installation is bordered to the east by security fencing near Broadmoor Street and a residential subdivision, and to the south and southeast by Huntley Meadows Park and the Dogue Creek floodplain. A perimeter patrol road forms the southern border running west to east where Dogue Creek breaks sharp to the south. The boundary of HEC continues along the same alignment beyond where the perimeter road ends and terminates at McCracken Road. McCracken Road generally forms the western boundary of HEC running north until the road intersects with Telegraph Road. The location of the proposed BOF site is in the central area of HEC property at the southernmost end of the developed area. The project site was previously disturbed land and is currently a grassed athletic field containing a 5-foot high chain-link fence and soccer goals.

The proposed project includes construction of a 42,800-square-foot, three-story BOF building and a 14,200 square foot storage building on an existing athletic field; electrical, water, gas, sanitary sewer lines; information systems distribution; lighting; parking; curb and gutter; sidewalks; storm drainage; landscaping; and other site improvements. Stormwater management will be provided on site, including a bioretention basin to be located on the eastern edge of the BOF site. In addition, utility connections and landscaping will be provided. Erosion and sediment control measures as approved by the Virginia Department of Environmental Quality (VDEQ) will be implemented.

PROPERTY CLASSIFICATION: The project area consists of an existing athletic field within HEC. In the past, the project area was used for disposal of construction demolition debris from construction of Building 2596. Demolition waste and debris from this facility, as well as its foundation and infrastructure, is also potentially located underneath the BOF site. A separate project is proposed to remove the remnants of this facility. The land is owned and operated by the USACE.

1 **IMPACTS TO RESOURCES/USES OF THE COASTAL ZONE:** See Summaries below.
2

3 **DETERMINATION:** Based upon evaluation of impacts and in accordance with Section 307 of the Coastal
4 Zone Management Act (CZMA) and the CZMA Federal Consistency Regulation – 15 C.F.R. Part 930, the
5 USACE determined that the proposed project would be undertaken in a manner consistent to the
6 maximum extent practicable with the enforceable policies of the Commonwealth of Virginia’s Coastal
7 Zone Management Program.
8
9

10 **ENFORCEABLE POLICIES**

11
12 The Virginia Coastal Zone Management Program (VCP) contains the below enforceable policies (A-I).
13 More information will be provided in the Draft Environmental Assessment for this project.
14

15 **A. Fisheries Management**

16 The program stresses the conservation and enhancement of finfish and shellfish resources and the
17 promotion of commercial and recreational fisheries to maximize food production and recreational
18 opportunities. This program is administered by the Virginia Marine Resources Commission (VMRC)
19 (Virginia Code §28.2-200 through §28.2-713) and the Virginia Department of Game and Inland Fisheries
20 (VDGIF) (Virginia Code §29.1-100 through §29.1-570).
21

22 The project site is approximately ¼-mile from both Dogue Creek and Piney Run. Approximately 100
23 linear feet of a small intermittent headwater tributary of Dogue Creek and 620 square feet of adjacent
24 wetlands would be impacted by construction of the BOF. Erosion and sediment controls would prevent
25 erodible materials from being transported downstream and impacting recreational fishing opportunities
26 during construction. In addition, a stormwater management bioretention facility will be constructed that
27 will be designed to capture and treat nearly 100 percent of stormwater from the BOF. The proposed
28 project would therefore result in minimal impacts on fishery resources.
29

30 **B. Subaqueous Lands Management**

31 The management program for subaqueous lands establishes conditions for granting or denying permits
32 to use state-owned bottomlands based on considerations of potential effects to marine and fisheries
33 resources, wetlands, adjacent or nearby properties, anticipated public and private benefits, and water
34 quality standards established by the VDEQ Water Quality Division. The program is administered by the
35 Virginia Marine Resource Commission (VMRC) (Virginia Code §28.2-1200 through §28.2-1213).
36

37 The project site is not located on subaqueous lands; therefore, this policy is not applicable to the
38 project.
39

40 **C. Wetlands Management**

41
42 The purpose of the wetlands management program is to preserve tidal wetlands, prevent their
43 despoliation, and accommodate economic development in a manner consistent with wetlands
44 preservation.
45

46 The tidal wetlands program is administered by the VMRC (Virginia Code §28.2-1301 through

1 §28.2-1320).

2

3 The Virginia Water Protection Permit program administered by the VDEQ includes protection of
4 wetlands -- both tidal and non-tidal. This program is authorized by Virginia Code § 62.1-44.15.5 and the
5 Water Quality Certification requirements of §401 of the Clean Water Act of 1972.

6

7 There is an intermittent stream with adjacent wetlands located at the eastern corner of the project site
8 within the proposed limits of disturbance. Approximately 100 linear feet of the stream and 620 square
9 feet (0.014 acre) of the wetland will be impacted by construction. Although the stream and wetland will
10 be impacted, DEQ guidelines state that for projects that impact less than 0.10 acre of wetland or less
11 than 300 linear feet of stream channel, neither compensatory mitigation nor a permit application fee is
12 required. Erosion and sediment controls would be used during construction to prevent erodible
13 materials from being transported downstream into wetlands outside of the project site associated with
14 Dogue Creek and Piney Run and a stormwater management bioretention facility will be constructed that
15 will be designed to capture and treat nearly 100 percent of stormwater from the BOF. Therefore,
16 construction of the BOF would result in minimal impacts to nontidal wetlands and no impacts to tidal
17 wetlands.

18

19 **D. Dunes Management**

20

21 Dune protection is carried out pursuant to the Coastal Primary Sand Dune Protection Act and is intended
22 to prevent destruction or alteration of primary dunes. This program is administered by the VMRC
23 (Virginia Code §28.2-1400 through §28.2-1420).

24

25 The project site is not located near sand dunes; therefore, this program does not apply.

26

27 **E. Non-point Source Pollution Control**

28

29 Virginia's Erosion and Sediment Control Law requires soil-disturbing projects to be designed to reduce
30 soil erosion and to decrease inputs of chemical nutrients and sediments to the Chesapeake Bay, its
31 tributaries, and other rivers and waters of the Commonwealth. This program is administered by VDEQ
32 (Virginia Code §62.1-44.15:51 *et seq.*).

33

34 Erosion and sediment controls used during construction would capture potential erodible materials
35 created during soil disturbing activities associated with construction. After construction, a stormwater
36 management bioretention facility will treat potential runoff from new impervious areas or chemical
37 nutrients associated with onsite landscaping.

38

39 **F. Point Source Pollution Control**

40

41 The point source program is administered by the State Water Control Board pursuant to Virginia Code
42 §62.1-44.15. Point source pollution control is accomplished through the implementation of the National
43 Pollutant Discharge Elimination System (NPDES) permit program established pursuant to §402 of the
44 federal Clean Water Act and administered in Virginia as the VPDES permit program. The Water Quality
45 Certification requirements of §401 of the Clean Water Act of 1972 is administered under the Virginia
46 Water Protection Permit program.

1
2 This project does not involve point source discharges; therefore, this program does not apply.
3

4 **G. Shoreline Sanitation**

5
6 The purpose of this program is to regulate the installation of septic tanks, set standards concerning soil
7 types suitable for septic tanks, and specify minimum distances that tanks must be placed away from
8 streams, rivers, and other waters of the Commonwealth. This program is administered by the
9 Department of Health (Virginia Code §32.1-164 through §32.1-165).

10
11 The proposed project does not involve the installation of septic tanks. An 8-inch sanitary water main
12 would be extended from an existing manhole to the proposed BOF. Therefore, adherence to this
13 program is not applicable to the proposed project.

14
15 **H. Air Pollution Control**

16
17 The program implements the Federal Clean Air Act to provide a legally enforceable State
18 Implementation Plan for the attainment and maintenance of the National Ambient Air Quality
19 Standards. This program is administered by the State Air Pollution Control Board (Virginia Code §10.1-
20 1300 through 10.1-1320).

21
22 An air quality assessment of foreseeable direct and indirect air emission sources of air emissions
23 associated with the proposed BOF. Air emission sources would include construction emissions from the
24 use of non-road equipment (e.g. bulldozers, backhoes), work vehicles, the use of volatile organic
25 compounds (VOCs) paints, paving off-gases, and fugitive particles from surface disturbances; and
26 operational emissions from heating sources and emergency generators.

27 The highest total annual direct and indirect emissions from the proposed BOF have been estimated at
28 1.1609 tons of carbon monoxide (CO), 0.643 tons of nitrogen oxides (NO_x), 4.407 tons of particulate
29 matter (PM), 0.0033 tons of sulfur dioxide (SO₂), and 0.1747 tons of volatile organic compounds (VOCs),
30 per year, which would be below the applicable threshold values of 50 tons for VOCs and 100 tons each
31 for NO_x, PM, CO and SO₂.

32 **I. Coastal Lands Management**

33
34 A state-local cooperative program administered by VDEQ's Water Division and 84 localities in Tidewater,
35 Virginia established pursuant to the Chesapeake Bay Preservation Act (Virginia Code §§ 62.1-44.15:67
36 through 62.1-44.15:79) and Chesapeake Bay Preservation Area Designation and Management
37 Regulations (Virginia Administrative Code 9 VAC 25-830-10 *et seq.*).

38
39 Chesapeake Bay Preservation Areas are areas that have the potential to impact water quality protection
40 of the Chesapeake Bay and its tributaries. These environmentally sensitive areas are generally classified
41 as Resource Protection Areas (RPAs), areas that protect and benefit water quality, and Resource
42 Management Areas (RMAs), areas that could impact water quality without proper management. HEC is
43 located between RPAs associated with Dogue Creek and Piney Run. In Fairfax County, RMAs include all
44 areas outside of the RPAs. Although HEC is located within an RMA, erosion and sediment controls used

1 during construction would prevent erodible materials from entering the Dogue Creek and Piney Run
2 RPAs outside of the project site. Once construction is complete, potential runoff from paved surfaces
3 would be captured by the stormwater management bioretention facility. Therefore, this project will not
4 impact the Chesapeake Bay Preservation Areas.

6 **ADVISORY POLICIES FOR GEOGRAPHIC AREA OF PARTICULAR CONCERN**

8 **a. Coastal Natural Resource Areas**

10 These areas are vital to estuarine and marine ecosystems and/or are of great importance to areas
11 immediately inland of the shoreline. Such areas receive special attention from the Commonwealth
12 because of their conservation, recreational, ecological, and aesthetic values. These areas are worthy of
13 special consideration in any planning or resources management process and include the following
14 resources: wetlands; aquatic spawning, nursery, feeding grounds; coastal primary sand dunes; barrier
15 islands; significant wildlife; habitat areas; public recreation areas; sand and gravel resources; and
16 underwater historic sites.

18 The project would have minimal impacts on fisheries and wetlands, and no impacts on sand dunes, as
19 described above in Sections A, C, and D. Further, there are no barrier islands, habitat areas, public
20 recreation areas, sand and gravel resources, or underwater historic sites located within the project area.
21 According to the USFWS' Information for Planning and Consultation (IPaC) website, the project area is
22 within the range of the threatened northern long-eared bat (*Myotis septentrionalis*) and 19 migratory
23 bird species. However, the project site is comprised of an athletic field and does not provide suitable
24 habitat for the northern long-eared bat or foraging and nesting areas for migratory birds. In addition,
25 the IPaC review did not identify any critical habitat within the project area. Therefore, this advisory
26 policy is not applicable.

28 **b. Coastal Natural Hazard Areas**

30 This policy covers areas vulnerable to continuing and severe erosion and areas susceptible to potential
31 damage from wind, tidal, and storm-related events, including flooding. New buildings and other
32 structures should be designed and sited to minimize the potential for property damage due to storms or
33 shoreline erosion. The areas of concern are as follows: highly erodible areas, and coastal high hazard
34 areas, including floodplains.

36 The project site is not located within a highly erodible area, coastal high hazard area, or regulated
37 floodplain; therefore, this advisory policy is not applicable.

39 **c. Waterfront Development Areas**

41 These areas are vital to the Commonwealth because of the limited number of areas suitable for
42 waterfront activities. The areas of concern are as follows: commercial ports, commercial fishing piers,
43 and community waterfront. Although the management of such areas is the responsibility of local
44 government and some regional authorities, designation of these areas as Waterfront Development
45 Areas of Particular Concern (APC) under the Virginia CZM Program is encouraged. Designation will allow
46 the use of federal CZMA funds to be used to assist in planning for such areas and in the implementation

1 of such plans. The Virginia CZM Program recognizes two broad classes of priority uses for waterfront
2 development APC: water access-dependent activities and activities significantly enhanced by the
3 waterfront location and complementary to other existing and/or planned activities in a given waterfront
4 area.

5
6 No commercial ports, commercial fishing piers, or community waterfronts are associated with the
7 project site; therefore, this advisory policy is not applicable.
8
9

10 **ADVISORY POLICIES FOR SHOREFRONT ACCESS PLANNING AND PROTECTION**

11 **a. Virginia Public Beaches**

12
13 Approximately 25 miles of public beaches are located in the cities, counties, and towns of Virginia
14 exclusive of public beaches on state and federal land. These public shoreline areas will be maintained to
15 allow public access to recreational resources.
16
17

18 There are no public beaches in the vicinity of the project site; therefore, this advisory policy is not
19 applicable.
20

21 **b. Virginia Outdoors Plan (VOP)**

22
23 Planning for coastal access is provided by the DCR in cooperation with other state and local government
24 agencies. The Virginia Outdoors Plan (VOP), which is published by the Department, identifies
25 recreational facilities in the Commonwealth that provide recreational access. The VOP also serves to
26 identify future needs of the Commonwealth in relation to the provision of recreational opportunities
27 and shoreline access. Prior to initiating any project, consideration should be given to the proximity of
28 the project site to recreational resources identified in the VOP.
29

30 Although the project site includes a recreational facility, this athletic field is not open to the public and
31 does not provide coastal access; therefore, this advisory policy is not applicable.
32

33 **c. Parks, Natural Areas, and Wildlife Management Areas**

34
35 Parks, Wildlife Management Areas, and Natural Areas are provided for the recreational pleasure of the
36 citizens of the Commonwealth and the nation by local, state, and Federal agencies. The recreational
37 values of these areas should be protected and maintained.
38

39 There are no public parks, natural areas or wildlife management areas located within the project site;
40 therefore, this advisory policy is not applicable.
41

42 **d. Waterfront Recreational Land Acquisitions**

43
44 It is the policy of the Commonwealth to protect areas, properties, lands, or any estate or interest
45 therein, of scenic beauty, recreational utility, historical interest, or unusual features which may be
46 acquired, preserved, and maintained for the citizens of the Commonwealth.

1
2 This project does not limit the ability of the Commonwealth in any way to acquire, preserve, or maintain
3 waterfront recreational lands; therefore, this advisory policy is not applicable.
4

5 **e. Waterfront Recreational Facilities**
6

7 This policy applies to the provision of boat ramps, public landings, and bridges which provide water
8 access to the citizens of the Commonwealth. These facilities shall be designed, constructed, and
9 maintained to provide points of water access when and where practicable.
10

11 This project does not involve the design, construction, or maintenance of any boat ramps, public
12 landings, or bridges; therefore, this advisory policy is not applicable.
13

14 **g. Waterfront Historic Properties**
15

16 The Commonwealth has a long history of settlement and development, and much of that history has
17 involved both shorelines and near-shore areas. The protection and preservation of historic shorefront
18 properties is primarily the responsibility of the Department of Historic Resources. Buildings, structures,
19 and sites of historical, architectural, and/or archaeological interest are significant resources for the
20 citizens of the Commonwealth. It is the policy of the Commonwealth and the Virginia CZM Program to
21 enhance the protection of buildings, structures, and sites of historical, architectural, and archaeological
22 significance from damage or destruction when practicable.
23

24 No waterfront historic properties will be affected by this project; therefore, this advisory policy is not
25 applicable.
26
27

28 **DETERMINATION**
29

30 Based upon the following information, data, and analysis, the U.S. Army Corps of Engineers finds that
31 the Battalion Operations Facility at Humphreys Engineering Center construction project is consistent, to
32 the maximum extent practicable, with the enforceable policies of the Virginia Coastal Zone Management
33 Program.
34

35 Pursuant to 15 CFR Section 930.41, the Virginia Coastal Resources Management Program has 60 days
36 from receipt of this letter in which to concur with or object to this Consistency Determination, or to
37 request an extension under CFR section 930.41 (b). Virginia's concurrence will be presumed if its
38 response is not received by the U.S. Army Corps of Engineers on the 60th day from receipt of this
39 determination.
40

41 _____
42 Dale F. Stoutenburgh
43 Director
44 Humphreys Engineer Center Support Activity
45

Date