

1                                   **Draft Finding of No Significant Impacts**  
2       **for the proposed Construction of the Maintenance and Supply**  
3                                   **Facility**  
4                                   **Humphreys Engineer Center Alexandria, Virginia**

5       In compliance with the National Environmental Policy Act (NEPA), as amended, the Department  
6       of the Army, U.S. Army Corps of Engineers (USACE) Baltimore District, U.S. Specialist Operations  
7       Command (USASOC), 1st Capabilities Integration Group (1st CIG), and Humphreys Engineer  
8       Center Support Activity (HECSA) have prepared a Draft Environmental Assessment (EA) to  
9       evaluate and document the potential environmental effects associated with the proposed  
10       construction of the Maintenance and Supply Facility (MSF) at Humphreys Engineer Center (HEC)  
11       in Alexandria, Virginia.

12       The purpose of the Proposed Action is to support USASOC at HEC by establishing a functional,  
13       single, centralized area for efficient, synchronized unit operations and maintenance purposes by  
14       construction of a MSF to meet mission requirements by combining maintenance, administrative  
15       and supply functions. The need for the Proposed Action is to provide more efficient operations  
16       for USASOC by combining maintenance, supply, and administrative functions to one centralized  
17       location. Furthermore, there is a current and future need for a functional maintenance facility  
18       which is necessary for efficient, synchronized unit operations to execute mobilization readiness,  
19       military operations, and contingency missions at HEC.

20       The proposed MSF would be constructed in a 5.5-acre wooded area located in the northwestern  
21       area of HEC and would be constructed as a one-story, 47,300 gross square foot, three-bay motor  
22       pool maintenance facility located west of the Cude Building (see Figure 1.1). Construction would  
23       include concrete floor slab, steel framing, concrete masonry unit bearing walls with continuous  
24       exterior insulation and brick masonry veneer, and PVC membrane roofing system with high solar  
25       reflectance.

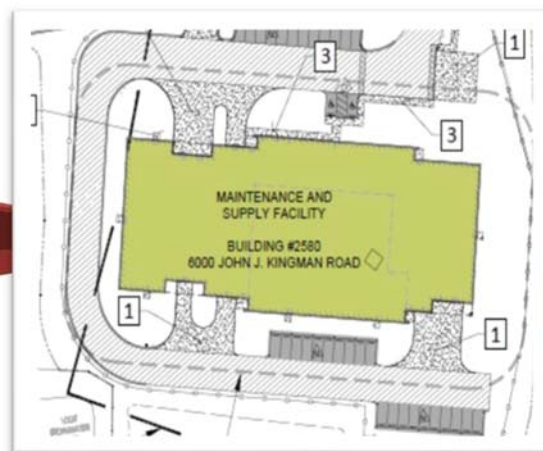
26       The new construction would include built-in building systems consisting of fire alarm/mass  
27       notification, fire suppression, utility management control, telephone, advance communications  
28       networks, cable television, and infrastructure for electronic security systems (intrusion detection,  
29       closed circuit surveillance, and electronic access control). The Proposed Action would also  
30       include the installation of electronic security system equipment (equipment funded by other  
31       appropriations). Furthermore, eye wash fountains and water deluge showers would be provided  
32       as emergency safety equipment for personnel.

1 Three alternatives were considered in the Environmental Assessment, including the Proposed  
2 Action (the Preferred Alternative, described as Alternative 1 in the EA); Alternative 2 (Concept A,  
3 described as Alternative 2 in the EA); and the No Action Alternative. Under the Proposed Action,  
4 the MSF would be constructed as described above. Under Alternative 1 (Concept A) the MSF  
5 would be constructed as described above except for it would be constructed adjacent to Building  
6 2596, in the central area of HEC. Under the No Action Alternative, the MSF would not be  
7 constructed and maintenance and support activities would continue to occur at Fort Belvoir. HEC  
8 would continue to lack appropriate maintenance and supply space for 1st CIG and other tenants  
9 on HEC.

10 The Environmental Assessment analyzes impacts to the following resource areas: aesthetic and  
11 visual resources; air quality; biological resources; cultural resources; geological resources; solid  
12 and hazardous materials; infrastructure, utilities and traffic; land use; noise; community services;  
13 socioeconomics and environmental justice; and water resources. Following the environmental  
14 review of these resource areas contained in the Environmental Assessment, it has been  
15 determined that construction of the proposed MSF at HEC would not result in significant  
16 environmental impacts. As a result of this determination, a Finding of No Significant Impact has  
17 been made for the Proposed Action. The preparation of an Environmental Impact Statement is  
18 not required for this action.

19 Dale F. Stoutenburgh  
20 Director

**Draft Environmental Assessment  
Addressing  
Proposed Construction of the Maintenance and Supply Facility  
at  
Humphreys Engineer Center  
Alexandria, Virginia**



**Contract Number:  
W912DR-16-D-0010-18F0742**

6000 John J. Kingman Road  
Alexandria, Virginia 22060

**Prepared For:**  
Wiley | Wilson, Inc.  
U.S. Army Corps of Engineers, Baltimore District  
Department of the Army  
U.S. Specialist Operations Command  
Humphreys Engineer Center Support Activity

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## Executive Summary

Draft Environmental Assessment Addressing Construction of the Maintenance and Supply Facility at Humphreys Engineer Center

**Responsible Agencies:** U.S. Army Corps of Engineers-Baltimore District, Department of the Army, U.S. Specialist Operations Command, Humphreys Engineer Center Support Activity

**Affected Locations:** Humphreys Engineer Center, Alexandria, Virginia

**Abstract:** The Department of the Army, U.S. Army Specialist Operations Command (USASOC) and Humphreys Engineer Center Support Activity (HECSA) propose to replace and consolidate vehicle maintenance and supply activities on Humphreys Engineer Center with a modern and functionally-configured Maintenance and Supply Facility in order to provide adequate equipment, shops and storage facilities for USASOC by collocating maintenance, supply and administrative functions to one, centralized facility.

Under the Preferred Alternative, the proposed Maintenance and Supply Facility (MSF) would be constructed in a 5.5-acre wooded area in the northwestern corner of HEC bounded by Kingman Road, Telegraph Road, Jeff Todd Way and a Washington Gas transmission line. The Proposed Action includes construction of a 47,300 gross square foot Maintenance and Supply Facility, an exterior hazardous materials and refuse locker, an oil-water separator (OWS), and parking along with other supporting infrastructure to support the maintenance and supply facility operations. Additionally, the Proposed Action will require tree clearing and demolition of portions of John J. Kingman Road (Kingman Road) as the site is primarily wooded and undeveloped with the exception of an abandoned concrete structure.

After completion of the construction, all personnel currently assigned to existing vehicle maintenance activities at HEC (approximately 8 personnel) would transfer to the new MSF at HEC. Approximately 39 to 42 people (currently working on Fort Belvoir) would also transfer to the new facility. No change to the number of vehicles utilizing the maintenance facility at HEC is proposed under this EA.

Under Alternative 2 the MSF would be sited immediately west-adjacent to the Hall Building (Building 2596) located on the central portion of the HEC campus. The MSF would be the same in terms of specific construction including exterior hazardous materials and refuse locker, an OWS, and other supporting infrastructure to support the maintenance and supply facility operations at this particular site. Minimal tree cutting would be required under Alternative 2 however, wetlands located at the location of this particular site prohibited further development of this alternative. However, because this alternative was analyzed up to the 60% design, it is included as an alternative in this EA.

This EA will analyze the potential for environmental, socioeconomic and cultural impacts from the Proposed Action, Alternatives and the No Action Alternative and aids in determining whether a Finding of No Significant Impact (FONSI) can be prepared or an Environmental Impact Statement (EIS) is required. Under the No Action Alternative for the Proposed Action, the

1 Maintenance and Supply Facility would not be constructed, exterior hazardous materials and  
2 refuse locker and other supporting infrastructure would not be constructed, and there would be  
3 no removal of trees or the existing concrete structure. Vehicle maintenance and supply activities  
4 would continue to be performed on Fort. Belvoir. Overall, the No Action Alternative would  
5 adversely impact the unit's mission effectiveness and readiness by continuing to operate in  
6 functionally obsolete and poorly maintained facilities for administrative, training, supply, and  
7 maintenance functions.

1 TABLE ES-1. SUMMARY OF IMPACTS

Resource Area	Alternative 1 (The Preferred Alternative)	Alternative 2	No Action Alternative Impacts
<p><b>Aesthetic and Visual Resources (Section 3.2)</b></p>	<p>Short-term, direct, negligible, adverse impacts from construction.</p> <p>Long-term, direct, negligible to minor and beneficial impacts from operation.</p>	<p>Impacts from construction would be similar to those as described under Alternative 1 except slightly less as construction of the MSF would not be visible from outside the HEC boundary.</p> <p>Impacts from operation would be similar to those as described under Alternative 1 except slightly less as the MSF would be collocated with other facilities at HEC.</p>	<p>Long-term, negligible and beneficial impacts would be expected from not disturbing the existing wooded land; however, the unit would continue to lack adequate maintenance and supply of mission critical and essential equipment.</p>
<p><b>Air Quality (Section 3.3)</b></p>	<p>Short-term, direct, negligible to minor adverse impacts from construction.</p> <p>Long-term, negligible impacts from operation.</p>	<p>Impacts from construction would be similar to those described under Alternative 1 except slightly less as construction under Alternative 2 would involve removal of less trees.</p> <p>Impacts from operation would generally be the same as those described under Alternative 1.</p>	<p>Long-term, negligible, beneficial impacts would be expected from not disturbing the existing wooded land; however, the unit would continue to lack adequate maintenance and supply of mission critical and essential equipment.</p>
<p><b>Biological Resources (Section 3.4)</b></p>	<p>Short- and long-term, minor, adverse impacts on vegetation; short- and long-term, minor, adverse impacts on common wildlife; and no adverse impacts to state or federally protected species; and short- and long-term negligible,</p>	<p>Impacts from construction would be similar to those described under Alternative 1 except slightly less because there would be less tree removal under Alternative 2.</p> <p>Impacts from operation would generally be the same as those described under Alternative 1.</p>	<p>Long-term, minor, beneficial impacts would be expected from not disturbing the existing wooded land; however, the unit would continue to lack adequate maintenance and supply of</p>

Resource Area	Alternative 1 (The Preferred Alternative)	Alternative 2	No Action Alternative Impacts
	<p>adverse impacts to migratory birds during construction and demolition.</p> <p>No impacts on vegetation, wildlife, state and federally protected species, and migratory birds from operation.</p>		<p>mission critical and essential equipment.</p>
<p><b>Cultural Resources (Section 3.5)</b></p>	<p>No impacts from construction.</p> <p>No impacts from operation.</p>	<p>Impacts would be the same as those described under Alternative 1.</p>	<p>No impacts on cultural resources would be expected; however, the unit would continue to lack adequate maintenance and supply of mission critical and essential equipment.</p>
<p><b>Geological Resources (Section 3.6)</b></p>	<p>No impacts to geology, or from radon; short- and long-term, negligible to minor, adverse impacts to topography and soils from construction.</p> <p>No impacts to topography or geology; long-term, negligible, adverse impacts to soils and radon from operation.</p>	<p>Impacts from construction would be similar to but slightly less than those described under Alternative 1 because less vegetative cover would be disturbed under Alternative 2.</p> <p>Impacts from operation under Alternative 2 would be similar to those described under Alternative 1.</p>	<p>Long-term, negligible, beneficial impacts on geological resources would be expected from the lack of construction; however, the unit would continue to lack adequate maintenance and supply of mission critical and essential equipment.</p>
<p><b>Solid and Hazardous Materials (Section 3.7)</b></p>	<p>Short-term, negligible, adverse impacts on solid and hazardous materials and unexploded ordnance (UXO) from construction.</p>	<p>Impacts from construction would be similar to those described under Alternative 1.</p>	<p>Long-term, negligible, beneficial impacts on solid and hazardous materials however the unit would</p>

Resource Area	Alternative 1 (The Preferred Alternative)	Alternative 2	No Action Alternative Impacts
	<p>Long-term, negligible, adverse impacts from generation of hazardous materials and wastes, no impacts on UXO from operation.</p>	<p>Impacts from operation would be the same as those described under Alternative 1.</p>	<p>continue to lack adequate maintenance and supply of mission critical and essential equipment.</p>
<p><b>Infrastructure, Utilities and Traffic (Section 3.8)</b></p>	<p>Long-term, negligible, adverse impacts on electrical, potable water, sanitary sewer, stormwater, communications, natural gas and transportation infrastructure from construction.</p> <p>Short- and long-term, negligible, adverse and beneficial impacts on electrical, potable water, sanitary sewer, stormwater, communications, natural gas infrastructure; and negligible, adverse impacts to transportation from operation. Long-term, minor to moderate beneficial impacts from the additional Dominion power source at HEC.</p>	<p>Impacts from construction would be similar to those as described under Alternative 1 however no new power source would be routed to the HEC campus and provide support for future projects.</p> <p>Impacts from operation would be similar to those as described under Alternative 1.</p>	<p>Long-term, negligible, beneficial impacts on the infrastructure, utilities and traffic on HEC would be expected; however, the unit would continue to lack adequate maintenance and supply of mission critical and essential equipment.</p>
<p><b>Land Use (Section 3.9)</b></p>	<p>Long-term, minor, adverse impacts on land use from construction; and short-term, negligible, adverse impacts to land use controls from construction.</p> <p>No impacts to land use or land use controls from operation.</p>	<p>Impacts to land use from Alternative 2 would be similar to those as described under Alternative 1 except less as less conversion of land uses would be required during construction. Additionally, conversion of land use in this area of HEC would be consistent with surrounding land uses.</p>	<p>Long-term, beneficial impacts on land use would be expected from the lack of conservation of land use; however, the unit would continue to lack adequate maintenance and supply of</p>



Resource Area	Alternative 1 (The Preferred Alternative)	Alternative 2	No Action Alternative Impacts
		Impacts from operation would be the same as those described under Alternative 1.	mission critical and essential equipment.
<b>Noise (Section 3.10)</b>	Short-term, minor, adverse impacts from construction. Long-term, negligible, adverse impacts from operation.	Impacts from construction and operation would be similar to those described under Alternative 1.	Long-term, beneficial impacts would be expected; however, the unit would continue to lack adequate maintenance and supply of mission critical and essential equipment.
<b>Community Services (Section 3.11)</b>	Short-term, direct, negligible, adverse impacts from construction. Long-term, beneficial impacts would result from operation.	Impacts from construction and operation would be similar to those described under Alternative 1.	Long-term, beneficial impacts would be expected; however, the unit would continue to lack adequate maintenance and supply of mission critical and essential equipment.
<b>Socioeconomics and Environmental Justice (Section 3.12)</b>	Short-term, negligible to minor, beneficial impacts from construction. No impacts from operation.	Impacts from construction and operation would be similar to those described under Alternative 1.	Long-term, negligible impacts would be expected; however, the unit would continue to lack adequate maintenance and supply of mission critical and essential equipment.
<b>Water Resources (Section 3.13)</b>	No impacts on surface waters, floodplains, coastal zone management, resource protection areas, or wetlands; short-term, negligible, adverse impacts on water quality and long-term,	Impacts from construction would be significantly greater than those discussed under Alternative 1 due to direct impacts to wetlands in the Project Area. Impacts from operation would be the same as those discussed under Alternative 1.	Long-term, beneficial impacts would be expected; however, the unit would continue to lack adequate maintenance and supply of mission critical and essential equipment.

Resource Area	Alternative 1 (The Preferred Alternative)	Alternative 2	No Action Alternative Impacts
	<p>negligible impacts on groundwater from construction.</p> <p>No impacts to surface waters, wetlands, floodplains, resource protection areas, groundwater or coastal zone management from operation. Water quality impacts from operation will be negligible to minor.</p>		

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### Acronyms/Abbreviations

ADA	Americans with Disabilities Act	HECSA	Humphreys Engineer Center Support Activity
APE	Area of Potential Effects	HFC	Hydrofluorocarbons
AQCR	Air Quality Control Regions	HQUSACE	Headquarters-USACE
AR	Army Regulation	INRNP	Integrated Natural Resources Management Plan
ARMAG	Pre-manufactured arms magazine	LCC	Land Cover Conservation
AT/FP	Anti-Terrorism/Force Protection	LUC	Land Use Control
BGEPA	Bald and Golden Eagle Protection Act	LUCIP	Land Use Control Implementation Plan
BMP	best management practice	MBTA	Migratory Bird Treaty Act
CAA	Clean Air Act	MEC	munitions and explosives of concern
CBPA	Chesapeake Bay Preservation Act	MRS	munitions response site
CEQ	Council on Environmental Quality	MSF	Maintenance and Supply Facility
CFR	Code of Federal Regulations	N/A	Non-Applicable
CH <sub>4</sub>	Methane	NCPC	National Capital Planning Commission
CO	Carbon Monoxide	N <sub>2</sub> O	Nitrous Oxides
CO <sub>2</sub>	Carbon Dioxide	NAAQS	National Ambient Air Quality Standards
CRMP	Coastal Resources Management Program	NEPA	National Environmental Policy Act
CWA	Clean Water Act	NHPA	National Historical Preservation Act
CZMA	Coastal Zone Management Act	NLEB	Northern Long-Eared Bat
EA	Environmental Assessment	NOI	Notice of Intent
EIS	Environmental Impact Statement	NO <sub>x</sub>	Nitrogen Dioxides
EISA	Energy Independence and Security Act	NPDES	National Pollutant Discharge Elimination System
EOD	Explosive Ordinance Disposal	NRHP	National Registry of Historic Places
ESA	Endangered Species Act	O <sub>3</sub>	Ozone
ESCP	Erosion and Sediment Control Plan	OTR	Ozone Transport Region
FEMA	Federal Emergency Management Agency	OWS	oil-water separator
FIRM	Floor Insurance Rate Map	PCB	polychlorinated biphenyls
FONSI	Finding of No Significant Impact	pCi/L	Picocuries per Liter
FSD	Forest Stand Delineation	PFC	Perfluorocarbons
ft <sup>2</sup>	square feet	PM <sub>10</sub>	Particulate Matter Aerodynamic size less than or equal to 10 micrometers
GCR	General Conformity Rule		
GHG	Greenhouse Gas Emissions		
GIS	geographic information system		
GOV	Government-Owned Vehicle		
HAPS	Hazardous Air Pollutants		
HEC	Humphreys Engineering Center		

PM2.5	Particulate Matter Aerodynamic size less than or equal to 2.5 micrometers	USASOC	U.S. Army Specialist Operations Command
		USC	United States Code
POL	Petroleum, Oil and Lubricants	USEPA	U.S. Environmental Protection Agency
POV	Privately-Owned Vehicles		
PPB	Parts Per Billion	UXO	Unexploded Ordinance
ppm	Parts Per Million	VAC	Virginia Administrative Code
RMA	Resource Management Areas	VAC	Virginia Administrative Code
ROI	region of influence	VADHA	Virginia Department of Historic Resources
RONA	Record of Non-Applicability		
SCIF	Sensitive Compartmented Information Facility	VAFWIS	Virginia Fish and Wildlife Information Service
SF6	Sulfur Hexafluoride	VDEQ	Virginia Department of Environmental Quality
SHPO	State Historic Preservation Office	VOC	Volatile Organic Compound
SIP	State Implementation Plan	VPDES	Virginia Pollutant Discharge Elimination System
SO2	Sulfur Dioxide		
SWPPP	Stormwater Pollution Prevention Plan	VPDES	Virginia Pollutant Discharge Elimination System
TMDL	Total Maximum Daily Loads	VSMP	Virginia Stormwater Management Permit
TSF	Training Support Facility		
UFC	Unified Facilities Criteria	WB	wheel base
UG/M3	Micrograms per Meter Cubed	WB 50	wheel base of fifty feet
USACE	U.S. Army Corps of Engineers	WMA	Watershed Management Area

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### APPENDICES:

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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 Parts 1500-1508) and 32 Code of Federal Regulations (CFR) Part 651, *Environmental Analysis of Army Actions*, The U.S. Army Corps of Engineers (USACE) Baltimore District, the Department of the Army, Humphrey Engineer Center Support Activity (HECSA), the U.S. Army Specialist Operations Command (USASOC) are preparing an Environmental Assessment (EA) to evaluate the potential environmental, socioeconomic, natural and cultural resource impacts associated with the proposed construction of the vehicle Maintenance and Supply Facility (MSF) at Humphreys Engineer Center (HEC) in Alexandria, Virginia.

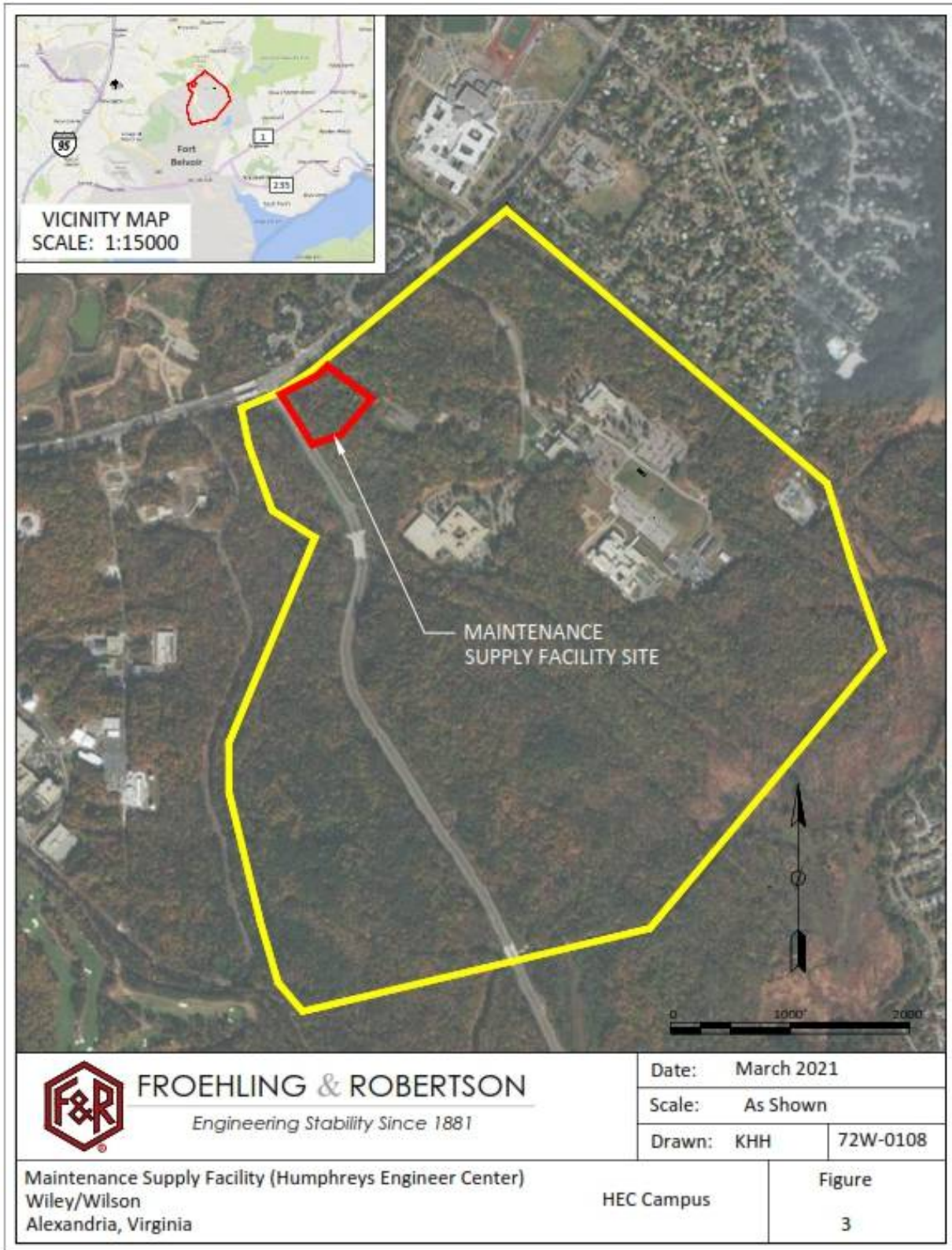
This EA will analyze the potential for environmental and socioeconomic impacts from the Proposed Action and Alternatives, including the No Action Alternative.

### 1.2. Background:

HEC, a USACE civil works installation, comprises approximately 540 acres and is located immediately north of, but not part of, Fort Belvoir and approximately 19 miles south of the USACE Headquarters in Washington D.C. HEC is divided into two physically distinct areas by Piney Branch Creek. Approximately 80 acres in the northern portion of HEC are intended for construction of buildings, roads, and parking with the eastern portion of the installation being relatively level. The remaining southwest half of HEC largely consists of steeply sloping land and second-growth forests (see Figure 1-1) (HEC 2006, HEC 2020).

Four buildings on the 80-acre developed northern portion of HEC house a majority 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 the Hall Building (Building 2596). The remaining facilities at HEC consist of several small maintenance and warehouse buildings and three concrete bunkers with administrative activities supporting its tenant organizations and the USACE. Approximately 1,000 personnel are currently employed at HEC (HEC 2006). See Figure 1-1 for a regional map of HEC.

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. HECSA also manages HEC and provides administrative support to various Corps and non-Corps tenants. USASOC, a Fort Belvoir and HEC tenant, performs a variety of military missions.



1  
2 **FIGURE 1-1 HUMPHREYS ENGINEER CENTER REFERENCE MAP**

1 Vehicle maintenance functions for USASOC are currently performed at maintenance facilities on  
2 Fort Belvoir, located approximately 3 miles southwest of HEC. Minor maintenance activities that  
3 are currently performed at the maintenance facility include oil changes, transmission fluid  
4 changes, and coolant replacement, etc. Minor cosmetic and mechanical repairs (repair of dents,  
5 vehicle brakes and suspension) are also performed. Maintenance needs are ultimately  
6 determined by the total vehicle mileage. On average, vehicles visit the maintenance facility at  
7 least once or twice per year, depending on the need for minor maintenance. The maintenance  
8 facilities on Fort Belvoir are functionally obsolete and poorly maintained and require vehicles  
9 from HEC to travel up to 6 miles roundtrip for standard and preventative maintenance. Vehicles  
10 that are maintained at the facility are part of an onsite fleet at HEC and are dispatched locally as  
11 needed.

12 Current vehicle and equipment maintenance supply functions are fulfilled in Building 2596 at  
13 HEC. Supplies are delivered to Building 2596 via 54-foot trailers approximately once per day.  
14 Deliveries from box trucks and other smaller vehicles occur approximately one to two times per  
15 day.

16 The widely dispersed maintenance and supply functions and the lack of sufficient and optimal  
17 operational, storage and administrative space and do not provide functional layouts required for  
18 efficient, synchronized unit operations which severely degrades productivity.

### 19 **1.3. Purpose and Need:**

20 The purpose of the Proposed Action is to support USASOC at HEC by establishing a functional,  
21 single, centralized area for efficient, synchronized unit operations and maintenance purposes by  
22 construction of a MSF to meet mission requirements by combining maintenance, administrative  
23 and supply functions.

24 The need for the Proposed Action is to provide more efficient operations for USASOC by  
25 combining maintenance, supply, and administrative functions to one centralized location.  
26 Furthermore, there is a current and future need for a functional maintenance facility which is  
27 necessary for efficient, synchronized unit operations to execute mobilization readiness, military  
28 operations, and contingency missions at HEC (USASOC 2018).

### 29 **1.4. The NEPA Process:**

30 NEPA established the national policy for the environment and for the Council on Environmental  
31 Quality (CEQ) and provides for the consideration of environmental issues in federal agency  
32 planning and decision-making. In order to implement the NEPA policies, CEQ promulgated the  
33 *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*

1 (40 Code of Federal Regulations [CFR] Parts 1500-1508, referred to as CEQ Regulations). Both  
2 NEPA and CEQ Regulations require that federal agencies establish procedures to comply with the  
3 intended purpose of NEPA. Both also require federal agencies to encourage and facilitate public  
4 involvement as part of the NEPA process.

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

12 Under guidance provided in NEPA and 32 CFR Part 651, either an Environmental Impact  
13 Statement (EIS) or an Environmental Assessment (EA) must be prepared for many federal actions,  
14 including major military construction actions. It is also possible for federal actions to prepare a  
15 Record of Environmental Consideration in light of changes to current NEPA project conditions to  
16 ascertain the need for supplemental documentation. If a proposed action may significantly affect  
17 the environment, an EIS may be required. An EA provides sufficient evidence and analysis for  
18 determining whether to prepare an EIS. The contents of an EA include the need for the proposed  
19 action, alternatives to the proposed action, environmental impacts of the proposed action and  
20 alternatives, and documentation of public and agency coordination.

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

### 27 **1.5. Agency and Public Coordination:**

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

32 In compliance with NEPA, HECSA will notify relevant government agencies, stakeholders, and  
33 federally recognized tribes about the Proposed Action and alternatives. The notification process  
34 will provide these agencies and groups with the opportunity to cooperate with HECSA and to

- 1 provide comments on the Proposed Action and alternatives. Appendix A contains copies of
- 2 agency coordination and communication based on the Proposed Action.
  
- 3 A Notice of Availability (NOA) will be published in local newspapers announcing the availability
- 4 of the EA for public review. Copies of the EA will be available in the Lorton Branch, Kingstowne
- 5 Branch, and Sherwood Regional Branch of Fairfax County Public Library system for public review.
- 6 The EA will also be available on the USACE website for public review here:
- 7 <https://www.nab.usace.army.mil/CorpsNotices/>. Comments on the EA will be received and
- 8 reviewed, and revisions may be made to the EA prior to finalization.

## 1    **2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES:**

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

### 6            **2.1. Proposed Action (the Preferred Alternative):**

7    The Proposed Action is to replace the existing aging, outdated, and disjointed MSF operations  
8    with a modern, adequately-sized, and collocated MSF that would provide support to USASOC  
9    activities at HEC. The Proposed Action includes construction of a MSF and associated  
10    infrastructure improvements and alterations. The following subsections describe in detail the  
11    construction and operational components of the Proposed Action.

#### 12                    **2.1.1.        Construction:**

13    ***Maintenance and Supply Facility.*** The proposed MSF would be constructed in a 5.5-acre wooded  
14    area centrally located at HEC and would be constructed as a one-story, 47,300 gross square foot,  
15    three-bay motor pool maintenance facility located west of the Cude Building (see Figure 2-1).  
16    Construction would include concrete floor slab, steel framing, concrete masonry unit bearing  
17    walls with continuous exterior insulation and brick masonry veneer, and PVC membrane roofing  
18    system with high solar reflectance.

19    The new construction would include built-in building systems consisting of fire alarm/mass  
20    notification, fire suppression, utility management control, telephone, advance communications  
21    networks, cable television, and infrastructure for electronic security systems (intrusion detection,  
22    closed circuit surveillance, and electronic access control). The Proposed Action would also  
23    include the installation of electronic security system equipment (equipment funded by other  
24    appropriations). Furthermore, eye wash fountains and water deluge showers would be provided  
25    as emergency safety equipment for personnel. Lastly, power will be brought to the site via  
26    Dominion Virginia Power which will provide immediate power needs not only to the proposed  
27    MSF but to future proposed facilities in the immediate area.

28    The supply area, which will be collocated with the maintenance facility, will include a warehouse  
29    area and an administrative logistics functions area. The warehouse area will provide both  
30    conditioned and unconditioned storage for pallets and other equipment. The warehouse  
31    footprint will also include a pre-manufactured arms magazine (ARMAG) for temporary storage of  
32    small arms. The administrative logistics area will be designed to meet Sensitive Compartmented  
33    Information Facility (SCIF) requirements and will include a conference room. A raised access  
34    flooring system, located in the administrative logistics area provides flexibility and accessibility

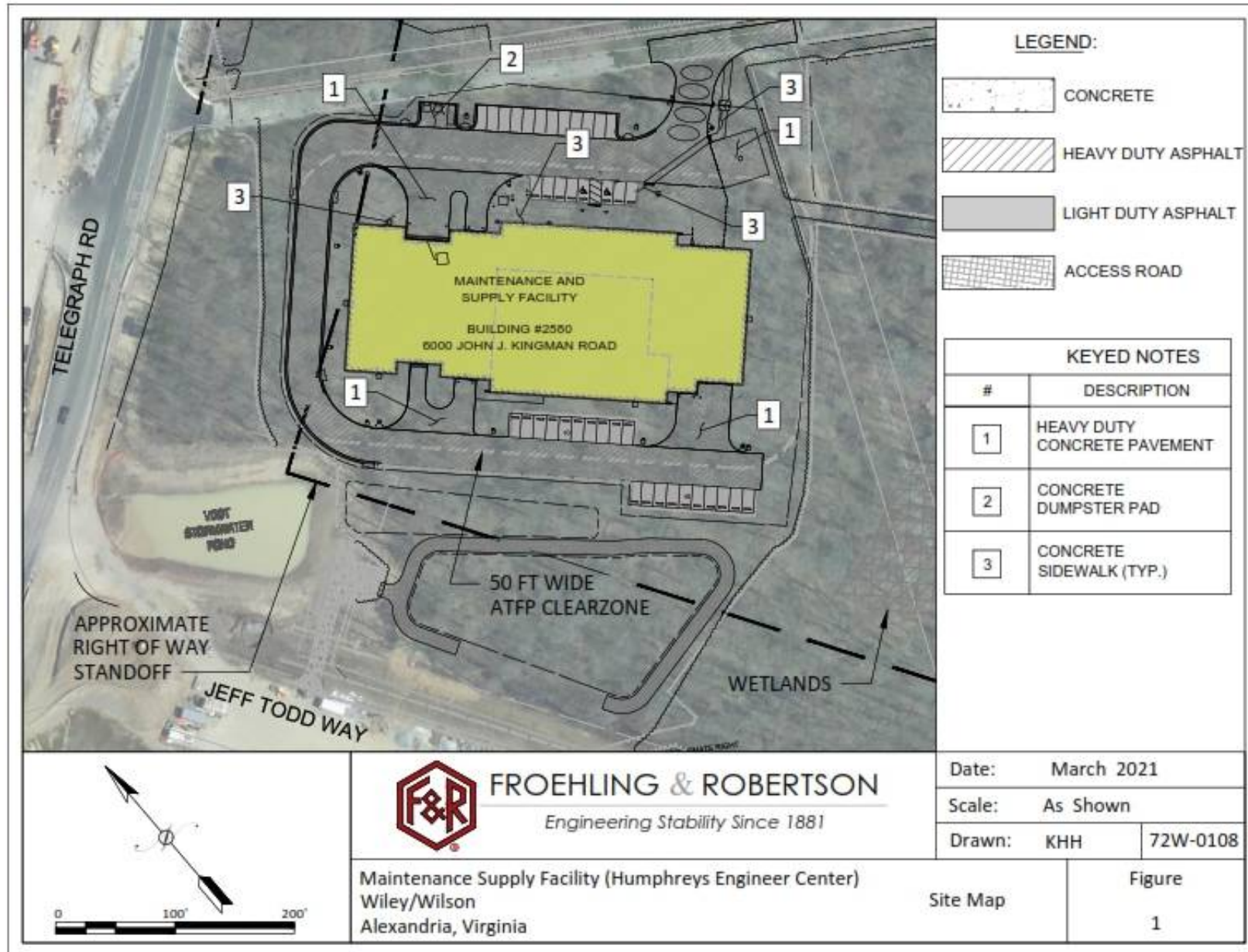
1 to cables and electrical wiring. Additionally, support spaces to serve the facility will include a  
2 bathroom (toilet/shower) and kitchenette (USASOC 2018, WW 2020a).

3 The Project Area is bounded by a Washington Gas right of way containing an 8-inch gas line to  
4 the north and east of the project area and is bounded to the west and south by the HEC property  
5 limits. The Proposed Action site is currently undeveloped and wooded with light ground clutter.  
6 Approximately 5 acres of forest will be cleared and grubbed for development of the Proposed  
7 Action. Approximately 1,300 trees will be removed during the clearing operations. There is a  
8 small abandoned concrete structure in the middle of the site that's original purpose is unknown  
9 but assumed to be a relic from the previous use of HEC as training grounds for the Army. The  
10 existing concrete structure and portions of Kingman Road will also be demolished. Kingman Road  
11 formerly connected to Telegraph Road but is now blocked by a chain-link fence. There is an anti-  
12 ram barrier on Kingman Road to the east of the gas transmission line to prevent vehicle access  
13 into HEC. Upon completion of construction, Kingman Road will no longer connect to Telegraph  
14 Road northwest of the proposed facility. For trucks making deliveries to the MSF, they would  
15 route through the Main Gate (Gribble Gate) and down Kingman Road to access the MSF. Trucks  
16 would leave HEC the same way they entered (see Section 3.8.1 for additional details on  
17 transportation).

18 A buffer of both the minimum 20-foot standoff distance and the 50-foot clear zone within the  
19 facilities secure perimeter will be included for anti-terrorism/force protection (AT/FP)  
20 requirements. Additionally, per the request of the HEC Facility Security Officer, the facility is  
21 located at a minimum of 150 feet from Jeff Todd Way and Telegraph Road. Site and facility  
22 circulation will include Americans with Disabilities Act (ADA)-accessible path from the new  
23 parking lot for Privately Owned Vehicles (POV) to the main entrance of the new facility. The  
24 proposed facility will add fourteen (20) POV parking and twenty (20) government owned vehicle  
25 (GOV) spaces. Access to the site is provided via Leaf Road and Kingman Road from the main HEC  
26 Entry Control Facility. Circulation to the development will be provided via the existing Kingman  
27 Road.

### 28 **2.1.2. Construction Summary:**

29 Overall the proposed site features include the Facility, several driveways and loading docks,  
30 covered parking for 20 vehicles, a refuse pad, ADA compliant pedestrian sidewalks, and perimeter  
31 security features including fencing and gates. The proposed facility was rotated to best fit the  
32 existing grades of the site, avoid modification to the existing infrastructure associated with the  
33 VDOT stormwater pond and to avoid wetlands to the east.



1  
2 **FIGURE 2-1. SITE PLAN FOR THE PROPOSED MAINTENANCE AND SUPPLY FACILITY**



1 The MSF and a majority of the construction would occur immediately northeast of the  
 2 intersection of Telegraph Road and Jeff Todd Way and would be constructed in accordance with  
 3 EO 13693, *Planning for Federal Sustainability in the Next Decade*, Unified Facilities Criteria (UFC)  
 4 1-200-02, *High Performance and Sustainable Building Requirements*, UFC 3-210-10, *Low Impact*  
 5 *Development*, and would meet AT/FP requirements.

6 **Table 2.1** summarizes the major construction components of the Proposed Action and their  
 7 corresponding dimensions. Because the final design has not yet been determined, the  
 8 boundaries and sizes for these elements may differ slightly. In total, the Proposed Action would  
 9 disturb approximately 281,000 square feet (6.42 acres) of which is nearly 100 percent  
 10 undeveloped, forested land. Areas not designated for impervious areas include stormwater  
 11 management and utility installation. The Proposed Action would result in an approximately  
 12 70,700 ft<sup>2</sup> (1.6 acres) net increase of impervious surfaces at HEC. Additionally, due to the amount  
 13 of land disturbance, the project will develop a Land Conservation agreement with Virginia  
 14 Department of Environmental Quality.

15 **TABLE 2.1. CONSTRUCTION BREAK DOWN**

Construction Component	Estimated Area of Disturbance (ft <sup>2</sup> )	Estimated Increase in Impervious Surface (ft <sup>2</sup> )
Maintenance and Supply Facility	43,000	+43,600
Supporting Roadway Construction	182,000	+17,000
POV Parking/MILVAN	10,100	+10,100
Infrastructure Alterations	45,300	0
<b>Total=</b>	<b>281,000</b>	<b>+70,700</b>

16 Source: Kingsland 2020

### 17 **2.1.3. Operation**

18 After completion of the construction, personnel currently assigned to existing vehicle  
 19 maintenance activities at HEC (approximately 8 personnel) would transfer to the new MSF at  
 20 HEC. Approximately 39 to 42 people (currently working on Fort Belvoir) would also transfer to  
 21 the new facility. Standard vehicle maintenance for HEC vehicles would change from Fort Belvoir  
 22 to the proposed facility.

### 23 **2.2. Alternatives Considered**

24 NEPA requires considering a range of reasonable alternatives that would feasibly attain most of  
 25 the basic objectives of the project but would avoid or minimize adverse environmental impacts  
 26 of the project and evaluating the comparative merits of the alternatives.

1 An EA need not consider every conceivable alternative to a project; rather it must consider a  
2 reasonable range of potentially feasible alternatives that would foster informed decision making  
3 and public participation.

4 Based on the initial assessment of the proposed alternatives, environmental impacts would  
5 generally be expected to be the same for Alternatives 2 and 3 with exception to floodplains and  
6 the stormwater management areas discussed below.

### 7 **2.2.1. Alternative 1 (The Preferred Alternative)**

8 Alternative 1 would be constructed as described under **Section 2.1.1.**

### 9 **2.2.2. Alternative 2 (Concept A)**

10 Alternative 2, which was partially analyzed under a previous NEPA effort for the MSF in 2019,  
11 locates the MSF adjacent to Building 2596, immediately to the east. Under Alternative 2, the  
12 proposed MSF would share parking space and infrastructure with Building 2596 (see Figure 2-2).  
13 Alternative 2 would provide a driveway immediately north of the proposed facility that would  
14 connect an entrance to the facility to the north. Construction of the facility would primarily be  
15 as described under **Section 2.1.1.** The covered GOV and MILVAN parking area would be  
16 constructed immediately south of the facility with a stormwater management pond immediately  
17 beyond the covered parking.

18 Because this is a reasonable alternative for the Proposed Action, this alternative is carried  
19 forward for further analysis in this EA.

### 20 **2.2.3. Alternative 3**

21 Alternative 3 would be of similar construction to Alternative 2, except with minor adjustments to  
22 roadways and parking. No roadway would connect the northern and northeastern roadway  
23 entrances to the proposed MSF. Associated GOV and MILVAN covered parking would be located  
24 immediately south of Building 2596, further away from the proposed stormwater management  
25 pond.

26 However, this alternative was determined to be infeasible due to wetlands that were identified  
27 west and south of the proposed project area during the design phase of the previous planning  
28 phase of the project. Additionally, Alternative 3 is nearly identical to Alternative 2 in terms of  
29 layout and siting. Based on this, Alternative 2 was kept for further analysis while Alternative 3 is  
30 removed from further analysis.

1                   **2.2.4. No Action Alternative:**

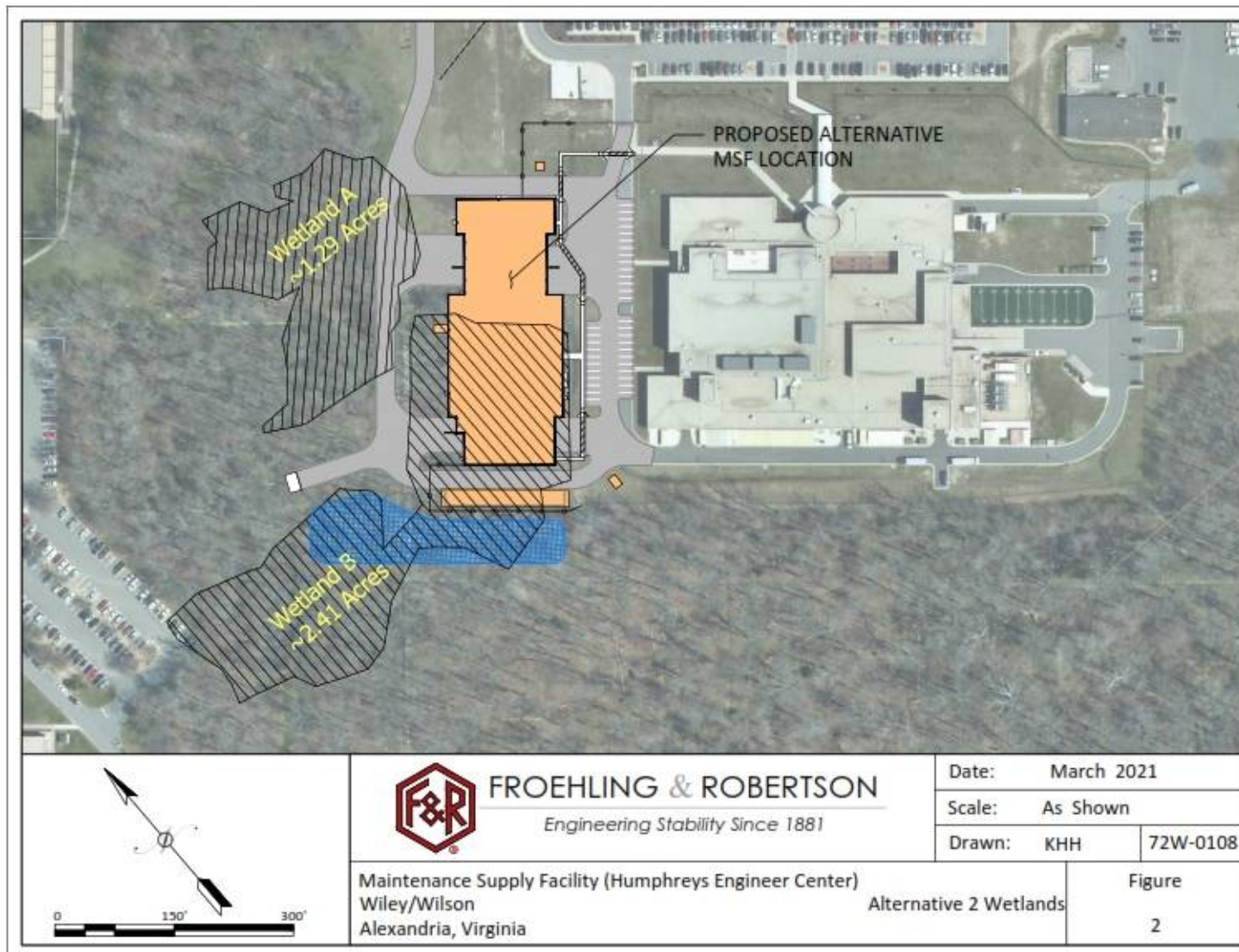
2 NEPA regulations refer to the continuation of the present course of action without the  
3 implementation of, or in the absence of, the Proposed Action, as the “No Action Alternative.”  
4 Inclusion of the No Action alternative is required by the regulations to provide a baseline against  
5 which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

6 Under the No Action Alternative, the USASOC MSF would not be constructed at HEC. The unit  
7 would continue to lack adequate space for storage and maintenance of mission essential  
8 equipment. The unit would also continue to operate in failing, inefficient, and widely-dispersed  
9 facilities which will severely degrade maintenance productivity at HEC. The unit would continue  
10 to be required to drive up to 6 miles round-trip for routine, preventative maintenance, and  
11 repairs. The existing operations would continue to result in unnecessary vehicle emissions and  
12 contribute to the lack of inadequate facilities for storage, management, and control of hazardous  
13 materials used in maintenance activities.

14 Overall, the No Action Alternative would adversely impact the unit’s mission effectiveness and  
15 readiness by continuing to operate in functionally obsolete and poorly maintained facilities for  
16 administrative, training, supply, and maintenance functions.

17                   **2.3. The Preferred Alternative:**

18 The Preferred Alternative is the alternative that is believed to best satisfy the purpose and need  
19 of the Proposed Action to fulfill mission requirements and responsibilities, giving consideration  
20 to economic, environmental, technical, and other factors. Furthermore, under the Preferred  
21 Alternative, existing maintenance activities currently conducted in facilities on Fort Belvoir would  
22 cease and operations would resume in the proposed MSF at HEC. Based on the distance from  
23 the existing wetlands and other sensitive resources, the current Preferred Alternative is  
24 Alternative 1 because it best meets the requirements of the Proposed Action, and through initial  
25 evaluation, has the least environmental impacts.



1

2 **FIGURE 2-2. PROPOSED ALTERNATIVE 2 SITE PLAN**

## 1 **3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

### 2 **3.1. Introduction**

3 This section presents an analysis of the potential environmental consequences of implementing  
4 the Proposed Action (and its alternatives) and the consequences of selecting the No Action  
5 Alternative. Three total alternatives were evaluated for their potential impacts on  
6 environmental, socioeconomic, and cultural resources in accordance with CEQ guidelines at 40  
7 CFR Part 1508.8. The third alternative, as discussed under Section 2.2.3, was not carried forward  
8 for further analysis because of its similarity to Alternative 2 (Concept A).

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

### 15 **3.2. Aesthetic and Visual Resources**

#### 16 **3.2.1. Affected Environment**

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

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

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

1 The Proposed Action site is located within a wooded area located along the northwestern  
2 boundary of HEC, immediately east of, and north of, Telegraph Road and Jeff Todd Way,  
3 respectively. The site encompasses approximately 5.5 acres. The site is surrounded to the south  
4 by a Virginia Department of Transportation stormwater pond, to the east and west by wooded  
5 land and Kingman Road to the north. Undeveloped, wooded land makes up 100% of the project  
6 area.

7 Aesthetics and visual resources at the site primarily consist of forested land with interrupted sight  
8 lines to the north, west, south and east. No other aesthetic and visual resources are present in  
9 the proposed project area.

## 10 **3.2.2. Environmental Consequences**

### 11 **3.2.2.1. Threshold of Significance**

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

### 15 **3.2.3. Alternative 1 (Preferred Alternative)**

#### 16 **3.2.3.1. Construction**

17 Construction of the proposed MSF and site preparation would take approximately 24 months to  
18 complete. Heavy equipment would be required for site preparation and construction of the  
19 proposed facility and associated parking areas. Due to the location of the construction on the  
20 HEC campus and depending on the time of year, some portions of the construction would be  
21 visible from outside of the HEC boundary along Telegraph Road and Jeff Todd Way however  
22 construction best management practices (BMPs) as described below would be implemented to  
23 mitigate these impacts..

24 Construction activities would primarily be visible from the northern and western boundaries of  
25 the project site. Forested area would be located immediately east and south of the construction  
26 site and would preserve natural viewsheds on the HEC campus.

27 To limit visual impacts during construction, the construction contractor would implement BMPs,  
28 such as utilizing a construction privacy fence along the perimeter of the construction site.  
29 Construction equipment (backhoes, front loaders, bulldozer, etc.) traveling to and from the site  
30 would be visible through the central portion of HEC; however, it would be assumed that once the  
31 heavy equipment is on site, it would remain there until completion of the project. No specialized  
32 construction equipment is expected to be necessary for this project.

1 Construction equipment can not only become dust-laden during site work, but can also generate  
2 ambient fugitive emissions which can lead to nuisance concerns such as reduced visibility on  
3 nearby roadways and air quality concerns (see **Section 3.3**). To avoid these impacts, the  
4 construction contractor would use water trucks to prevent fugitive dust from being emitted into  
5 the air. Additionally, dirt and debris would be physically removed from construction vehicles (i.e.  
6 dump trucks) prior to leaving the construction site. Likewise, haul trucks transporting debris and  
7 soils would utilize hopper or bucket covers to further minimize dust emissions as they travel on  
8 HEC and public roadways.

9 Considering the natural view shed obstructions and incorporation of construction BMPs,  
10 construction related to the Proposed Action would have short-term, direct, negligible, adverse  
11 impacts on aesthetic and visual resources at HEC.

#### 12 **3.2.3.2. Operation**

13 The proposed MSF would be of single-story construction, and would be consistent with the  
14 existing architectural style of HEC. The surrounding vegetation and trees to the east would  
15 obstruct the view of the facility from that direction. The northern, western and southern portion  
16 of the site would be visible from Telegraph Road and Jeff Todd Way, depending on the time of  
17 year. Based on the intended use of the facility, no impacts would be expected to the security of  
18 the facility by the potential for increased public visibility along these roadways as the HEC  
19 installation fencing and AT/FP fencing associated with the facility would obscure vision onto the  
20 site. Long-term impacts would be expected from the conversion of natural land to developed  
21 land; however, these impacts are expected to be minimal due to the colocation of similar  
22 resources on the HEC installation.

23 The proposed facility would also incorporate environmental sensitive design with native  
24 plantings and a modern façade consistent with the other facilities at HEC. During operation of  
25 the facility, new landscaping within the site boundary would be professionally maintained. These  
26 operational improvements would not only enhance the visual and aesthetic appeal of this part  
27 of HEC, but would also result in staff and the community having a greater sense of pride for  
28 activities of USACE, HECSA and other tenants at HEC (HEC 2006).

29 Considering the natural view shed obstructions, combined landscaping improvements, operation  
30 of the proposed MSF would have long-term, direct, negligible to minor and adverse and beneficial  
31 impacts on visual and aesthetic resources at HEC.

1                   **3.2.4.     Alternative 2 (Concept A)**

2                   **3.2.4.1.   Construction**

3   Impacts from construction on aesthetic and visual resources would be similar to those described  
4   under **Section 3.2.2** however slightly less as construction of the MSF would not be visible from  
5   outside of the HEC boundary.

6                   **3.2.4.2.   Operation**

7   Impacts from construction on aesthetic and visual resources would be similar to those described  
8   under **Section 3.2.2** however slightly less as the facility would be collocated with similar function  
9   buildings at HEC.

10                  **3.2.5.     No Action Alternative**

11   Under the No Action Alternative, the proposed MSF would not be constructed at HEC. The unit  
12   would continue to lack adequate maintenance and supply of mission critical and essential  
13   equipment. Long-term, negligible, beneficial impacts would be expected under the No Action  
14   Alternative as the proposed MSF would not be constructed and the site would remain as wooded  
15   land and no conversion to developed land would occur. Site conditions would remain as  
16   described under **Section 3.2.1**. No additional impacts on visual or aesthetic resources would be  
17   expected under the No Action Alternative.

18                  **3.3. Air Quality**

19                  **3.3.1.     Affected Environment**

20   **National Ambient Air Quality Standards.** The U.S. Environmental Protection Agency (USEPA),  
21   under the requirements of the 1970 Clean Air Act (CAA) as amended in 1977 and 1990, has  
22   established National Ambient Air Quality Standards (NAAQS) for the following six contaminants,  
23   referred to as criteria pollutants (40 CFR 50):

- 24                  • Carbon monoxide (CO)  
25                  • Lead  
26                  • Nitrogen dioxides (NO<sub>x</sub>)  
27                  • Ozone (O<sub>3</sub>)  
28                  • Sulfur Dioxide (SO<sub>2</sub>)  
29                  • Particulate matter (PM), divided into two size classes:  
30                      ○ Aerodynamic size less than or equal to 10 micrometers (PM<sub>10</sub>)  
31                      ○ Aerodynamic size less than or equal to 2.5 micrometers (PM<sub>2.5</sub>)



1 The NAAQS includes primary and secondary standards. The primary standards were established  
 2 at levels sufficient to protect public health with an adequate margin of safety. The secondary  
 3 standards were established to protect the public welfare from the adverse effects associated  
 4 with pollutants in the ambient air. **Table 3.1** shows the primary and secondary standards (USEPA  
 5 2020a).

6 The CAA, as amended in 1990, mandates that state agencies adopt State Implementation Plans  
 7 (SIP) that target the elimination or reduction of the severity and number of violations of the  
 8 NAAQS. SIPs set forth policies to expeditiously achieve and maintain attainment of the NAAQS.

9 While each state has the authority to adopt standards stricter than those established under the  
 10 federal program, the Commonwealth of Virginia accepts federal standards.

11 Federal regulations designate Air Quality Control Regions (AQCR) that have concentrations of one  
 12 or more of the criteria pollutants that exceed the NAAQS as nonattainment areas, while AQCRs  
 13 with levels below the NAAQS are designated as attainment areas. Further, maintenance areas  
 14 are AQCRs that have previously been designated nonattainment and have been redesignated to  
 15 attainment for a probationary period through implementation of maintenance plans. According  
 16 to the severity of the pollution problem, O<sub>3</sub> and PM<sub>10</sub> nonattainment areas can be categorized as  
 17 marginal, moderate, serious, severe, or extreme. Where insufficient data exist to determine an  
 18 areas' attainment status, it is designated unclassifiable or in attainment.

19 **TABLE 3.1. NATIONAL AMBIENT AIR QUALITY STANDARDS**

NAAQS	Primary/Secondary	Averaging Time	Level	Form			
Carbon Monoxide	Primary	8-hour	9 ppm	Not to be exceeded more than once per year			
		1-hour	35 ppm				
Nitrogen Dioxide	Primary	1-hour	100 ppb	98 <sup>th</sup> percentile, averaged over 3 years			
	Primary and secondary	Annual	53 ppb	Annual Mean			
Ozone	Primary and Secondary	8-hour	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years			
				Primary	Annual	12 µg/m <sup>3</sup>	Annual mean, averaged over 3 years
				Secondary	Annual	15 µg/m <sup>3</sup>	Annual mean, averaged over 3 years

NAAQS	Primary/Secondary	Averaging Time	Level	Form
Particulate Matter (PM <sub>2.5</sub> )	Primary and Secondary	24-hour	35 µg/m <sup>3</sup>	98 <sup>th</sup> percentile, averaged over 3 years
Particulate Matter (PM <sub>10</sub> )	Primary and Secondary	24-hour	150 µg/m <sup>3</sup>	Not to be exceeded more than once per year on average over 3 years
Lead	Primary and Secondary	Rolling 3-month average	0.15 µg/m <sup>3</sup>	Not to be exceeded
Sulfur Dioxide	Primary	1-hour	75 ppb	99 <sup>th</sup> percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

1 Key: ppm – parts per million; ppb – parts per billion; µg/m<sup>3</sup> – micrograms per meter cubed

2 Source: USEPA 2020a

3 Fairfax County (which encompasses HEC) is within the National Capital Interstate AQCR (AQCR  
4 047 or DC-MD-VA AQCR) (40 CFR 81.12). AQCR 047 is in the ozone transport region (OTR) that  
5 includes 12 states and Washington D.C. The USEPA (as of 31 March 2019) has designated Fairfax  
6 County as marginal nonattainment for the 2015 8-hour O<sub>3</sub> NAAQS and in attainment for all other  
7 criteria pollutants (USEPA 2020a, USEPA 2020b).

8 On December 20, 2017, the Metropolitan Washington Air Quality Committee submitted a  
9 request to the USEPA to redesignate the DC-MD-VA AQCR, which HEC is within, from  
10 nonattainment to attainment for 2008 8-Hour Ozone NAAQS (MWCOG 2017). As of 15 April  
11 2019, the decision on the redesignation request was approved by the USEPA (USEPA 2019).

12

13 **Clean Air Act Conformity.** The 1990 amendments to the CAA require federal agencies to ensure  
14 that their actions conform to the SIP in a nonattainment area. Under Section 176(c) of the CAA,  
15 a project is in “conformity” if it corresponds to a SIP’s purpose of eliminating or reducing the  
16 severity and number of violations of the NAAQS and achieving their expeditious attainment.

17 Conformity further requires that such activities would not:

- 18
- cause or contribute to any new violations of any standards in any area;

- 1 • increase the frequency or severity of any existing violation of any standards in any area;
- 2 or
- 3 • delay timely attainment of any standard or any required interim emission reductions or
- 4 other milestones in any area.

5 The USEPA published final rules on general conformity (40 CFR Parts 51 and 93) in the Federal  
6 Register on 30 November 1993. The General Conformity Rule (GCR) applies to federal actions in  
7 nonattainment or maintenance areas for any of the criteria pollutants. The results specify *de*  
8 *minimis* emission levels by pollutant to determine the applicability of conformity requirements  
9 for a project. The corresponding *de minimis* levels for the ozone precursors for marginal O<sub>3</sub>  
10 nonattainment areas are 100 tons per year for NO<sub>x</sub> and 50 tons per year for volatile organic  
11 compounds (VOCs). A federal action is exempt from the GCR requirements if the action's total  
12 new emissions are below the *de minimis* threshold or are otherwise exempt from 40 CFR 51.153.  
13 There are two main components to the overall process: an applicability analysis to determine  
14 whether a conformity determination is required and, if it is, a conformity determination to  
15 demonstrate that the action conforms to the SIP. The Proposed Action does not require a formal  
16 conformity determination. A Record of Non-Applicability (RONA) concerning the GCR is provided  
17 in **Appendix B**, which details the emissions estimates and the methodology used.

18 **Hazardous Air Pollutants.** In addition to the criteria pollutants discussed above, non-criteria  
19 toxic pollutants, called hazardous air pollutants (HAPs), are also regulated under CAA. USEPA has  
20 identified a total of 188 HAPs that are known or suspected to cause health effects in small doses.  
21 HAPs are emitted by a wide range of man-made and naturally occurring sources, including mobile  
22 and stationary sources. However, unlike the NAAQS for criteria pollutants, federal ambient air  
23 quality standards do not exist for non-criteria pollutants.

24 **Greenhouse Gas Emissions and Climate Change.** It is noted that EO 13783, *Promoting Energy*  
25 *Independence and Promoting Economic Growth*, rescinded the final guidance issued August 5,  
26 2016, by the CEQ that requires federal agencies to consider greenhouse gas emissions (GHG) and  
27 the effects of climate change in NEPA documents. Further, EO 13693, *Planning for Federal*  
28 *Sustainability in the Next Decade*, was also rescinded on March 17, 2018 and replaced by EO  
29 13834, *Efficient Federal Operations*. As of January 2021, EO 13834 was revoked with the  
30 exception of Sections 6, 7 and 11, by EO 13990, *Climate Crisis; Efforts to Protect Health and*  
31 *Environmental and Restore Science*. Section 5 of EO 13990 states, "(a) It is essential that agencies  
32 capture the full costs of greenhouse gas emissions as accurately as possible, including by taking  
33 global damages into account." As such, this EA estimates carbon dioxide (CO<sub>2</sub>) levels associated  
34 with the Proposed Action with respect to potential global impacts. Additionally, this EA considers  
35 CO<sub>2</sub> as the representative GHG emission.

1 GHGs are considered compounds that contribute to the greenhouse effect. The greenhouse  
2 effect is a natural phenomenon where gases trap heat within the surface-troposphere (the  
3 lowest portion of the earth's atmosphere) system, causing heating at the surface of the earth.  
4 The primary long-lived GHGs directly emitted by human activities are car CO<sub>2</sub>, methane (CH<sub>4</sub>),  
5 nitrous oxides (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur  
6 hexafluoride (SF<sub>6</sub>).

7 The heating effect from these gases is considered the probable cause of the increasing global  
8 temperatures observed over the last 50 years (NASA 2019). Climate change can affect many  
9 aspects of the environment and is exacerbated by greenhouse gas (GHG) emissions. The  
10 dominant GHG gas emitted is CO<sub>2</sub> (accounting for 81.6% of all GHG emissions as of 2017, the  
11 most recent year for which data are available [USEPA 2020c]).

12 Worldwide GHG emissions emitted by human activities include CO<sub>2</sub> (65% of global GHG from  
13 fossil fuel and industrial process and 11% from forestry and other land uses), CH<sub>4</sub> (16% of global  
14 GHG), N<sub>2</sub>O (6% of global GHG), Fluorinated gases (2% of global GHG). Fossil fuel use is the primary  
15 source of CO<sub>2</sub>, which can also be emitted directly from human-induced activities on forestry and  
16 other land use such as through deforestation, land clearing for agriculture and degradation of  
17 soils. CH<sub>4</sub> and N<sub>2</sub>O are results of agricultural activities and fluorinated gases are typically  
18 byproducts of industrial processes (USEPA 2021). Based on the nature of construction and  
19 operation related to the Proposed Action, CH<sub>4</sub>, N<sub>2</sub>O and fluorinated gases are not analyzed  
20 further in this EA.

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

### 24 **3.3.2. Environmental Consequences**

#### 25 **3.3.2.1. Threshold of Significance**

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

### 29 **3.3.3. Alternative 1 (Preferred Alternative)**

#### 30 **3.3.3.1. Construction**

31 HEC has considered net emissions generated from direct and indirect sources of air emission that  
32 are reasonably foreseeable. *Direct emissions* are emissions that are caused by a federal action  
33 and occur at the same time and place as the action. *Indirect emissions* are defined as reasonably

1 foreseeable emissions that are caused by the action but might occur later in time and/or be  
2 farther removed in distance from the action itself, and that the federal agency can practicably  
3 control.

4 Specifically, direct emissions would result from the construction and site work related to the  
5 Proposed Action. There are no anticipated indirect emissions associated with the Proposed  
6 Action.

7 As previously discussed, AQCR 047 is currently in nonattainment for the 2015 8-hour O<sub>3</sub> NAAQS.  
8 Therefore, since construction associated with the Proposed Action would result in the emissions  
9 of precursors of this nonattainment air pollutant, a review has been conducted to determine if  
10 the Proposed Action is subject to GCR. Furthermore, there is no current standard for CO<sub>2</sub> set by  
11 the USEPA however values for CO<sub>2</sub> were calculated and found to be negligibly impactful,  
12 especially when compared to other global levels of CO<sub>2</sub> emissions.

13 Information regarding the number of pieces and types of equipment to be used on the project,  
14 the schedule of equipment use, and the approximate daily operating time was calculated using  
15 the estimations and presumptions provided for the Proposed Action and through field  
16 experience.

17 The total project construction emissions associated with the use of heavy construction  
18 equipment (e.g. bulldozers, backhoes, etc.), worker vehicles, paving off-gases, and fugitive dust  
19 from surface disturbances are presented in **Table 3.2**. Emissions for the other criteria pollutants  
20 that are considered to be negligible for various phases of construction are reported as non-  
21 applicable (N/A) in the associated table.

22 As shown in **Table 3.2**, the total estimated emissions for construction of the Proposed Action  
23 would be below the GCR *de minimis* thresholds. Therefore, construction would have a short-  
24 term, direct, and negligible to minor impact on air quality.

### 25 **3.3.3.1. Operation**

26 Operation of the proposed MSF would generate negligible amounts of emissions. Maintenance  
27 activities performed at the facility will be minor in nature and consist of oil changes, transmission  
28 fluid changes, and coolant replacements. No substantive new non-mobile or mobile emission  
29 sources would be created. Generally, emissions from operational activities would be expected  
30 to be generally lower than the construction-related emissions, and therefore operation of the  
31 Proposed Action also would not lead to an exceedance of the GCR *de minimis* thresholds.

1 **TABLE 3-2. TOTAL EMISSIONS FROM CONSTRUCTION OF THE PROPOSED ACTION**

Phases	Total Estimated Construction Emissions (tons per year [tpy])					
	CO	NOx	PM	SO <sub>2</sub>	VOC	CO <sub>2</sub>
<b>Heavy Construction Equipment Emissions</b>	5.4023	5.9911	0.2631	0.0154	0.9629	1401.3584
<b>Worker Vehicle Emissions</b>	1.0313	0.0911	0.0416	0.0028	0.1261	287.7637
<b>Paving Off-Gas Emission</b>	N/A	N/A	N/A	N/A	0.0008	N/A
<b>Fugitive Dust Emissions</b>	N/A	N/A	7.26	N/A	N/A	N/A
<b>Total Emissions</b>	6.4336	6.0822	7.5647	0.0182	1.0898	1689.1220
<b>GCR <i>de minimis</i> Emission Levels</b>	100	100	100	100	50	N/A

2 Note: N/A – Not Applicable

3 Therefore, the operation of the proposed MSF would have negligible impacts on air quality from  
4 standard maintenance and supply building operations and functions.

5 **3.3.4. Alternative 2 (Concept A)**6 **3.3.4.1. Construction**

7 Impacts would generally be similar to those described under **Section 3.3.3.1**, however slightly  
8 less because Alternative 2 would involve removal of fewer trees than Alternative 1 as  
9 Alternative 2 would be constructed in an already disturbed area of HEC.

10 **3.3.4.2. Operation**

11 Impacts would generally be the same as those described under **Section 3.3.3.2**.

12 **3.3.5. No Action Alternative**

13 Under the No Action Alternative, the proposed MSF would not be constructed at HEC. The unit  
14 would continue to lack adequate maintenance and supply of mission critical and essential  
15 equipment. Long-term, negligible, beneficial impacts would be expected under the No Action  
16 Alternative as the proposed MSF would not be constructed and the site would remain as wooded  
17 land and no conversion to developed land would occur. Site conditions would remain as

1 described under **Section 3.3.1**. No additional impacts on air quality would be expected under  
2 the No Action Alternative.

### 3 **3.4. Biological Resources**

4 Biological resources include both plants and animals, including species protected under the  
5 *Endangered Species Act* (ESA), the *Migratory Bird Treaty Act* (MBTA), and the *Bald and Golden*  
6 *Eagle Protection Act* (BGEPA). The study area for this section consists of the approximately 3.2  
7 acre Proposed Action site.

#### 8 **3.4.1. Affected Environment**

9 **Vegetation.** The Proposed Action site is within the coastal plain province of Virginia. The coastal  
10 plain is characterized primarily by pine-dominated forests. The Proposed Action site is primarily  
11 composed of dense wooded land. Nearly half of the HEC installation is covered with dense,  
12 secondary tree growth. Due to poor soils, topography and infrequent management of coniferous  
13 trees, hardwood trees have become dominant on HEC. Common tree species found at HEC  
14 include spruce (*Picea excels*), sitka spruce (*Picea falcate*), black pine (*Pinus nigra*), English yew  
15 (*Taxus baccata*), irish juniper (*Junipersur communis*) and alder (*Alnus incana*) (HEC 2006). A 2019  
16 Forest Stand Delineation (FSD) Report was prepared for the site and identifies the site as heavily  
17 wooded with tulip poplar (*Liquidambar sytraciflua*) (USACE 2020). The FSD for the project site is  
18 available as Appendix D.

19 **Wildlife.** Abundant and diverse populations of wildlife occur throughout the majority of the 540  
20 acres of the installation. These wildlife species include white-tailed deer, grey squirrels, opossum  
21 and a variety of birds. Because of the proximity of existing roadways, buildings and general  
22 development around the Proposed Action site, the site has low habitat value for wildlife relative  
23 to the majority of HEC (HEC 2006). According to the Virginia Fish and Wildlife Information Service  
24 (VAFWIS) website and online report generated for the Proposed Action, 701 non-protected  
25 species have the potential to occur within 3 miles of the project area. These species include  
26 various terrestrial and aquatic animals (VAFWIS 2021).

27 HEC and the surrounding area provide roosting, foraging, and nesting habitat for bald or golden  
28 eagles, protected under the BGEPA. Eagle nests have been documented along Dogue Creek and  
29 the Potomac River. The Proposed Action site contains no documented nesting sites, nor does it  
30 provide significant amount of foraging or roosting habitat for the eagle.

31 **State and Federally Protected Species.** Of the 701 species (686 are non-protected species) that  
32 have potential to occur within 3 miles of the project area, 13 species are either protected at the  
33 state or federal level. **Table 3.3** details the state and federally protected species that have the  
34 potential to occur within the Proposed Action site.

1 **TABLE 3-3. STATE AND FEDERAL PROTECTED SPECIES THAT HAVE POTENTIAL TO OCCUR WITHIN 3**  
 2 **MILES OF THE PROJECT AREA**

Common Name	Scientific Name	Status
Atlantic Sturgeon	<i>Acipenser oxyrinchus</i>	FE, SE
Northern Long-Eared Bat	<i>Myotis septentrionalis</i>	FT, ST
Yellow Lance	<i>Elliptio lanceolata</i>	FT
Little Brown Bat	<i>Myotis lucifugus</i>	SE
Tri-Colored Bat	<i>Perimyotis subflavus</i>	SE
Brook Floater	<i>Alasmidonta varicosa</i>	SE
Wood Turtle	<i>Glyptemys insculpta</i>	ST
Peregrine Falcon	<i>Falco peregrinus</i>	ST
Loggerhead Shrike	<i>Lanius ludovicianus</i>	ST
Henslow's Sparrow	<i>Ammodramus henslowii</i>	ST
Appalachian Grizzled Skipper	<i>Pyrgus wyandot</i>	ST
Migrant Loggerhead Shrike	<i>Lanius ludovicianus migrans</i>	ST
Spotted Turtle	<i>Clemmys guttata</i>	CC

3 Key: FE – Federally Endangered; FT – Federally Threatened; SE – State Endangered; ST – State  
 4 Threatened; CC – Collection Concern

5 Source: VAFWIS 2021

6 The Atlantic sturgeon (*Acipenser oxyrinchus*) is federally and state endangered and is known to  
 7 occur in the deeper waters of the Potomac River and Chesapeake Bay basin. The Atlantic  
 8 sturgeon has not been observed on HEC or on the adjacent federal property Fort Belvoir, it has  
 9 been documented in the Potomac River near Fort Belvoir. There are no water bodies in the  
 10 Proposed Action site that would support the Atlantic sturgeon; however, it could exist in the area  
 11 surrounding the site, including in Dogue Creek, approximately 2,200 feet southeast of the site.  
 12 Potential threats to the Atlantic sturgeon include bycatch of sturgeon in fisheries targeting other  
 13 species, pollution, excessive loud noise (in water bridge or pier construction), increases in  
 14 sedimentation, degradation of habitat from human activities, loss of habitat, and loss of access  
 15 to spawning grounds (Fort Belvoir 2018).

16 As of 2 April 2015, the northern long-eared bat (NLEB) was listed as a federally-threatened  
 17 species. The NLEB is a federal threatened and state threatened forest dwelling bat that  
 18 historically used to be a common species in Virginia and that has been identified on the adjacent  
 19 federal property, Fort Belvoir. The effects of White-Nose Syndrome caused by the fungus  
 20 (*Pseudogymnoascus destructans*) created the need for federal and state protection. Fort Belvoir  
 21 has been conducting mist net surveys and using acoustics devices since 1998 to monitor bat  
 22 populations on the installation. Potential threats to the NLEB are disease, habitat destruction  
 23 (roost, foraging, reproduction, and hibernacula impacts), bioaccumulation of pesticides, and  
 24 predation (Fort Belvoir 2018). NLEBs winter in caves and mines, neither of which are present on  
 25 HEC; however, in the late spring and summer the bats migrate to wooded areas and roost under  
 26 loose tree bark on living or dead trees. HEC has forest stands that could be suitable for roosting



1 during the late spring and summer months. Based on the proximity of HEC to Fort Belvoir, and  
2 that HEC would be composed of very similar NLEB habitat to Fort Belvoir, HEC would incorporate  
3 protection measures outlined in the *Memorandum of Instruction – Northern Long-eared Bat*  
4 *Protection* on Fort Belvoir, dated 21 October 2015 to mitigate potential adverse impacts to the  
5 NLEB. This document is available online here: [https://home.army.mil/belvoir/application/files](https://home.army.mil/belvoir/application/files/9515/8162/9340/FB_NLEB_Memo.pdf)  
6 [/9515/8162/9340/FB\\_NLEB\\_Memo.pdf](https://home.army.mil/belvoir/application/files/9515/8162/9340/FB_NLEB_Memo.pdf).

7 The Yellow Lance (*Ellipectio lanceolata*) is federally-threatened and is a freshwater mussel species  
8 native to the Atlantic Slope drainages in Maryland, Virginia and North Carolina. The species  
9 occurs in streams and rivers, generally in clean, coarse to medium sands and sometimes gravel  
10 substrates. There are no water bodies in the project area that would support the Yellow Lance  
11 however the Yellow Lance could potentially exist near the project area including Dogue Creek,  
12 approximately 2,200 feet southeast from the project area. Potential threats to the Yellow Lance  
13 include declines in water quality, loss of stream flow, riparian and instream habitat  
14 fragmentation, and deterioration of instream habitats (USFWS 2018).

15 The little brown bat (*Myotis lucifugus*) is state endangered and has been added to the National  
16 Listing Workplan. The little brown bat is frequently documented foraging and roosting on Fort  
17 Belvoir; however, HEC does not maintain records regarding little brown bat foraging and roosting  
18 on HEC. The effects of White-Nose Syndrome created the need for state protection and petition  
19 for federal protection. Fort Belvoir has been conducting mist net surveys and using acoustical  
20 devices since 1998 to monitor bat populations on the installation. The little brown bat on Fort  
21 Belvoir is managed similarly to the NLEB. Potential threats to the little brown bat are disease,  
22 habitat destruction (roost, foraging, reproduction, and hibernacula impacts), bioaccumulation of  
23 pesticides, and predation (Fort Belvoir 2018).

24 The tricolored bat (*Perimyotis subflavus*) is state endangered and has been added to the National  
25 Listing Workplan. The tricolored bat is still frequently documented foraging and roosting on Fort  
26 Belvoir; however, HEC does not maintain records regarding tricolored bat foraging and roosting  
27 on HEC. The effects of White-Nose Syndrome created the need for state protection and petition  
28 for federal protection. Fort Belvoir has been conducting mist net surveys and using acoustics  
29 devices since 1998 to monitor bat populations on the installation. The tricolored bat on Fort  
30 Belvoir is managed similarly to the NLEB. Potential threats to the tricolored bat are disease,  
31 habitat destruction (roost, foraging, reproduction, and hibernacula impacts), bioaccumulation of  
32 pesticides, and predation (Fort Belvoir 2018).

33 The brook floater (*Alasmidonta varicose*) is a state endangered freshwater mussel species native  
34 to the Shenandoah and Potomac River watershed. The species occurs in clear, swift waters with  
35 gravel and/or sand and gravel substrates. Typically, they are found buried in the substrate in  
36 shallow riffle and shoal areas. According to VAFWIS, the only live brook floaters that have been

1 found recently include those in the mainstem Potomac River. Potential threats to the brook  
2 floater include declines in water quality, loss of stream flow, riparian and instream habitat  
3 fragmentation, and deterioration of instream habitats (VAFWIS 2019).

4 The wood turtle (*Glyptemys insculpta*) is a state threatened species and has been added to the  
5 National Listing Workplan. The wood turtle has been documented on Fort Belvoir in several  
6 locations along Dogue Creek and Accotink Creek. Wood turtles can occupy a wide variety of  
7 habitats including forested floodplains and nearby slopes, fields in various stages of succession,  
8 wet meadows, and farmland with the primary attribute being the presence of water. The wood  
9 turtle is very mobile, highly terrestrial species that typically uses creeks for hibernacula and  
10 mating and uses the riparian zones around the creeks during its more terrestrial stages. Wood  
11 turtle habitat has potentially been identified on HEC by Fort Belvoir, approximately 500 feet  
12 southwest of the project area. Potential threats to the wood turtle include development of the  
13 riparian buffers, increased stormwater flow, and poaching of turtles for the pet trade (Fort  
14 Belvoir 2018, VAHS 2019).

15 The peregrine falcon (*Falco peregrinus*) is a state threatened species that has been occasionally  
16 reported on the Fort Belvoir shoreline. There are no records of peregrine falcons within the HEC  
17 boundary however there may be foraging areas in the areas surrounding HEC. The peregrine  
18 falcon occupies various different habitats including mountain ranges, river valleys and coastlines.  
19 Furthermore, the Peregrine Falcon in this area around HEC would be found in a broad array of  
20 habitats including urban, barrier islands, seacoasts, lake edges, or mountain ranges. Potential  
21 threats to the peregrine falcon foraging habitat include disturbances near adjacent shorelines,  
22 shoreline development, and recreational activities on waters surrounding HEC and Fort Belvoir  
23 (USFWS 2006, Fort Belvoir 2018).

24 The loggerhead shrike (*Lanius ludovicianus*) is a state threatened bird that has potential to occur  
25 in the area on and around HEC. Loggerhead shrikes prefer open country with short vegetation.  
26 Breeders usually settle near isolated trees or large shrubs (Fort Belvoir 2018). The loggerhead  
27 shrike has been observed on Fort Belvoir however there are no records of loggerhead shrike  
28 sightings or nests on HEC. Potential threats to the loggerhead shrike include loss of suitable  
29 habitat, habitat fragmentation, pesticides, and urbanization (USFWS 2000).

30 Henslow's sparrow (*Ammodramus henslowii*) is a state threatened bird that has potential to  
31 occur on or around HEC. The Fort Belvoir Integrated Natural Resources Management Plan  
32 (INRMP) does not identify Henslow's sparrow resources on the installation. Furthermore, there  
33 are no records of Henslow's sparrow occurring or utilizing HEC property. Henslow's sparrow  
34 historically breeds in native prairie habitat but are known to inhabit other grasslands including  
35 hayfields, pastures and wet meadows. Threats to Henslow's sparrow primarily include habitat  
36 loss and urbanization (USFWS 2012).

1 The Appalachian grizzled skipper (*Pyrgus Wyandot*) is a state threatened species that has potential  
2 to occur in the area around the project area. According to the Pennsylvania Natural Heritage list  
3 the preferred habitat for the Appalachian grizzled skipper consists of semi-open shale slopes with  
4 sparse herbaceous vegetation which tend to be surrounded by scrubby oak or oak-hickory  
5 woodlands. There are no records of sightings or surveys for the Appalachian grizzled skipper on  
6 HEC. Threats to the Appalachian grizzled skipper include urbanization and are extremely  
7 vulnerable to gypsy moth spraying (Fort Belvoir 2018).

8 Migrant Loggerhead shrike is a state threatened bird (*Lanius ludovicianus migrans*) that is a  
9 migrant subspecies of *Lanius ludovicianus*. This species prefers open habitat characterized by  
10 grasses and forbs. There are no records of the migrant loggerhead shrike on HEC. Potential  
11 threats to the migrant loggerhead shrike include loss of suitable habitat, habitat fragmentation,  
12 pesticides, and urbanization (USFWS 2000, PNHP 2019).

13 The spotted turtle (*Clemmys guttata*) is a turtle common to Fort Belvoir that has recently added  
14 to the National Listing Workplan to evaluate the species' needs for federal protection. The turtle  
15 is primarily found in the flooded forested wetlands, but it will travel across the landscape from  
16 wetland to wetland. Potential threats to the spotted turtle include development within the  
17 riparian buffers around the wetlands, alterations to wetland hydrology, and poaching of turtles  
18 for the pet trade (Fort Belvoir 2018).

19 The rusty patched bumble bee (*Bombus affinis*) is also known to historically occur at and in the  
20 surrounding area of HEC and Fort Belvoir. Although the rust patched bumble bees have not been  
21 observed or collected in Fairfax County since the 1970s, surveys and voluntary conservation  
22 measures are strongly encouraged by USFWS for projects in Fairfax County. The rusty patched  
23 bumble bee required nesting habitat (typically abandoned rodent nests or other similar cavities),  
24 floral resources to gather pollen and nectar (typically within 0.6 miles of nests), and  
25 overwintering habitat (loose soil and/or leaf litter in or near woodlands and woodland edges that  
26 contain spring blooming herbaceous plants, shrubs, and trees) (Mullen et al. 2016, Fort Belvoir  
27 2018).

28 **Migratory Birds.** Migratory bird data is not collected on HEC; however, migratory birds are well  
29 documented at the immediately adjacent Fort Belvoir. 278 bird species have been identified on  
30 Fort Belvoir with approximately 32 percent being year-round residents, 26 percent are  
31 neotropical migrants, and 36 percent are temperate migrants. USFWS identifies 19 Birds of  
32 Conservation Concern that have potential to be impacted in the Proposed Action site (VAFWIS  
33 2021). Birds of Conservation Concern are species, subspecies and populations of migratory non-  
34 game birds that, without additional conservation actions, are likely to become candidates for  
35 listing under the ESA. Of these 19 birds, 16 species have been documented on the adjacent Fort

1 Belvoir and therefore have the potential to occur in or near the Proposed Action site as a stopover  
2 on their migratory route, during the breeding season, or could occur year-round.

### 3 **3.4.2. Environmental Consequences**

#### 4 **3.4.2.1. Threshold of Significance**

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

### 11 **3.4.3. Alternative 1 (Preferred Alternative)**

#### 12 **3.4.3.1. Construction**

13 **Vegetation.** Approximately 281,000 ft<sup>2</sup> of land, a majority of which is vegetated with forested  
14 land, will be disturbed from earthmoving activities related to the Proposed Action.  
15 Approximately 70,700 ft<sup>2</sup> of impervious surfaces will also be added to HEC, which will  
16 permanently impact vegetative growth. The impacts from development would be minor because  
17 the existing vegetation is common locally around the project area. Tree clearing would be  
18 expected to reduce available habitat and reduce canopy coverage however, tree replacement  
19 and reforestation would occur in general accordance with National Capital Planning Commission  
20 (NCPC) Tree Preservation and Replacement Policy which establishes procedures that the federal  
21 government should follow to prevent and mitigate tree canopy loss due to development.

22 Ultimately, the Proposed Action would alter approximately less than one percent of the total land  
23 at HEC. Vegetation removal and earthwork during construction could increase the establishment  
24 of nonnative and invasive species and erosion and sedimentation because of ground disturbance.  
25 BMPs would be implemented to minimize the potential adverse impacts associated with the  
26 spread of nonnative vegetation. Therefore, impacts on vegetation from construction of the  
27 Proposed Action would be short and long-term, minor and adverse because of the temporary  
28 and permanent loss of vegetative biomass during construction related to the Proposed Action.

29 **Wildlife.** Construction activities would likely disturb or displace wildlife from noise, habitat  
30 alternation and direct physical impact at the site of the Proposed Action and immediately nearby.  
31 During construction activities, mobile wildlife would relocate to similar, adjacent habitats.  
32 Impacts to less-mobile terrestrial species (e.g. reptiles and rodents) could occur from direct  
33 physical impact (e.g. vehicular traffic, construction and demolition equipment); however, due to  
34 noise and general disturbances related to construction activities, wildlife would be expected to

1 avoid the area and personnel would be instructed to avoid direct physical impacts. Negligible,  
2 short- and long-term, adverse impacts on common wildlife would be expected during  
3 construction related to the Proposed Action.

4 **State and Federally Protected Species.** There are no surface water bodies within the area of the  
5 Proposed Action. Impacts from sedimentation and water quality degradation downstream of the  
6 Proposed Action (i.e. Dogue Creek) would be significantly mitigated by employing appropriate  
7 BMPs during construction (See **Section 3.13.2**). Therefore, no impacts on state or federally  
8 protected fish (Atlantic Sturgeon, Yellow Lance, and Brook Floater) would be expected during  
9 construction related to the Proposed Action.

10 The site is predominantly forested and therefore mitigative measures to protect potential  
11 impacts to state and federally protected species would be implemented. Based on a lack of  
12 available foraging area at the site of the Proposed Action, construction related to the Proposed  
13 Action would have no significant, adverse impacts on the northern long-eared bat, tricolor bat or  
14 the little brown bat. Furthermore, TYOR would be implemented to mitigate potential impacts to  
15 these features.

16 The peregrine falcon, loggerhead shrike, Henslow's sparrow, Appalachian Grizzled Skipper,  
17 migrant loggerhead shrike have not been identified on HEC, however based on the availability of  
18 habitat, could occur there as transients or migrants. Nevertheless, because these species would  
19 likely only occur at HEC as transients or migrants, if the species were identified in the Proposed  
20 Action site, they would likely vacate the area during construction and not return until  
21 construction is complete, if at all. The noise generated during construction would also deter  
22 these species from habituating at the site, or immediately nearby. Based on the available habitat  
23 at the Proposed Action site and the habitat preferences of the peregrine falcon, loggerhead  
24 shrike, Henslow's sparrow, and the Appalachian Grizzled Skipper, these birds would be unlikely  
25 to utilize the site for nesting or other purposes. Impacts to these species would be further  
26 mitigated by conducting all vegetation removal and earthwork outside of the migratory season.  
27 Therefore, short- and long-term, negligible to minor, and adverse impacts on the peregrine  
28 falcon, loggerhead shrike, Henslow's sparrow, and Appalachian Grizzled Skipper would be  
29 expected during construction related to the Proposed Action.

30 The wood turtle and the spotted turtle are two reptiles that have potential to occur in and/or  
31 adjacent to the Proposed Action. Though wood turtle habitat is not identified within the site, the  
32 potential exists for the wood turtle to occur there due to its proximity to Dogue Creek and  
33 because of the project areas proximity to potential wood turtle habitat. To minimize potential  
34 impacts to wood turtles that may be present at the project area, Virginia Department of Game  
35 and Inland Fisheries wood turtle protection guidelines would be adhered to as much as  
36 practicable during construction. Those guidelines state that construction and land clearing  
37 activities should not occur within 900 feet of a stream between April 1 and September 30.

1 Therefore, short- and long-term, negligible to minor, and adverse impacts on the wood turtle and  
2 spotted turtle would be expected during construction related to the Proposed Action.

3 **Migratory Birds.** During construction, potential noise and direct physical impacts on migratory  
4 birds would be similar to those discussed previously for wildlife. Steps to prevent direct impacts  
5 to migratory nesting birds include conducting all vegetation removal and earthwork outside of  
6 the migratory season. Should vegetation removal need to occur during migratory season, a nest  
7 survey would be conducted by qualified personnel and active nests would be avoided until all  
8 young have fledged and the nest is no longer occupied. There would be no loss of forest cover  
9 under the Proposed Action. Therefore, short- and long-term, negligible, adverse impacts would  
10 be expected to migratory birds during construction related to the Proposed Action.

#### 11 **3.4.3.2. Operation**

12 **Vegetation.** The Proposed Action would include standard seeded grass or sod areas, which will  
13 require standard and routine maintenance as prescribed under the Landscape Design Guidelines  
14 outlined in the HEC 2006 Master Plan. No impacts from operation of the proposed TSF would be  
15 expected on vegetation.

16 **Wildlife.** No impacts on wildlife from operation of the proposed TSF would be expected.

17 **State and Federally Protected Species.** No impacts on state and federally protected species from  
18 operation of the proposed TSF would be expected.

19 **Migratory Birds.** No impacts on migratory birds from operation of the proposed TSF would be  
20 expected.

#### 21 **3.4.4. Alternative 2 (Concept A)**

##### 22 **3.4.4.1. Construction**

23 Impacts would generally be the same as those described under **Section 3.4.3.1**, however slightly  
24 less because Alternative 2 would involve removal of less trees than Alternative 1.

##### 25 **3.4.4.2. Operation**

26 Impacts would generally be the same as those described under **Section 3.4.3.2**.

#### 27 **3.4.5. No Action Alternative**

28 Under the No Action Alternative, the proposed MSF would not be constructed at HEC. The unit  
29 would continue to lack adequate maintenance and supply of mission critical and essential  
30 equipment. Long-term, negligible to minor, beneficial impacts would be expected under the No  
31 Action Alternative as the proposed MSF would not be constructed and the site would remain as

1 wooded land and no conversion to developed land would occur. Site conditions would remain  
2 as described under **Section 3.4.1**. No additional impacts on biological resources would be  
3 expected under the No Action Alternative.

### 4 **3.5. Cultural Resources**

#### 5 **3.5.1. Affected Environment**

6 Cultural resources for the purposes of this EA as defined under the National Historic Preservation  
7 Act (NHPA) of 1966, as amended, are namely any prehistoric or historic district, archaeological  
8 site, building, structure, or object included in, or eligible for listing in the National Registry of  
9 Historic Places (NRHP). According to the 2006 HEC Master Plan, there are no historic structures  
10 on HEC. Additionally, the Virginia Department of Historic Resources (VADHR) Virginia Cultural  
11 Resources Information System was reviewed and did not identify historic sites on HEC (VADHR  
12 2020). Lastly, heavy past military usage of the northern portion of HEC has obliterated historically  
13 significant remains such as buildings and foundations (HEC 2006).

14 Section 106 of NHPA requires federal agencies to consider the effects of their proposed  
15 undertakings on historic properties within the undertaking's "area of potential effects," (APE) in  
16 coordination with the State Historic Preservation Office (SHPO) with jurisdiction on the  
17 undertaking's location, and other consulting parties, as applicable. The SHPO in Virginia is the  
18 VADHR. The APE is considered the geographical area or areas within which an undertaking may  
19 directly or indirectly cause changes in the character or use of historic properties or prehistoric  
20 sites, if present.

21 The APE for this undertaking is the 5.5 acre footprint of the proposed MSF which includes  
22 construction staging areas, AF/FP setbacks and site preparation areas. The APE for the proposed  
23 MSF has not been surveyed for archaeological resources. One archaeological site has been  
24 identified within the proximity of the Proposed Action and the APE for this action. 44FX1943 is  
25 approximately 450 feet south of the Proposed Action. This site was determined not eligible for  
26 evaluation by VDHR (VADHR 2021).

27 Section 106 consultation was initiated with VADHR in February 2021. Based on initial  
28 consultation with VADHR, a Phase I archaeological survey has been recommended based on the  
29 proximity of the Project Area to the former Triplett Farm (Round Hill). According to an  
30 archaeological reconnaissance report (Israel 1983), in the early 19<sup>th</sup> century the Triplett farm  
31 contacted a main house, two corn houses, a granary, a meat house and quarters for enslaved  
32 people; based on this information there is potential for subsurface archaeological deposits  
33 located within the APE.

1 Based on information and meetings held with USACE, the proposed location of the MSF has been  
2 previously impacted by training activities occurring on HEC. At a March 22, 2021 meeting, USACE  
3 and VADHR met to discuss the need for the Phase I archaeological survey. USACE presented  
4 information as to the previous use of the site as training grounds for HEC engineers and that  
5 there were no other feasible alternatives. Furthermore, USACE presented a 1987 archaeological  
6 survey for the area adjacent to the proposed MSF site which indicated the area had a very low  
7 potential for archaeological remains. Efforts to assess the proposed project area are underway  
8 and this section will be updated upon completion of those efforts.

### 9 **3.5.2. Environmental Consequences**

#### 10 **3.5.2.1. Threshold of Significance**

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

### 15 **3.5.3. Alternative 1 (Preferred Alternative)**

#### 16 **3.5.3.1. Construction**

17 There are no archaeological sites within the APE for the Proposed Action; therefore, construction  
18 of the proposed MSF would not impact archaeological resources. Sites that are outside the limits  
19 of disturbance (i.e. 44FX1943) would not be impacted. Ground-disturbing activities associated  
20 with the Proposed Action would have the potential to impact previously undocumented cultural  
21 resources such as buried archaeological sites. Should undocumented archaeological deposits or  
22 unexpected discoveries of Native American graves, lost historic cemeteries, or human remains  
23 be discovered during construction or demolition activity, the work would be immediately halted  
24 and HECSA would follow the appropriate provisions for unanticipated discoveries specified in the  
25 Fort Belvoir Integrated Cultural Resources Management Plan, which covers HEC (Fort Belvoir  
26 2014). Because there are no historic structures on HEC, no impacts on historic structures would  
27 be expected from construction activities. Overall, no impacts on cultural resources would be  
28 expected from construction activities.

#### 29 **3.5.3.2. Operation**

30 No impacts on cultural resources would be expected from operation of the proposed MSF.



1                   **3.5.4.     Alternative 2 (Concept A)**

2                   **3.5.4.1.    Construction**

3   Impacts from construction under Alternative 2 would be the same as those described under  
4   **Section 3.5.3.1.**

5                   **3.5.4.2.    Operation**

6   Impacts from operation under Alternative 2 would be the same as those described under  
7   Section **3.5.3.2.**

8                   **3.5.5.     No Action Alternative**

9   Under the No Action Alternative, the proposed MSF would not be constructed at HEC. The unit  
10   would continue to lack adequate maintenance and supply of mission critical and essential  
11   equipment. Long-term, negligible to minor, beneficial impacts would be expected under the No  
12   Action Alternative as the proposed MSF would not be constructed and the site would remain as  
13   wooded land and no conversion to developed land would occur. Site conditions would remain  
14   as described under **Section 3.5.1.** No additional impacts on cultural resources would be expected  
15   under the No Action Alternative.

16                  **3.6.    Geological Resources**

17                  **3.6.1.    Affected Environment**

18   **Geology.** HEC is located in Fairfax County, Virginia, which is located on a portion of the Shirley  
19   Formation which overlies the Potomac Foundation. The Shirley Formation is Quaternary in age  
20   and consists of light- to dark-gray, bluish-gray, and brown sand, gravel, silt, clay and peat. It  
21   constitutes surficial deposits of riverine terraces and old baymouth barriers and bay-floor plans  
22   inset below depositional surfaces of the Chuckatuck Formation. The formation is split into three  
23   different levels of graduation. Fluvial-estuarine characteristics comprises a lower pebble- to  
24   boulder-sand, overlain by fine to coarse sand interbedded with peat and clayey silt rich in organic  
25   material, including in-situ tree stumps, leaves, and seeds of cypress, oak and hickory. This grades  
26   up to medium- to thick-bedded, clayey and sandy silt and silty clay. The thickness of this  
27   formation ranges from 0 to 80 feet.

28   The Potomac formation is Cretaceous in age and consists of light-gray to pinkish- and greenish-  
29   gray quartzo-feldspathic and sand that is fine- to coarse-grained, pebbly, poorly sorted, and  
30   commonly thick-bedded and trough cross-bedded. The sand is interbedded with layers of gray  
31   to green sandy clay and silt that is commonly mottled red or reddish-brown.

1 In the inner Coastal Plain, the soil was deposited in mainly fluvial-deltaic environments and  
2 intertongues eastward with this glauconitic sands of shallow-self origin. Thickness ranges from  
3 a feathered edge at the western limit of the outcrop to more than 3,500 feet in subsurface depth  
4 in the outermost Coastal Plain (USGS and AASG 2020).

5 **Topography.** The topography at the Proposed Action site is approximately at 100 feet above sea  
6 level and is relatively flat (USGS 2016).

7 **Soils.** Approximately 70 percent of the soils at the Proposed Action site are Lunt-Marumsc  
8 complex, 2 to 7 percent slopes and 30 percent Woodstown sandy loam, 2 to 7 percent slopes.  
9 Both soils are identified as prime farmland and neither has elevated frequency for ponding or  
10 flooding.

11 Though identified as prime farmland, the area intended for the Proposed Action is entirely within  
12 the HEC campus and not intended for future use as farmland.

13 **Naturally Occurring Asbestos.** Asbestos is a naturally formed mineral fiber that is a known  
14 human carcinogen. Approximately 11 square miles of Fairfax County are known to contain  
15 naturally occurring asbestos in the bedrock, interspersed in underlying Green Stone Rock  
16 formations of the bedrock. Based on the most recent data and maps available from the Fairfax  
17 County Division of Environmental Health, the site is not located in an area listed as having  
18 potentially naturally occurring asbestos in the subsurface geology and is therefore removed from  
19 further analysis (FCDEH 2019a).

20 **Radon.** Radon is a colorless, odorless radioactive gas that typically enters buildings from soil and  
21 can seep direct through pores in concrete. The primary entry points for radon are gaps in walls  
22 and floors. Based on a review of available U.S. Environmental Protection Agency (USEPA) and  
23 Virginia Department of Health, Fairfax County is primarily considered radon Zone 1, the highest  
24 potential for radon exposure (greater than 4.0 picocuries per liter [pCi/L]) (VDH 2019). However,  
25 Fairfax County maintains its own radon program based on radon assessments between 1986 and  
26 1988 and created a Fairfax County radon potential map (VDH 2019). This map identifies HEC  
27 within radon Zone 3 (less than 2 pCi/L) however, based on Fairfax County Health Department  
28 indoor radon testing studies, there is a 14% chance that indoor air concentrations in the county  
29 could exceed 4.0 pCi/L (FCDEH 2019b).

### 30 **3.6.2. Environmental Consequences**

#### 31 **3.6.2.1. Threshold of Significance**

32 Impacts on geology, topography, and soils are evaluated separately in the following section. The  
33 impacts on geology are analyzed based on potential changes caused by the Proposed Action to

1 bedrock, unique sensitive landforms, or rock formations. The impacts on topography are  
2 analyzed based on potential changes to surface features, especially steep slopes. Impacts on  
3 soils are analyzed based on potential changes to soil type, erosion, and sedimentation due to  
4 implementation of the Proposed Action.

### 5 **3.6.3. Alternative 1 (Preferred Alternative)**

#### 6 **3.6.3.1. Construction**

7 **Geology.** No impacts on geology would be expected during construction related to the Proposed  
8 Action. Although disturbance of surficial bedrock and other geological features could occur, the  
9 proposed construction would not be substantial or deep enough to significantly alter lithology,  
10 stratigraphy or the geological structures that control the distribution of aquifers.

11 **Topography.** The area of the proposed MSF would require negligible grading in order to be  
12 brought to grade with the immediately surrounding area. Topography may be altered slightly  
13 per the site design to ensure stormwater drains properly toward the east of the site. Therefore,  
14 the Proposed Action would have long-term, negligible, adverse impacts on topography.

15 **Soils.** The Proposed Action would disturb approximately 281,000 ft<sup>2</sup> of ground surface soils. Site  
16 preparation and earthmoving associated with construction would excavate soils and remove  
17 vegetative cover, disturb surface soils and compact the soil. Soil productivity, which is the  
18 capacity of the soil to produce vegetative biomass, would decline in disturbed areas and be  
19 eliminated in areas within the footprint of roadways or structures. Impacts would be minimized  
20 by restricting construction traffic to specific areas of travel where possible.

21 Exposure of the soils during construction has the potential to result in increased sedimentation  
22 of stormwater management systems and for offsite discharges of sediment-heavy runoff. To  
23 further minimize potential erosion impacts during construction, a Stormwater Pollution  
24 Prevention Plan (SWPPP) would be prepared in accordance with the appropriate Virginia  
25 Department of Environmental Quality (VDEQ) and Virginia Pollutant Discharge Elimination  
26 System (VPDES) regulations, 9 Virginia Administrative Code (VAC) 25-870-54 Stormwater  
27 Pollution Prevention Plan Requirements, and the *Virginia Stormwater Management Act*. A site  
28 specific erosion and sediment control plan (ESCP) employing appropriate soil BMPs, and a Virginia  
29 Stormwater Management permit (VSMP) would be also required for all clearing and grading  
30 activities. The ESC plan would include strict measures consistent with the Virginia Erosion and  
31 Sediment Control Handbook (1992) to minimize ESC impacts.

32 Use of standard stormwater BMPs would help minimize impacts to exposed soils during and  
33 following construction. These BMPs would include revegetating soils as soon as possible,  
34 surrounding exposed soils with silt fence and synthetic hay bales, and minimizing construction

1 vehicle traffic on exposed soils to the maximum extent practicable. Therefore, the Proposed  
2 Action would have short- and long-term, negligible to minor, adverse impacts on soil quality.

3 **Radon.** No impacts from radon would occur during construction related to the Proposed Action.

#### 4 **3.6.3.2. Operation**

5 No impacts on geology or topography would be expected from the operation of the proposed  
6 MSF.

7 **Soils.** Operation of the proposed MSF would include standard and scheduled landscaping within  
8 the facility property line. No impacts on soils from operation of the proposed facility would occur  
9 however, long-term, negligible, adverse impacts would be expected from the permanent loss of  
10 soil productivity within the limits of disturbance for this project.

11 **Radon.** The potential for high indoor concentrations of radon (>4.0 pCi/L) exists in Fairfax  
12 County. Long-term, adverse, negligible to minor and direct impacts would be expected from  
13 potential employee exposure to radon, however standard radon mitigation measures could be  
14 included, or a radon health assessment could be conducted to determine the type and mitigation,  
15 if necessary, that would reduce potential impacts to employees to negligible levels. No additional  
16 impacts would be expected.

### 17 **3.6.4. Alternative 2 (Concept A)**

#### 18 **3.6.4.1. Construction**

19 Impacts from construction under Alternative 2 would be similar to, but less, than those described  
20 under **Section 3.6.3.1**. Development under Alternative 2 would remove less tree and vegetative  
21 cover, comparatively, to Alternative 1 which would therefore reduce impacts to existing soils. No  
22 additional impacts under construction-related to Alternative 2 would be expected.

#### 23 **3.6.4.2. Operation**

24 Impacts from operation under Alternative 2 would be the same as those described under Section  
25 **3.6.3.2**.

#### 26 **3.6.5. No Action Alternative**

27 Under the No Action Alternative, the proposed MSF would not be constructed at HEC. The unit  
28 would continue to lack adequate maintenance and supply of mission critical and essential  
29 equipment. Long-term, negligible to minor, beneficial impacts would be expected under the No  
30 Action Alternative as the proposed MSF would not be constructed and the site would remain as  
31 wooded land and no impacts to geological resources would be expected. Site conditions would

1 remain as described under **Section 3.6.1**. No additional impacts on geological resources would  
2 be expected under the No Action Alternative.

### 3 **3.7. Solid and Hazardous Materials**

#### 4 **3.7.1. Affected Environment**

5 Hazardous and toxic materials or substances are generally defined as materials or substances  
6 that pose a risk (i.e., through either physical or chemical reactions) to human health or the  
7 environment. Regulated hazardous substances are identified through a number of federal laws  
8 and regulations. The most comprehensive list is contained in 40 CFR 302, and identifies  
9 quantities of these substances, when released to the environment, that require notification to a  
10 federal agency. Hazardous wastes, defined in 40 CFR 261.3, are considered hazardous  
11 substances. Generally, hazardous wastes are discarded materials (e.g., solids or liquids) not  
12 otherwise excluded by 40 CFR 261.4 that exhibit a hazardous characteristic (i.e., ignitable,  
13 corrosive, reaction, or toxic), or are specifically identified within 40 CFR 261. Petroleum products  
14 are specifically exempted from 40 CFR 302 but some are also generally considered hazardous  
15 substances due to their physical characteristics (i.e. especially fuel products), and their ability to  
16 impact natural resources.

17 HEC does not currently hold a Resource Conservation and Recovery Act (RCRA) permit and no  
18 hazardous substances are currently stored on HEC. There are also no known, documented  
19 contaminated areas on HEC (HEC 2006).

20 **Unexploded Ordnance.** The Department of Defense (DOD) developed the Military Munitions  
21 Response Program (MMRP) to address munitions-related concerns, including explosive safety,  
22 environmental, and health hazards from releases of unexploded ordnance, munitions  
23 constituents, and munitions and explosives of concern (MEC). The MMRP addresses non-  
24 operational range lands with suspected or known hazards from MEC.

25 HEC currently contains one MMRP site, Demolition Area – USACE TD. Demolition Area – USACE  
26 occupies 489 acres of HEC and was used from 1940 to 1951 to train Army engineers in the use of  
27 demolition materials and to practice demolition techniques (i.e., bridge demolition). According  
28 to the December 2017 Draft Final *Decision Document for Demolition Area – USACE TD (FTBL-025-*  
29 *R-01) Munitions Response Site* the probability for encountering MEC on HEC is low. Because there  
30 is still potential for contractors or HEC personnel to encounter MEC, land use controls (LUCs)  
31 have been implemented to address MEC concern at HEC. LUCs at HEC include notations in master  
32 planning maps and Geographic Information System (GIS), construction support, education  
33 materials, public and facility staff education, warning signs and long-term monitoring with  
34 enforcement. See **Section 3.9.1.**, for additional information regarding LUCs at HEC (U.S. Army  
35 2017).

## 1                   **3.7.2.       Environmental Consequences**

### 2                   **3.7.2.1.     Threshold of Significance**

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

### 7                   **3.7.3.       Alternative 1 (Preferred Alternative)**

#### 8                   **3.7.3.1.     Construction**

9   Construction activities, including site preparation, land grading, and building construction, and  
10   pavement destruction would generate typical construction and demolition wastes including  
11   asphalt pavement and excess steel and wood. The debris would be removed from the site and  
12   disposed of or recycled by the construction contractor at USACE-approved facility. In an effort  
13   to reduce construction and demolition waste, United Facilities Guide Specification 01-74-19,  
14   *Construction Waste Management and Disposal*, in addition to Army policy, 60 percent of the  
15   construction waste would be diverted from landfills. Additionally, all construction contractors  
16   would be required to comply with USACE, U.S. Army, and local, state and federal solid and  
17   hazardous material regulations and standard operating procedures. Therefore, construction and  
18   demolition would have short-term, negligible adverse impacts on solid and hazardous materials.

19   ***Unexploded Ordnance.*** Construction and demolition personnel could be exposed to MEC during  
20   construction or ground-disturbing activities. Though the potential to encounter MEC is low,  
21   impacts from MEC on construction and demolition personnel could occur and would be  
22   significantly reduced by following prescribed land use controls for the Demolition Area – USACE  
23   TD area. These controls include the HEC Logistics Office approving changes in construction or  
24   intrusive activities on the site, ensuring explosive ordnance disposal (EOD) personnel or  
25   unexploded ordnance (UXO) qualified personnel are available during site work, education  
26   materials provided to individuals and organizations that will be conducting ground-breaking  
27   activities, training, and warning signs (U.S Army 2017). Based on the implementation of land use  
28   controls during construction and demolition activities, impacts from UXO during construction and  
29   demolition activities would be short-term, negligible and adverse.

#### 30                   **3.7.3.2.     Operation**

31   During operation of the proposed MSF, negligible amounts of hazardous materials and wastes  
32   would be generated from minor maintenance activities such as oil changes, transmission fluid  
33   changes, and coolant replacement. All hazardous materials, petroleum products and hazardous  
34   wastes used or generated during operation would be contained and stored appropriately onsite

1 until their use or disposal. Vehicle maintenance activities could result in the accidental release  
2 of hazardous materials or petroleum materials however spill prevention infrastructure would  
3 guard against incidental releases during maintenance activities. An oil-water separator would  
4 treat wastewater discharge from the facility. Therefore- long-term, negligible, adverse impacts  
5 from generation or hazardous materials and waste during operation of the proposed MSF would  
6 be expected.

7 **Unexploded Ordnance.** No impacts on UXO would be expected from operation of the proposed  
8 SOF Maintenance and Supply Facility.

### 9 **3.7.4. Alternative 2 (Concept A)**

#### 10 **3.7.4.1. Construction**

11 Impacts from construction under Alternative 2 would be the same as those described under  
12 Section **3.7.3.2.**

#### 13 **3.7.4.2. Operation**

14 Impacts from operation under Alternative 2 would be the same as those described under Section  
15 **3.7.3.2.**

#### 16 **3.7.5. No Action Alternative**

17 Under the No Action Alternative, the proposed MSF would not be constructed at HEC. The unit  
18 would continue to lack adequate maintenance and supply of mission critical and essential  
19 equipment. Long-term, negligible to minor, beneficial impacts would be expected under the No  
20 Action Alternative as the proposed MSF would not be constructed and the site would remain as  
21 wooded land and no conversion to developed land would occur. Site conditions would remain  
22 as described under **Section 3.7.1.** No additional impacts on solid and hazardous materials would  
23 be expected under the No Action Alternative.

### 24 **3.8. Infrastructure, Utilities and Traffic**

#### 25 **3.8.1. Affected Environment**

26 **Electrical.** HEC receives electrical power from Dominion Virginia Power. Main overhead power  
27 lines enter HEC from the east through a 40-foot wide Dominion Virginia Power easement. This  
28 line feeds the original Dominion Virginia Power 2,500 kilo-volt ampere (kVA) transformer and a  
29 newer 5,000 kVA Dominion Virginia Power transformer. Both transformers are near the main  
30 HEC switching station located on the east side of the installation. A government-owned,  
31 underground 12.47 kilovolt (kV) distribution system distributes power from the transformers to

1 existing facilities at HEC. Due to the current electrical infrastructure situation on HEC, it cannot  
2 currently support the proposed MSF.

3 **Potable Water.** HEC obtains water for domestic use and fire protection exclusively from the  
4 Fairfax County Water Authority (FCWA). FCWA currently operates a 30-inch main along  
5 Telegraph Road with a 24-inch main that runs in a 20-foot easement through HEC. The facilities  
6 at HEC obtain water from both mains.

7 The existing government-owned water distribution system consists of a 12-inch main running  
8 from the FCWA 24-inch main to the center of the HEC site. This system consists primarily of  
9 branch lines that dead end at either fire hydrants or buildings. The existing HEC potable water  
10 system consists of a dead-end type distribution system which is adequate for HEC, however is  
11 not recommended under current potable water distribution standards. HEC is allocated a  
12 consumption rate of 200,000 gallons per day (gpd) from the FCWA system. The estimated  
13 consumption for HEC is approximately 80,000 gpd. Potable water infrastructure is available  
14 adjacent to the project area along John J. Kingman Road and along site access roads (HEC 2006).

15 **Sanitary Sewer.** HEC discharges 100% of its sanitary flow into the Fairfax County sanitary sewer  
16 system. Fairfax County maintains an 18-inch sanitary sewer main along the northeast edge of  
17 the installation and a 27-inch main along the eastern edge. In addition, Fairfax County owns a  
18 sanitary sewer main that runs in a ten-foot easement through the center of HEC property from  
19 northwest to southeast.

20 All buildings at HEC are served by gravity flow sewers, and they discharge cumulatively through  
21 a 10-inch government-owned main to the 27-inch Fairfax County sewer. HEC has a sewer  
22 allocation of 200,000 gpd for which Fairfax County will provide collection and treatment. Total  
23 discharge is estimated to be at approximately 67,800 gpd (HEC 2006). HEC owns and operates  
24 the private sanitary sewer system on site. Sanitary sewer infrastructure is available northwest of  
25 the project area.

26 **Stormwater Management.** The storm drainage network at HEC is made up of several  
27 independent drainage systems. Older systems within this network drain to natural outfalls while  
28 the newer or modified systems flow to stormwater detention ponds. Stormwater infrastructure  
29 at the Proposed Action site consists of swales, curbs and gutters and natural drainage features.  
30 No other stormwater management infrastructure is available at the project area.

31 **Communications.** Telephone and network services are provided to HEC principally by Verizon.  
32 Active aerial Verizon telephone cable enters the installation from the eastern boundary,  
33 connecting the installation to a central office located on Old Mount Vernon Road. An existing  
34 fiber optic telecommunication line exists immediately within the limits of the project. Two



1 different existing communications lines currently traverse the western portion of the project site  
2 (USACE 2020).

3 **Natural Gas.** Most buildings at HEC rely on both #2 fuel oil and natural gas for heating purposes  
4 through the use of dual-fired boilers. Natural gas is supplied to HEC by an existing 8" high-  
5 pressure Washington Gas Light transmission line. This transmission line is located within a 40-  
6 foot right of way which runs in a north-east to south-west direction crossing the northern portion  
7 of HEC property.

8 Approximately 204,691 therms of natural gas were used from September 2005 to August 2006  
9 at HEC for an average consumption of 17,058 therms per month. Natural gas infrastructure is  
10 available approximately 250 feet southwest of the Proposed Action site (HEC 2006).

11 **Transportation.** Access to HEC is via unsignalized intersection at Telegraph Road and Leaf Road,  
12 which provides access to the main entrance (Gribble Gate). Installation circulation is broken  
13 down in branches, which evolved from a single project approach to new development. The  
14 primary circulation route, Lead Road, bisects the developed areas of HEC in a generally north-  
15 south direction. Most secondary roads on HEC branch out from Lead Road to the south, west,  
16 and east. These roads end in parking lots, service loading docks, or building drop-off areas.

17 Leaf Road is a Class "C" roadway (U.S. Army Technical Manual 5-822-2) for a two lane/two  
18 direction, flat road with a 26-foot pavement section, which currently has an estimate capacity of  
19 400 cars per hour. According to the 2006 Master Plan, the current two-lane road is susceptible  
20 to congestion at rush hour since it is the only means of entering or existing HEC, and that only  
21 one lane is available in either direction (HEC 2006).

22 Parking at HEC primarily consists of surface parking lots. HEC currently possesses a total of 1,021  
23 individual, designated parking spaces. Based on a mandatory minimum of 0.8 parking space per  
24 person, a total of 852 parking spaces are required to serve the 1,065 HEC employees. The  
25 remaining 169 parking spaces are typically occupied by government contractors and/or  
26 personnel visiting HEC for various conferences or training classes (HEC 2006).

## 27 **3.8.2. Environmental Consequences**

### 28 **3.8.2.1. Threshold of Significance**

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

1                   **3.8.3.       Alternative 1 (Preferred Alternative)**

2                   **3.8.3.1.     Construction**

3    **Electrical.** Short-term electrical interruptions could be experienced when work on existing  
4    electrical lines occurs or when electrical connections are connected to the proposed facility;  
5    however, disruption of electrical services would be temporary and would be coordinated with  
6    area users prior to interruptions. Direct, negligible, short-term increases in electricity demand  
7    could be expected during construction from construction-related activities; however, these  
8    instances would be short in nature and would not be expected to exceed current electrical  
9    capacity at HEC. No additional impacts from construction on the electrical system under the  
10   Proposed Action would be expected.

11   **Potable Water.** Short-term interruptions could be expected when working on the HEC potable  
12   water supply system. Water necessary for construction would be obtained from the existing  
13   water supply system, which currently operates at approximately 40% capacity. Construction  
14   water needs would be limited, temporary and would have little to no effect on the installation's  
15   overall water supply. Necessary disruptions of components of the water supply system would be  
16   temporary and coordinated with area users prior to starting work. No additional impacts from  
17   construction under the Proposed Action on the potable water supply would be expected.

18   **Sanitary Sewer.** Short-term interruptions could be experienced as the existing sanitary sewer  
19   system is connected to the proposed MSF during construction. However, disruption of this  
20   system would be temporary in nature and would be coordinated with HEC and other area users.  
21   No additional impacts from construction under the Proposed Action on the sanitary sewer system  
22   would be expected.

23   **Stormwater Management.** Temporary, minor impacts would result from exposed soils resulting  
24   from site development. These impacts would be minimized by implementing appropriate erosion  
25   and sediment control measures BMPs (see **Section 3.13.2**). In compliance with Section 438 of  
26   the Energy Independence and Security Act of 2007 (EISA) the proposed stormwater infrastructure  
27   would be able to accommodate the 95<sup>th</sup> percentile rainfall event to the greatest extent feasible.  
28   Furthermore, the predevelopment hydrology with respect to rate, volume and duration of flow,  
29   would be maintained or restored to the maximum extent possible. Stormwater would be  
30   conveyed from the project area via a closed conduit underground conveyance system and natural  
31   channels toward an outfall south of the proposed MSF, and eventually to Piney Run and Dogue  
32   Creek.

33   Long-term, minor, adverse effects on the HEC stormwater system would be expected as a result  
34   of a net increase in impervious surfaces (70,700 ft<sup>2</sup>) associated with the Proposed Action.  
35   However use of Land Cover Conservation (LCC) (further discussed under Section 3.13.3) would

1 mitigate these impacts by setting aside land on HEC for conservation purposes. Long-term,  
2 minor, beneficial impacts would be expected from inclusion of modern, stormwater  
3 management features that would be designed to capture rain runoff and prevent localized  
4 flooding related to heavy rain events.

5 **Communications.** Short-term interruptions of communications infrastructure would be  
6 expected during construction activities as the proposed MSF is connected to existing  
7 communications infrastructure. Impacts from interruptions in service would be temporary in  
8 nature and would be coordinated with HEC and other area users. No additional impacts on  
9 communications infrastructure would be expected during construction.

10 **Natural Gas.** Short-term interruptions in natural gas service could be experienced as the  
11 proposed MSF is connected to the existing natural gas lines at HEC; however, disruption of  
12 natural gas services would be temporary and would be coordinated with area users prior to  
13 interruptions. No additional impacts on natural gas would be expected during construction.

14 **Transportation.** Short-term, negligible, adverse impacts on the HEC transportation network  
15 would be expected from construction related to the Proposed Action. During construction,  
16 construction traffic would primarily use the Kingman Road entrance to HEC to access the site (off  
17 Telegraph Road). There would be little impact expected to traffic on HEC because most  
18 construction traffic would utilize the direct access to the site from Telegraph Road. The  
19 construction phase of the Proposed Action would require delivery and removal of materials to  
20 the project site, especially heavy and large objects which would be required to go through the  
21 Main Gate along Leaf Road thus accessing the site from Kingman Road inside of HEC.  
22 Construction traffic would compose a small percentage of the total existing traffic on HEC.  
23 Heavier construction equipment would be driven to the site and kept on site for the duration of  
24 the project. Intermittent traffic delays and temporary road closures could occur in the immediate  
25 vicinity of site development, particularly related to installation of utilities associated with the  
26 MSF along Kingman Road. Potential congestion impacts could be avoided or minimized by  
27 scheduling deliveries of materials outside of the peak inbound/outbound traffic time.  
28 Construction would take approximately 24-months and construction traffic would vary during  
29 those months depending on the weather and the work being done. Increases in construction  
30 traffic would be temporary, negligible and adverse. Impacts from installation of utilities along  
31 Kingman Road would be have temporary, negligible, adverse impacts on traffic on HEC,  
32 particularly along Kingman Road.

33 Additionally, the current roadway connection from Kingman Road to Telegraph Road  
34 immediately along the northern boundary of HEC would be permanently terminated; however,  
35 this is an unused roadway that is currently blockaded to prevent access to Telegraph Road and

1 this termination would have no impact on the overall traffic flow at HEC. No additional impacts  
2 on transportation under the Proposed Action would be expected during construction.

### 3 **3.8.3.2. Operation**

4 **Electrical.** The current electrical supply at HEC does not have adequate capacity to support the  
5 proposed MSF and the associated personnel relocating from within HEC. A new power feed is  
6 proposed to be brought in by Dominion Power which will not only provide power for the MSF but  
7 will provide connections for future development in the immediate area of the MSF. The  
8 proposed MSF would be constructed with DOD modern, high performance and sustainable  
9 building requirements that would conserve electrical usage at the facility. Overall, the proposed  
10 MSF would be expected to have a long-term draw on the existing electrical grid, but with modern  
11 facility, impacts to the electrical system will not be expected to be significant. All new utilities,  
12 including electrical supply will be provided to the proposed facility. Therefore, operation of the  
13 proposed MSF would have long-term, negligible, adverse impacts from the overall additional  
14 draw on the electrical grid at HEC however beneficial impacts would be expected from inclusion  
15 of an additional electrical supply switch to the project area and by including energy efficient  
16 lighting and other electronics which would be expected from new facility construction. Therefore  
17 no significant impacts on the electrical supply at HEC would be expected.

18 **Potable Water.** HEC currently utilizes approximately 42 percent of the total available potable  
19 water capacity. The proposed MSF would connect to existing HEC potable water infrastructure  
20 available near the site. Overall, the addition of the MSF on HEC would have a long-term draw on  
21 the existing water supply at HEC. However, because the proposed facility would be constructed  
22 utilizing high performance and sustainable building requirements and the increase in HEC  
23 personnel working at the proposed facility would be negligible, impacts on the potable water  
24 system at HEC would be long-term, negligible and adverse from the increased water usage at the  
25 facility however beneficial impacts would be expected from energy-efficient water fixtures and  
26 water saving measures that are included in modern construction.

27 **Sanitary Sewer.** HEC currently uses approximately 34 percent of the total available sanitary  
28 sewer discharged potential. Overall the construction of the proposed MSF would be expected to  
29 add to the existing available sanitary sewer discharge potential for HEC, adverse impacts would  
30 be expected however because the proposed facility would be constructed utilizing high  
31 performance and sustainable building requirements, impacts on the sanitary sewer system at  
32 HEC would ultimately be long-term, negligible and adverse from the additional load on the  
33 sanitary sewer system however beneficial impacts would be expected from the proposed MSF  
34 being equipped with water-saving measures. .

35 **Stormwater Management.** No impacts on stormwater management at HEC would be expected  
36 from the operation of the proposed MSF.

1 **Communications.** Long-term, negligible and adverse impacts would be expected from an  
2 additional building at HEC utilizing the communications infrastructure. The existing  
3 communications network provided by Verizon has capacity to support the negligible increase in  
4 personnel at HEC.

5 **Natural Gas.** Additional, negligible amounts of natural gas usage HEC would be expected from  
6 the connection of the proposed facility to the natural gas infrastructure. Natural gas would  
7 primarily be used in the heating system. Washington Gas will supply the proposed facility with  
8 natural gas from an existing line to the mechanical room of the facility. However, because the  
9 proposed facility would be constructed utilizing high performance and sustainable building  
10 requirements, impacts on the natural gas infrastructure at HEC would be long-term, negligible  
11 and adverse from the increased natural gas usage and beneficial from the energy-efficient  
12 amenities included in modern construction.

13 **Transportation.** The proposed MSF would service approximately 40 vehicles a year and would  
14 receive deliveries from 54-foot tractor trailer trucks once a day per year. Trucks accessing the  
15 proposed MSF from outside HEC would utilize the Main Gate (Gribble Gate) via Leaf Road, turning  
16 west down Kingman Road toward the proposed MSF. Trucks would then leave the proposed MSF  
17 and HEC via the same delivery route (Gribble Gate) they took to access the proposed MSF.  
18 Deliveries from smaller vehicles (i.e. box trucks) would occur at a rate of 1-2 deliveries per day,  
19 for a potential maximum amount of 730 deliveries per year. Delivery vehicles would access HEC  
20 via the Main Gate (Gribble Gate). Impacts from delivery trucks accessing HEC could be avoided  
21 or minimized by scheduling deliveries outside of peak inbound/outbound traffic time. Delivery  
22 of supplies currently occurs at Building 2596, which is located approximately 2,300 feet southeast  
23 of the proposed MSF. The additional three personnel that would be transferred to the proposed  
24 facility would not be expected to have impacts on the transportation network within HEC.

25 The Proposed Action would result in a net parking increase with the proposed MSF adding twenty  
26 (20) POV parking and twenty (20) GOV spaces. Therefore, long-term, negligible, beneficial  
27 impacts on transportation would be expected.

#### 28 **3.8.4. Alternative 2 (Concept A)**

##### 29 **3.8.4.1. Construction**

30 Construction impacts under Alternative 2 would generally be the same as they are described  
31 under **Section 3.8.3.1** however, construction vehicles would be required to travel through the  
32 main HEC campus to access the proposed MSF.

### 1                    **3.8.4.2.    Operation**

2    Operational impacts under Alternative 2 would generally be the same as they are described  
3    under **Section 3.8.3.2** however, delivery vehicles would be required to travel through the main  
4    HEC campus to access the proposed MSF.

### 5                    **3.8.5.        No Action Alternative**

6    Under the No Action Alternative, the proposed MSF would not be constructed at HEC. The unit  
7    would continue to lack adequate maintenance and supply of mission critical and essential  
8    equipment. Long-term, negligible to minor, beneficial impacts would be expected under the No  
9    Action Alternative as the proposed MSF would not be constructed and the site would remain as  
10    wooded land and no conversion to developed land would occur. Site conditions would remain  
11    as described under **Section 3.8.1**. No additional impacts on infrastructure, utilities and traffic  
12    would be expected under the No Action Alternative.

## 13                    **3.9.    Land Use**

### 14                    **3.9.1.        Affected Environment**

15    **Land Use.** HEC is approximately 580 acres in size, and was formerly part of Fort Belvoir's Upper  
16    North Post prior to 1980. Approximately 74 acres (13 percent) at the northern end of HEC is  
17    developed with administrative, research and development, and maintenance facilities. There are  
18    currently three land use categories at HEC, which include: Administration (10.7% total land use),  
19    Industrial (2.1% total land use) and Open Space (87.2% total land use). The area proposed for  
20    the MSF is currently identified as open space land use however is currently unutilized, wooded  
21    land(HEC 2006).

22    **Land Use Controls.** Land Use Controls (LUCs) consist of government ordinances, codes and  
23    permit requirements that restrict the use of private, commercial or federal land. Demolition Area  
24    – USACE TD makes up approximately 489 acres (84 percent) of the HEC site. This munitions  
25    response site (MRS) was historically part of Fort Belvoir and was used to train Army engineers in  
26    the use of demolition materials and to practice demolition techniques from 1940 to 1951. During  
27    construction of the primary HEC campus, construction workers were not trained in identification  
28    of munitions and explosives of concern (MEC) therefore none were identified and no definitive  
29    statement regarding the presence of MEC on HEC can be made (U.S Army 2017).

30    Though there are no known areas of elevated MEC density, and the potential for exposure to  
31    MEC is low, LUCs have been implemented to address potential residual MEC at HEC. The LUCs,  
32    which are implemented through the Land Use Control Implementation Plan (LUCIP), include  
33    notations in master planning maps and geographic information systems (GIS), construction  
34    support for personnel performing ground disturbing construction activities, educational

1 materials, public and facility staff education, warning signs, and long-term monitoring with  
2 enforcement (U.S Army 2017).

### 3 **3.9.2. Environmental Consequences**

#### 4 **3.9.2.1. Threshold of Significance**

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

### 11 **3.9.3. Alternative 1 (Preferred Alternative)**

#### 12 **3.9.3.1. Construction**

13 The proposed MSF would be constructed within a wooded area identified as open space land use  
14 on HEC. Conversion of this land use to Industrial land use would require conversion of  
15 approximately 1 percent of the current land use at HEC, adding to available industrial land use at  
16 HEC. Additionally, conversion of Open Space to Industrial land use in the northwestern corner of  
17 HEC would be expected to be consistent with future land uses in the immediate area (primarily  
18 Open Space land use). Long-term, minor, and adverse impacts on land use would be expected  
19 from construction and permanent conversion of wooded land/open space to industrial land use  
20 under the Alternative 1 however these impacts would mitigated by HEC implementing the LCC  
21 which would set aside undisturbed land on HEC for conservation purposes (see Section 3.13.).

22 **Land Use Controls.** Adherence to LUCs on HEC would be required during construction related to  
23 the Proposed Action. The HEC Logistics Office would be required to approve changes in land use  
24 and construction activities prior to implementation and ground disturbing activities.  
25 Construction support is also required to be available during demolition or construction activities.  
26 Educational materials will be provided to construction workers on response actions for potential  
27 UXO or MEC. Because there are no known areas of elevated MEC density, the potential for  
28 exposure to MEC is low, and in addition to the existing LUCs, impacts on LUCs and construction  
29 personnel would be short-term, negligible, and adverse.

#### 30 **3.9.3.2. Operations**

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

1                   **3.9.4.     Alternative 2 (Concept A)**

2                   **3.9.4.1.   Construction**

3   Construction impacts under Alternative 2 would be the same as they are described under  
4   **Section 3.8.3.1.**

5                   **3.9.4.2.   Operation**

6   Operational impacts under Alternative 2 would be the same as they are described under  
7   **Section 3.8.3.2.**

8                   **3.9.5.     No Action Alternative**

9   Under the No Action Alternative, the proposed MSF would not be constructed at HEC. The unit  
10   would continue to lack adequate maintenance and supply of mission critical and essential  
11   equipment. Long-term, negligible to minor, beneficial impacts would be expected under the No  
12   Action Alternative as the proposed MSF would not be constructed and the site would remain as  
13   wooded land and no conversion to developed land would occur. Site conditions would remain  
14   as described under **Section 3.9.1.** No additional impacts on land use would be expected under  
15   the No Action Alternative.

16                  **3.10. Noise**

17   Sound occurs when vibrations that travel through a medium are interpreted by the biological  
18   elements of the ear. Noise occurs when sounds become undesirable, unpleasant, or damaging.  
19   Noise-sensitive receptors include residences, hospitals, recreational areas, and religious  
20   institutions.

21   Sound pressure levels are quantified in decibels (dB), which is dependent on both frequency and  
22   intensity, and is given a level on a logarithmic scale. The way the human ear hears sound intensity  
23   is quantified in A-weighted decibels (dBA), which are level “A” weights according to weighting  
24   curves. Sound levels for common activities and construction work are presented in **Table 3.4.**

25   The National Institute for Occupational Safety and Health (NIOSH) recommends that individuals  
26   working in an environment of 85 dBA or louder for an eight-hour work day limit their exposure  
27   to this noise level and wear protective earwear to help manage and prevent hearing loss due to  
28   noise exposure.

29   The day-night average sound level (DNL) is a useful descriptor for noise because it approximates  
30   the response characteristics of human hearing. It is the average noise level over a 24-hour period  
31   with nighttime hours adjusted with a 10-dB increase. The higher the DNL, the louder the sound.  
32   A-weighted DNL is commonly used to assess aircraft noises.



- 1 The *Noise Control Act* of 1972 (PL 92-574) directs federal agencies to comply with applicable  
 2 federal, state, interstate, and local noise control regulations. The Fairfax County Code prohibits  
 3 the creation of sound louder than 55 dB in a residential area, and 60 dB in a commercial area.

4 **TABLE 3-4. COMMON HOUSEHOLD, INDUSTRIAL, AND CONSTRUCTION SOUND LEVELS**

Sound Level (dBA)	Common Sounds	Effect
140	Jet engine	Painful
130	Near air-raid siren	Painful
120	Jet plane takeoff, siren	Painful
110	Chainsaw, thunder, garbage truck	Extremely Loud
100	Hand drill	Extremely Loud
90	Subway, passing motorcycle	Extremely Loud
85	Backhoe, paver	Very Loud
80	Blow-dryer, kitchen blender, food processor, cement mixer, power saw	Very Loud
70	Busy traffic, vacuum cleaner, alarm clock	Loud
60	Typical conversation, dishwasher, clothes dryer	Moderate
50	Moderate rainfall	Moderate
40	Quiet room	Moderate
30	Whisper, quiet library	Faint

5 Source: ASHA 2017

- 6 It also prohibits the creation of excessive noise on a street adjacent to a school, institution of  
 7 learning, court, or hospital that interferes with its function (Fairfax County Code, Section 108-4-  
 8 1). Construction and demolition activities are, however, exempt from the Fairfax County  
 9 ordinance, provided they occur between 7:00AM and 9:00PM.

### 10 **3.10.1. Affected Environment**

- 11 The most commonly occurring noise at HEC is from vehicular traffic. Other sources of noise  
 12 include heating, ventilation and air conditioning systems; landscape maintenance; and other  
 13 general maintenance activities. None of these sources produces excessive noise levels. There  
 14 are no noise-sensitive receptors such as schools, churches, or hospitals located within HEC. The  
 15 nearest noise-sensitive receptors to the Proposed Action site and their distances from the site  
 16 are included in **Table 3.5**.

1

**TABLE 3-5. NOISE SENSITIVE RECEPTORS NEAR THE PROJECT AREA**

Noise-Sensitive Receptor	Distance from Project Area (ft)
Hayfield Residential Neighborhood	2,775
Hayfield Elementary School	3,450
Faith Fellowship Church	700
Hayfield High school	3,400

2

Source: USEPA 2021

3

**3.10.2. Environmental Consequences**

4

**3.10.2.1. Threshold of Significance**

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

7

**3.10.3. Alternative 1 (Preferred Alternative)**

8

**3.10.3.1. Construction**

9 Sources of noise would include construction equipment used to demolish existing infrastructure,  
10 ground moving and site work activities and ultimately construction of the proposed TSF. Noise  
11 produced by construction equipment would vary depending on the type, duration, and activity  
12 being performed by the specific piece of equipment. Construction equipment associated with  
13 the Proposed Action would include cement and mortar mixers, cranes, excavators, forklifts,  
14 graders, pavers, rollers, and skid steer loaders.

15 Construction equipment would be equipped with noise-dampening equipment operated  
16 according to the manufacturers' instructions, and would be turned off and shutdown when not  
17 in use. Construction would take place during daylight hours unless there was a specific action  
18 that would directly impact construction work.

19 Potential impacts of noise from construction equipment on construction workers would be  
20 mitigated by following Occupational Safety and Health Administration (OSHA) regulations and  
21 USACE *Safety and Health Requirements Manual EM 385-1-1* (USACE 2014). OSHA regulations  
22 require that employers make hearing protectors available to those employees who are exposed  
23 to work conditions at or above 85 dBA (OSHA 2002).

24 Personnel and other contractors working at HEC may experience temporary, negligible adverse  
25 impacts from construction while walking between facilities on HEC or from vehicles to buildings.  
26 These instances would be temporary in nature, as personnel would be exposed to noise while  
27 they were outside. The interior of facilities on HEC would provide adequate protection from  
28 noise during construction. Furthermore, residents of the Hayfield community located northeast

1 of the project site could experience intermittent noise associated with construction activities;  
2 however the noise would be temporary in nature.

3 Construction noise would be further dampened by vegetation on HEC, in addition to the existing  
4 facilities also blocking some construction noise; therefore, construction noises would be  
5 minimally evident to nearby noise-sensitive receptors. Overall, construction noise would have  
6 short-term, minor, adverse impacts on construction personnel and HEC personnel, and no  
7 impacts on sensitive-noise receptors outside of the HEC boundary.

#### 8 **3.10.3.2. Operation**

9 Long-term, negligible, adverse impacts from operation of the proposed MSF would be expected.  
10 Noise would be generated from vehicles accessing and utilizing the facility, and dropping off  
11 supplies. The minor maintenance and repairs that would occur in the facility would not be  
12 appreciably louder than other noise-generators within HEC and would not be expected to extend  
13 off-installation.

#### 14 **3.10.4. Alternative 2 (Concept A)**

##### 15 **3.10.4.1. Construction**

16 Construction impacts under Alternative 2 would be the same; except slightly less as construction  
17 noise would be more centralized to HEC, as they are described under **Section 3.10.3.1**.

##### 18 **3.10.4.2. Operation**

19 Operational impacts under Alternative 2 would be the same; except slightly less as operational  
20 noise would be more centralized to HEC, as they are described under **Section 3.10.3.2**.

##### 21 **3.10.5. No Action Alternative**

22 Under the No Action Alternative, the proposed MSF would not be constructed at HEC. The unit  
23 would continue to lack adequate maintenance and supply of mission critical and essential  
24 equipment. Long-term, negligible to minor, beneficial impacts would be expected under the No  
25 Action Alternative as the proposed MSF would not be constructed and the site would remain as  
26 wooded land and no conversion to developed land would occur. Site conditions would remain  
27 as described under **Section 3.10.1**. No additional impacts on noise would be expected under the  
28 No Action Alternative.

## 1           **3.11. Community Services**

### 2                   **3.11.1. Affected Environment**

3    **Emergency Services.** Fire protection for the surrounding community is provided by Fairfax Fire  
4    and Rescue Station Number 37, in addition to the Gunston and Lorton Fire Stations. Police  
5    protection is provided by the Franconia District Station Manager and the Mount Vernon District  
6    Station. HEC receives its police and fire protection through an inter-service support agreement  
7    at Fort Belvoir.

8    **Community Resources.** HEC is a USACE Civil Works site and does not contain any residential  
9    areas, health care facilities, schools or religious institutions. The area around HEC includes five  
10    elementary, one middle and two high schools. The nearest religious institution to HEC is  
11    approximately 0.25 miles to the north (HEC 2006). The nearest health care facility is located on  
12    Fort Belvoir, approximately 2.6 miles south. The nearest off-site health care facility is located 3.4  
13    miles east (USEPA 2021).

### 14                   **3.11.2. Environmental Consequences**

#### 15                   **3.11.2.1. Threshold of Significance**

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

### 18                   **3.11.3. Alternative 1 (Preferred Alternative)**

#### 19                   **3.11.3.1. Construction**

20    Construction related to the Proposed Action has the potential to cause injuries to workers using  
21    machinery and associated construction equipment. To minimize the potential for injuries, the  
22    construction contractor would implement BMPs to ensure the safety of workers is maintained  
23    throughout the construction period. These BMPs would include the use of safety equipment (i.e.,  
24    hard hats, reflective vests, hearing protection); maintaining safety equipment in good condition  
25    and proper working order; and providing workers with any specialized safety training needed to  
26    perform a specific job function.

27    In the event that an accident occurs during construction related to the Proposed Action,  
28    emergency response services would be provided by Fort Belvoir emergency response personnel.  
29    Fort Belvoir currently supplies emergency response services to HEC and has sufficient emergency  
30    response capacity to respond to potential accidents at the Proposed Action site without  
31    decreasing the level of service elsewhere at Fort Belvoir.

1 Therefore, during construction of the proposed facility, there would be short-term, direct,  
2 negligible, adverse impacts on emergency services.

### 3 **3.11.3.2. Operation**

4 Operation of the proposed MSF would not be anticipated to result in an increase of burden or  
5 demand for fire and rescue calls, which would be provided by Fort Belvoir once the facility is  
6 operational. All operational staff working at the proposed facility would be highly trained and  
7 equipped with appropriate safety gear required to perform assigned duties without causing  
8 injury to themselves or others according to appropriate safety protocols. Should an accident  
9 occur at the proposed MSF, the Fort Belvoir emergency services have sufficient capacity to  
10 respond without decreasing the level of service elsewhere within the immediate area. Long-  
11 term, beneficial impacts would result from personnel working in a more modern, safer facility.  
12 Therefore, operation of the Proposed Action would have no impact on Fairfax County emergency  
13 services.

### 14 **3.11.4. Alternative 2 (Concept A)**

#### 15 **3.11.4.1. Construction**

16 Construction impacts under Alternative 2 would be the same as they are described under **Section**  
17 **3.11.3.1.**

#### 18 **3.11.4.2. Operation**

19 Operational impacts under Alternative 2 would be the same as they are described under **Section**  
20 **3.11.3.2.**

#### 21 **3.11.5. No Action Alternative**

22 Under the No Action Alternative, the proposed MSF would not be constructed at HEC. The unit  
23 would continue to lack adequate maintenance and supply of mission critical and essential  
24 equipment. Long-term, negligible to minor, beneficial impacts would be expected under the No  
25 Action Alternative as the proposed MSF would not be constructed and the site would remain as  
26 wooded land and no conversion to developed land would occur. Site conditions would remain  
27 as described under **Section 3.11.1.** No additional impacts on community services would be  
28 expected under the No Action Alternative.

## 3.12. Socioeconomics and Environmental Justice

### 3.12.1. Affected Environment

Socioeconomics is a combination of both the elements of economic activity and social processes. Socioeconomics in relation to the social standing or class of individuals measures a combination of their education, income, and occupation.

HEC is located in Fairfax County, Virginia, which is the region of interest (ROI) for this project. **Table 3.6** shows the populations in the ROI and Virginia in 2010, the estimated population in 2018, and the percentage change.

**TABLE 3-6. POPULATION ESTIMATES**

Area	2010 Census	2018 Estimate	Percent Change
Fairfax County, VA	1,081,726	1,150,795	6.4%
Virginia	8,001,024	8,517,685	6.5%%

Source: USCB 2019, USCB 2020a

**Table 3.7** shows the percentage of the total population who are working in the ROI and in Virginia. Of the total working population in Fairfax County, 9,976 people are part of the labor force associated with the Armed Forces; in Virginia, 117,988, people are associated with the Armed Forces. Also detailed in this table are the number and percentages of the total working population in various occupational categories.

**Environmental Justice.** Population data is important in determining the presence of Environmental Justice populations. EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs all federal departments and agencies to incorporate environmental justice considerations in achieving their mission.

CEQ provides guidance on EO 12898 by stating that “minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (CEQ 1997).

Each federal department of agency is to accomplish this by conducting programs, policies, and activities that substantially affect human health or the environment in a manner that does not exclude communities from participation in, deny communities the benefits of, nor subject communities to discrimination under such actions because of their race, color, or national origin.

1 **TABLE 3-7. EMPLOYMENT SUMMARY**

	Virginia		Fairfax County	
Percent population 16 years and over in Labor Force (2018)	65.4%		71.7%	
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

2 Source: USCB 2020b

3 Each federal department of agency is to accomplish this by conducting programs, policies, and  
4 activities that substantially affect human health or the environment in a manner that does not  
5 exclude communities from participation in, deny communities the benefits of, nor subject  
6 communities to discrimination under such actions because of their race, color, or national origin.

7 The Proposed Action would be constructed on HEC, which is a USACE Civil Works site, does not  
8 contain any neighborhood or residential areas, and is not accessible by the public. Construction  
9 of the Proposed Action would not be visible from outside of HEC, and any noise that would travel  
10 off the site would be negligible, and temporary in nature (See **Section 3.10.2**). No impacts on  
11 low-income or minority groups would be expected and therefore Environmental Justice is  
12 removed from further analysis.

1                   **3.12.2. Environmental Consequences**

2                   **3.12.2.1. Threshold of Significance**

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

6                   **3.12.3. Alternative 1 (Preferred Alternative)**

7                   **3.12.3.1. Construction**

8    Construction and site work related to the Proposed Action would require approximately 20  
9    construction workers during the anticipated 24-month construction period. It is expected that  
10   these construction workers would be hired from the available labor pool in Fairfax County or  
11   Virginia, which are both sufficiently large enough to absorb this demand without negatively  
12   impacting labor availability elsewhere in the local area or state. No specialty labor would be  
13   required under this Proposed Action and the temporary increase in local workers would not  
14   result in an increase in population or need for new housing within the ROI.

15   The construction of the proposed MSF would require purchasing materials from local suppliers,  
16   to the maximum extent practicable. This purchasing, as well as spending by construction workers  
17   at local businesses, would have a positive impact on the local economy.

18   Therefore, construction of the Proposed Action would be anticipated to have short-term,  
19   negligible to minor, beneficial impacts on socioeconomics.

20                   **3.12.3.2. Operation**

21   Operation of the Proposed Action would require approximately 39-42 personnel, who would be  
22   transferred from the maintenance facility currently on Fort Belvoir in addition to approximately  
23   8 personnel who would be transferred to the proposed MSF from buildings already on HEC.  
24   These personnel would likely already have housing in the immediate area and would not require  
25   relocation. Due to the amount of staff proposed for the MSF, the transfer of personnel from Fort  
26   Belvoir to HEC would have no impact on socioeconomics.

27                   **3.12.4. Alternative 2 (Concept A)**

28                   **3.12.4.1. Construction**

29   Construction impacts under Alternative 2 would be the same as they are described under **Section**  
30   **3.12.3.1.**



#### 1                   **3.12.4.2. Operation**

2   Operational impacts under Alternative 2 would be the same as they are described under **Section**  
3 **3.12.3.2.**

#### 4                   **3.12.5. No Action Alternative**

5   Under the No Action Alternative, the proposed MSF would not be constructed at HEC. The unit  
6   would continue to lack adequate maintenance and supply of mission critical and essential  
7   equipment. Long-term, negligible to minor, adverse impacts would be expected under the No  
8   Action Alternative from the lack of construction employment at HEC however the site would  
9   remain as wooded land and no conversion to developed land would occur. Site conditions would  
10   remain as described under **Section 3.12.1.** No additional impacts on socioeconomics and  
11   environmental justice would be expected under the No Action Alternative.

### 12                   **3.13. Water Resources**

#### 13                   **3.13.1. Affected Environment**

14   **Surface Waters.** HEC, in addition to the Proposed Action site, is located in the Dogue Creek  
15   watershed, which is within the larger Potomac River drainage basin and contains about 32 miles  
16   of stream divided among five Watershed Management Areas (WMAs). Surface water drainage  
17   at the Proposed Action site primarily drains toward the northeast and southwest via existing  
18   stormwater infrastructure.

19   Piney Branch Creek, a tributary of Dogue Creek, divides HEC into two topographically distinct  
20   areas and traverses the installation from northwest to southeast. The Proposed Action site is  
21   within the Dogue Creek Mainstem WMA, which is approximately 3,776 acres and contains  
22   approximately 769 acres of impervious surfaces.

23   **Water Quality.** Water quality impacts in the waterways on HEC relate mostly to urbanization,  
24   including issues related to bacteria, changes in stream morphology from increased impervious  
25   surface, and sedimentation. Development that increases the imperviousness of watersheds  
26   generates more stormwater runoff, leading in turn to erosion of stream channels and transport  
27   of sediment, other particulates, and dissolved nutrients to downstream surface waters. Erosion  
28   of stream channels can severely damage the channel and those features of the channel that  
29   provide habitat for fish, amphibians, aquatic insects, and other invertebrates. An excess of  
30   sediment and particulates could also degrade water quality downstream. For example, the  
31   Chesapeake Bay has degraded primarily in response to excess nutrient pollution.

32   Section 303(d) of the Clean Water Act (CWA) and the USEPA Water Quality Planning and  
33   Management Regulations (40 CFR Part 30) directs states to identify and list water bodies in which

1 current controls of a specified pollutant are inadequate to achieve water quality standards.  
2 Additionally, states are required to develop Total Maximum Daily Loads (TMDL) for water bodies  
3 that are not meeting water quality standards. TMDLs represent the total pollutant loading that  
4 a water body can receive without exceeding current water quality standards. Based on a review  
5 of the *Draft 2018 305(b)/303(d) Water Quality Assessment Integrated Report*, dated 22 January  
6 2019, HEC primarily discharges in two impaired bodies of water, Piney Branch Creek and  
7 ultimately Dogue Creek. According to the 2018 Integrated Report, Piney Branch Creek is  
8 categorized as Category 5A impaired water (i.e., needing a TMDL for benthic-macroinvertebrate  
9 bioassessments and pH), and Dogue Creek is categorized as a Category 4A (i.e. with approved  
10 TMDL) impaired water for polychlorinated biphenyls (PCB) in fish tissue and dissolved oxygen.  
11 Additionally, Dogue Creek was also categorized as Category 5A impaired water requiring a TMDL  
12 for *Escherichia coli* bacteria (VDH, VDEQ, VDCR 2018).

13 In addition to identifying water bodies of concern and mandating TMDL for appropriate water  
14 bodies, the CWA also establishes federal limits, through the National Pollutant Discharge  
15 Elimination System (NPDES), on the amounts of specific pollutants that are discharged to surface  
16 waters to restore and maintain the chemical, physical, and biological integrity of the water. In  
17 Virginia, the NPDES is administered by VDEQ under the Virginia Pollutant Discharge Elimination  
18 System (VPDES). HEC does not currently hold individual or general VPDES permits (Knicely 2019).

19 **Wetlands.** Based on the 2006 Master Plan for HEC, there are no wetlands or jurisdictional Waters  
20 of the United States within the Proposed Action site. However, based on a 2019 survey of the  
21 Project Area there is a small wetland immediately 60 feet southeast of the proposed action site  
22 (USACE 2019a).

23 **Floodplains.** Per Federal Emergency Management Agency (FEMA) maps (Floor Insurance Rate  
24 Map [FIRM] 51059C0385E, effective 17 September 2010), the Proposed Action site is located  
25 outside of the 100-year floodplains and is within the area of minimal flood hazard (Zone X).  
26 Additionally, USACE completed a floodplain study of Piney Run in 2019, which concluded that the  
27 Proposed Action site is not located within the 100-year floodplain (USACE 2019b, FEMA 2020).  
28 **Figure 3-1** shows the location of floodplains relative to the Proposed Action location.

29 **Resource Protection Areas.** Virginia's *Chesapeake Bay Preservation Act* (CBPA), Virginia Code  
30 10.1-2100 et seq., and its implementing Chesapeake Bay Preservation Area Designation and  
31 Management Regulations, 9 Virginia Administrative Code (VAC) 10-20-120 et seq., protect certain  
32 lands, designated as Chesapeake Bay Preservation Areas, which, if improperly developed, could  
33 result in substantial damage to the water quality of the Chesapeake Bay and its tributaries.

34 Projects that occur on lands that are protected under the CBPA must be consistent with the Act  
35 and may be subject to the performance criteria for RPA as specified in 9 VAC 10-20-130 of the

1 regulations. Under the CBPA, Fairfax County adopted a Chesapeake Bay Preservation Ordinance  
2 that designates RPAs and Resource Management Areas (RMA) within the county.

3 The purpose of the RPA is to maintain or restore a vegetated buffer between development and  
4 tributaries to the Chesapeake Bay, with the assumption that such a buffer traps nutrients and  
5 pollutants in runoff and groundwater before reaching the bay. RPAs include tidal wetlands; tidal  
6 shores; non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or  
7 waterbodies with perennial flow, and a minimum 100-foot buffer landward of the other RPA  
8 components. Development within RPA is generally restricted to water-dependent uses,  
9 maintenance of public facilities, passive recreation, water wells, and historic preservation.  
10 However, redevelopment in an already developed RPA is allowed. There are no RPAs within the  
11 area of the Proposed Action. The nearest RPA is approximately 100 feet to the southwest,  
12 associated with Piney Branch Creek. Figure 3-2 shows the location of RPAs in reference to the  
13 Proposed Action site (Fairfax County 2020).

14 **Groundwater.** HEC is underlain by the Northern Atlantic Coastal Plain aquifer system, which  
15 consists of six regional aquifers in sedimentary deposits that range in age from the Early  
16 Crustaceous to Holocene. The Potomac aquifer, which consists of fine to coarse sand beds and  
17 is the most widespread aquifer in the Northern Atlantic Coastal Plain, currently sits immediately  
18 below HEC and is named for permeable sediments that are part of the Potomac Formation. The  
19 Potomac aquifer is separated from overlying aquifers everywhere by a confining unit of clay and  
20 sandy clay. The Potomac aquifer is further broken down into confined aquifers that are known  
21 as the Upper, Middle and Lower Potomac aquifers.

22 Depth to groundwater fluctuates based on different variables including precipitation, leakage,  
23 and evapotranspiration, however is typically between 10 and 25 feet below ground surface. The  
24 water table at HEC also has potential to exist closer to the ground surface near streams in the  
25 form of shallow, unconfined aquifers (USGS 2019a, USGS 2019b).

26 **Coastal Zone Management.** The *Coastal Zone Management Act* (CZMA) of 1972 (16 U.S.C. §1451  
27 et seq., as amended) provides assistance to states, in cooperation with federal and local agencies,  
28 for developing land and water use programs in coastal zones.

29 Section 307 (c)(1) of the Coastal Zone Management Act Reauthorization Amendment stipulates  
30 that federal projects that affect land uses, water uses, or coastal resources of a state's coastal  
31 zone must be consistent to the maximum extent practicable with the enforceable policies of that  
32 state's federally approved coastal zone management plan.

# National Flood Hazard Layer FIRMette



77°9'21"W 38°44'49"N



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

<b>SPECIAL FLOOD HAZARD AREAS</b>	<ul style="list-style-type: none"> <li>Without Base Flood Elevation (BFE) Zone A, X, AE, AP</li> <li>With BFE or Depth Zone AE, AD, AH, VE, AR</li> <li>Regulatory Floodway</li> </ul>
<b>OTHER AREAS OF FLOOD HAZARD</b>	<ul style="list-style-type: none"> <li>0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X</li> <li>Future Conditions 1% Annual Chance Flood Hazard Zone X</li> <li>Area with Reduced Flood Risk due to Levee. See Notes. Zone X</li> <li>Area with Flood Risk due to Levee Zone D</li> </ul>
<b>OTHER AREAS</b>	<ul style="list-style-type: none"> <li>NO SCREEN: Area of Minimal Flood Hazard Zone X</li> <li>Effective LOMRs</li> <li>Area of Undetermined Flood Hazard Zone D</li> </ul>
<b>GENERAL STRUCTURES</b>	<ul style="list-style-type: none"> <li>Channel, Culvert, or Storm Sewer</li> <li>Levee, Dike, or Floodwall</li> </ul>
<b>OTHER FEATURES</b>	<ul style="list-style-type: none"> <li>Cross Sections with 1% Annual Chance Water Surface Elevation</li> <li>Coastal Transect</li> <li>Base Flood Elevation Line (BFE)</li> <li>Limit of Study</li> <li>Jurisdiction Boundary</li> <li>Coastal Transect Baseline</li> <li>Profile Baseline</li> <li>Hydrographic Feature</li> </ul>
<b>MAP PANELS</b>	<ul style="list-style-type: none"> <li>Digital Data Available</li> <li>No Digital Data Available</li> <li>Unmapped</li> </ul> <p>The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.</p>

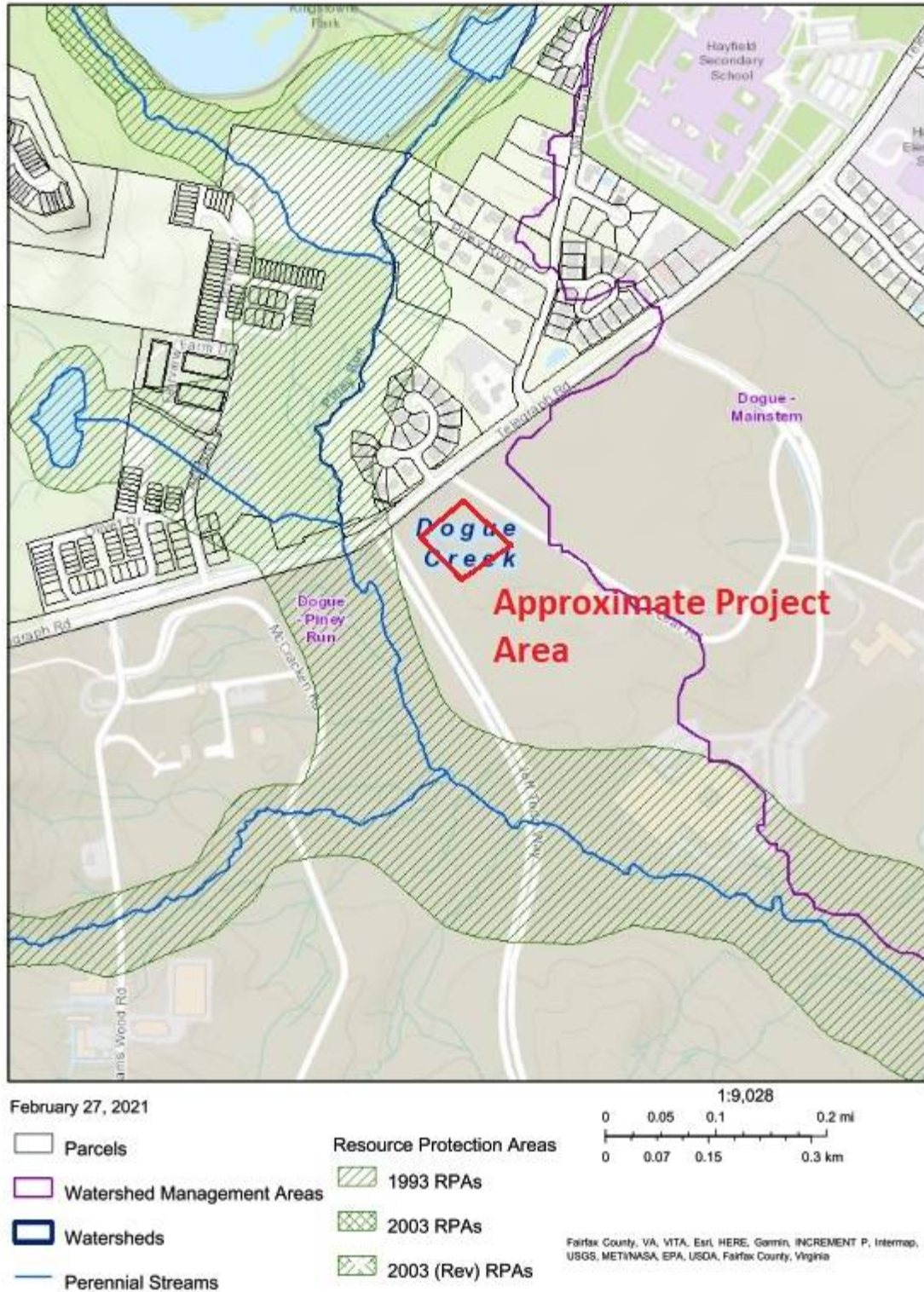
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/27/2021 at 12:53 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

1  
2 **FIGURE 3-1 FLOODPLAINS AT THE PROPOSED ACTION LOCATION**

### Watersheds & Resource Protection Areas (RPAs) near the Proposed Actor



1

2 **FIGURE 3-2 RPAs NEAR THE PROPOSED ACTION**

1 The Commonwealth of Virginia has developed and implemented a federally approved Coastal  
2 Resources Management Program (CRMP) describing current coastal legislation and enforceable  
3 policies. There are enforceable policies for the following:

- 4 • Tidal and Non-tidal Wetlands,
- 5 • Subaqueous Lands,
- 6 • Dunes and Beaches,
- 7 • Chesapeake Bay Preservation Area
- 8 • Marine Fisheries,
- 9 • Wildland and Inland Fisheries,
- 10 • Plant Pests and Noxious Weeds,
- 11 • Commonwealth Lands,
- 12 • Point Source Air Pollution,
- 13 • Point Source Water Pollution,
- 14 • Nonpoint Source Water Pollution,
- 15 • Shoreline Sanitation,
- 16 • Coastal Lands.

17 Virginia's coastal zone land includes all of Fairfax County, including HEC; therefore, federal  
18 actions at HEC are subject to federal consistency requirements. The VDEQ serves as the lead  
19 agency for consistency reviews in Virginia. The Coastal Zone Federal Consistency Determination  
20 is included as **Appendix C**.

### 21 **3.13.2. Environmental Consequences**

#### 22 **3.13.2.1. Threshold of Significance**

23 The threshold of significance for water resources would be exceeded if the alternative would  
24 result in a major physical alteration of local surface waters, a substantial degradation of water  
25 quality in violation of permitting requirements and TMDL measures, a substantial loss of wetlands  
26 or RPA that cannot be fully mitigated, or a substantial and permanent loss of degradation of  
27 groundwater.

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

1                   **3.13.3.     Alternative 1 (Preferred Alternative)**

2                   **3.13.3.1.   Construction**

3     **Surface Waters.** There are no existing surface water bodies within the Proposed Action site. The  
4 nearest water body to the Proposed Action is the existing wetland, which is approximately 60  
5 feet southeast of the project site. Stormwater would be managed via a closed conduit  
6 underground conveyance system and natural channels to the site outfall south of the project  
7 area presumably to Dogue Creek. The Proposed Action does not involve construction in or  
8 immediately adjacent to Piney Branch Creek that could result in a physical impact to the stream.  
9 Mitigation measures such as sediment traps and silt fencing would be used to prevent  
10 sedimentation from reaching and impacting the Piney Branch Creek. Based on the distance from  
11 the creek and with planned mitigation measures, no impacts on surface waters would be  
12 expected during construction related to the Proposed Action.

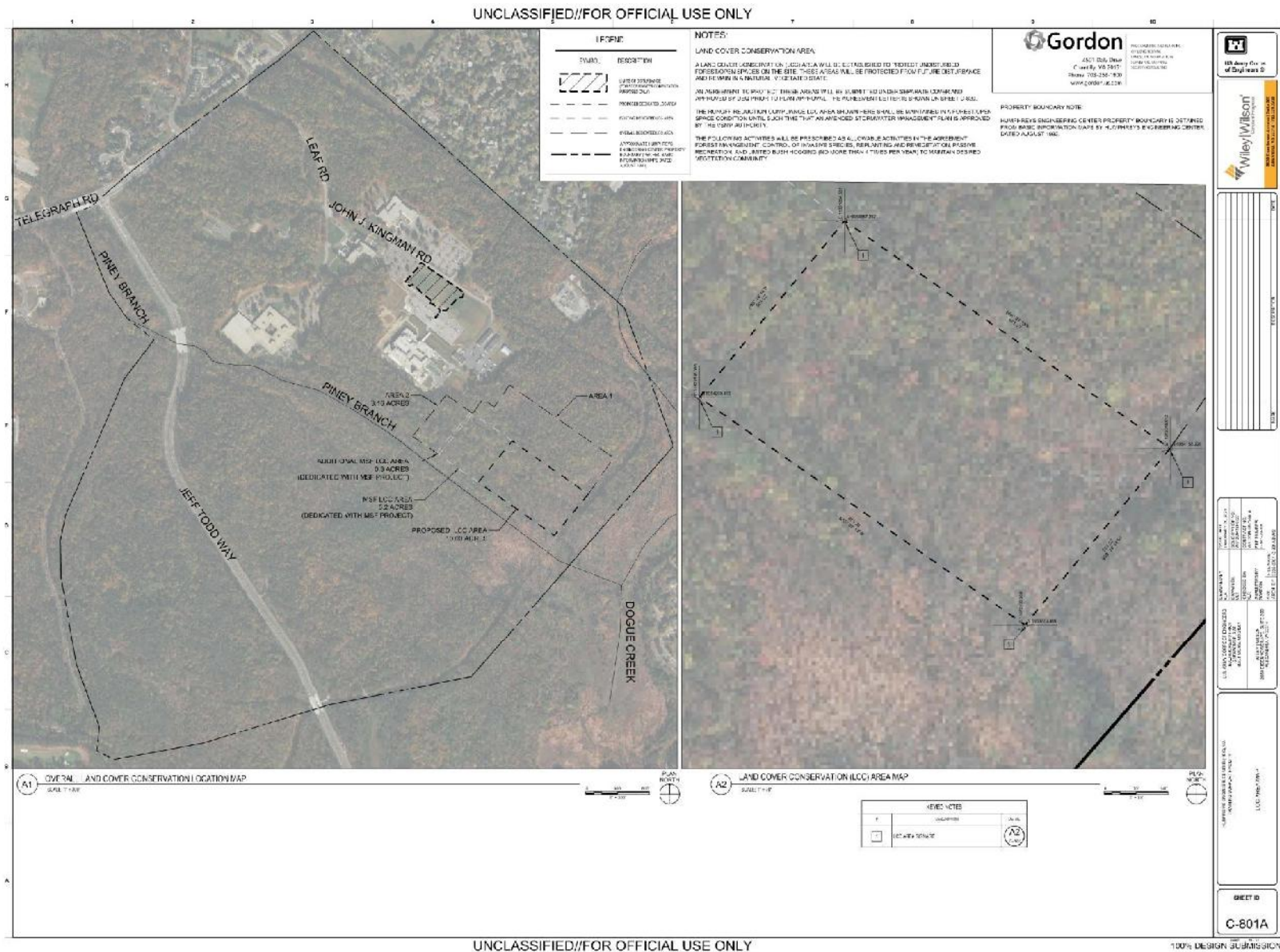
13     **Water Quality.** Construction of the Proposed Action has potential to impact water quality  
14 through an increase in soil erosion and sedimentation into nearby water bodies, primarily during  
15 ground disturbing activities. Because construction would impact more than one acre, a VPDES  
16 General Construction permit would be required. Under the terms of this permit, a SWPPP would  
17 be developed to outline the steps and techniques to reduce pollutants in the stormwater runoff  
18 from the construction site. The SWPPP will also identify all potential pollutant sources that could  
19 enter stormwater leaving the construction site and covers methods used to reduce pollutants in  
20 stormwater runoff during construction. Furthermore, an ESCP would also be developed to  
21 manage sediment runoff from the site. The SWPPP and ESCP would provide specific mitigation  
22 measures for erosion and sedimentation and stormwater runoff including, silt fencing, temporary  
23 sediment traps and other similar measures. Therefore, construction and demolition related to  
24 the Proposed Action would have short-term, negligible, adverse impacts on water quality during  
25 construction and demolition activities.

26     Additionally, a LCC agreement, which is a conservation area of land that is protected from  
27 disturbance which can be credited for stormwater management water quality credits, would be  
28 executed with VDEQ to set aside land on HEC for conservation in order to meet water quality  
29 requirements for this project. The LCC was proposed on areas of HEC that are already over  
30 encumbered with various natural resources (wetlands, floodplains, forested land, etc.).

31     HECSA provided a letter and plans to VDEQ on November 19<sup>th</sup>, 2020 indicating the intent to  
32 maintain approximately 30.6 acres of low lying forested area as Land Cover Conservation area. At  
33 the time, the LCC area supported MSF with 5.2 acres of LCC and the Training Supply Facility (TSF)  
34 with 10 Acres of LCC leaving 15.4 acres to support future development at the campus. The land  
35 conservation area for the MSF will be approximately 5.2 acres, field marked prior to

- 1 commencement of construction, and will allow the project to meet water quality requirements.
- 2 See **Figure 3-3** for the proposed location of the LCC for the MSF.
- 3 **Wetlands.** Construction of the Proposed Action would not have any direct impact on wetlands.
- 4 There are no jurisdictional wetlands on the site, and the nearest jurisdictional wetland is
- 5 approximately 60 feet to the southeast. Indirect impacts on wetlands near the Proposed Action
- 6 site could result from a potential increase in erosion and sedimentation related to construction
- 7 activities. However, the measures that would be included in the ESCP and the SWPPP would
- 8 avoid or minimize these potential impacts; therefore based on the distance from existing
- 9 wetlands and implementation of the SWPPP and ESCP, no impacts on wetlands would be
- 10 expected during construction.
- 11 **Floodplains.** The Proposed Action is not located in a floodplain, therefore no impacts on
- 12 floodplains would be expected.
- 13 **Resource Protection Areas.** No direct impacts on RPAs would be expected from construction
- 14 related to the Proposed Action. Indirect impacts could result from increased runoff and
- 15 sedimentation however, the ESCP, SWPPP and the additional mitigation measures described
- 16 above would significantly reduce potential impacts; therefore no impacts from construction and
- 17 demolition would be expected on RPAs.
- 18 **Groundwater.** Overall construction of the Proposed Action would result in a net increase in
- 19 impervious surfaces at the site, and at HEC overall. The increase in impervious surfaces would
- 20 reduce infiltration of stormwater to groundwater resources. However, the Land Cover
- 21 Conservation agreement would help offset impacts to groundwater from additional impervious
- 22 surfaces at HEC. Furthermore, construction of the Proposed Action is not near known recharge
- 23 areas for the Potomac aquifer, so impacts would be restricted to the surface water table. No
- 24 withdrawal of groundwater would be necessary to construct the proposed MSF; therefore, the
- 25 construction related to the Proposed Action would have long-term, negligible, adverse impacts
- 26 on groundwater.
- 27 **Coastal Zone Management.** It has been determined that construction related to the Proposed
- 28 Action would be consistent, to the maximum extent practicable, with the Commonwealth of
- 29 Virginia CRMP's enforceable policies, as described in **Appendix C**, Coastal Zone Consistency
- 30 Determination. The Coastal Zone consistency determination will be submitted to the
- 31 Commonwealth of Virginia as an appendix in the EA. Complete results of this coordination,
- 32 including recommendations from VDEQ, when received, will be included in **Appendix A**.





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FIGURE 3-3 PROPOSED LCC LOCATION

### 1                    3.13.3.1. Operation

2    **Surface Waters.** Operation of the proposed MSF would not involve activities in, or near surface  
3    waters and operations occurring at the facility would have no potential to result in physical  
4    impacts to surface waters. Because the footprint of the proposed MSF is larger than 5,000 square  
5    feet, it would be required to comply with Section 438 of the *Energy Independence and Security*  
6    *Act* (EISA). Section 438 of EISA requires any development or redevelopment project involving a  
7    federal facility with a footprint that exceeds 5,000 square feet to use site planning design,  
8    construction, and maintenance strategies for the property to maintain or restore, to the  
9    maximum extent practicable, the predevelopment hydrology of the site with regard to  
10   temperature, rate, volume, and duration of flow. Compliance with Section 438 through the  
11   incorporation of LID measures in the design of the proposed maintenance facility would ensure  
12   that the Proposed Action does not result in an increase in the volume of stormwater runoff.

13   **Water Quality.** The Proposed Action would increase the amount of impervious surface on the  
14   project site as well as on HEC, which could result in a corresponding increase in the volume of  
15   stormwater runoff. The proposed OWO would help mitigate impacts to water quality by filtering  
16   contaminants from surface runoff from the proposed MSF. Furthermore, the Proposed Action  
17   would execute a LCC agreement with VDEQ to set aside land on HEC for conservation to meet  
18   operational water quality requirements. Therefore, overall impacts on water quality from  
19   operation of the Proposed Action would be expected to be negligible to minor in the short-term  
20   and negligible, long-term, impacts.

21   **Wetlands.** No direct impacts on wetlands from the operation of the proposed MSF would be  
22   expected. Indirect impacts on wetlands could potentially result from stormwater runoff from the  
23   proposed facility. However, construction of the facility would include development of an SWPPP,  
24   and based on the distance the facility is from existing wetlands, no impacts on wetlands would  
25   be expected from operation of the proposed facility.

26   **Floodplains.** No impacts on floodplains would be expected from operation of the proposed MSF.

27   **Resource Protection Areas.** Operation of the proposed MSF would have no means to impact any  
28   nearby RPAs as all operations would completely within the boundary of the Proposed Action;  
29   therefore no impacts from operation of the proposed facility would be expected to RPAs.

30   **Groundwater.** No impacts on groundwater from operation of the proposed MSF would be  
31   expected because operation of the proposed facility would not require any withdrawal of  
32   groundwater from the Potomac aquifer.

33   **Coastal Zone Management.** Operation of the proposed MSF would be consistent with the  
34   Commonwealth of Virginia CRMP's enforceable policies; therefore, no adverse impacts from  
35   operation of the proposed facility would be expected on Commonwealth of Virginia's CRMP.

1                    **3.13.4. Alternative 2 (Concept A)**

2                    **3.13.4.1. Construction**

3    Water resource impacts under Alternative 2 would be long-term, direct, and moderate due to  
4    impacts on wetland resources from proposed construction of the MSF. Further, impacts to  
5    stormwater management would be expected from the redevelopment of an existing stormwater  
6    management pond at the location of the proposed MSF under Alternative 2 (Concept A).

7                    **3.13.4.2. Operation**

8    Operational impacts under Alternative 2 would be the same as they are described under **Section**  
9    **3.13.3.2.**

10                  **3.13.5. No Action Alternative**

11    Under the No Action Alternative, the proposed MSF would not be constructed at HEC. The unit  
12    would continue to lack adequate maintenance and supply of mission critical and essential  
13    equipment. Long-term, negligible to minor, beneficial impacts would be expected under the No  
14    Action Alternative as the proposed MSF would not be constructed and the site would remain as  
15    wooded land and no conversion to developed land would occur. Site conditions would remain  
16    as described under **Section 3.13.1.** No additional impacts on water resources would be expected  
17    under the No Action Alternative.

## 1    **4.0 CUMULATIVE IMPACTS**

2    As defined by CEQ Regulations in CFR 1508.7, a cumulative impact is that which “results from the  
3    incremental impact of the action when added to other past, present, and reasonably foreseeable  
4    future actions regardless of what agency (federal or non-federal) or person undertakes such  
5    other actions.” NEPA requires the lead federal agency to consider the cumulative environmental  
6    effects of a proposed action. Cumulative impacts can result from individually minor but  
7    collectively significant actions expected to occur in a similar location and during a similar time  
8    period.

9    The Proposed Action considered in this EA was considered in addition to several other projects  
10   occurring at HEC within a reasonable time frame as related to the Proposed Action. The following  
11   projects and their descriptions were considered as part of the cumulative impacts assessment for  
12   this EA.

- 13       • Egress Road REC/EA – This project will provide egress from HEC to Jeff Todd Way and  
14       would include construction of an access control point.
- 15       • Fenceline REC – The proposed Fenceline project at HEC will include an AT/FP fenceline  
16       that will surround the main buildings at HEC. The limits of disturbance for this project is  
17       approximately 3 acres.
- 18       • USASOC Operations Building – This building will provide training support space to HEC.
- 19       • Concrete Pad Removal REC – This project involves the removal of the concrete pad and  
20       wave tank currently associated with the recreational field intended for the TSF  
21       development.
- 22       • Battalion Ops Facility EA – This proposed facility would house battalion and company  
23       operations for one battalion of the 1<sup>st</sup>CIG to support the administration and operations  
24       of the brigade, battalion, and company.
- 25       • TSF EA- This project includes construction of a TSF located on the central portion of HEC  
26       that will provide training and administrative support space to HEC.
- 27       • Master Plan EA – This EA considers approximately 30 different proposed construction and  
28       demolition projects over the next 20+ years. The Master Plan breaks down projects into  
29       short-, mid-, long- and capacity-range projects that will provide a roadmap for the future  
30       buildout of the HEC campus.

### 31       **4.1. Cumulative Impacts on Resources**

32    The following analysis examines the cumulative impacts on the environment that would result  
33    from the incremental impacts of the Proposed Action in addition to the other projects discussed  
34    in Section 4.0. The analysis assesses the potential for an overlap of impacts with respect to  
35    project schedules or affected areas. This section provides a qualitative analysis of the cumulative  
36    impacts of the above referenced projects associated with the Proposed Action.

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#### **4.1.1. Aesthetic and Visual Resources**

Short-term, minor, adverse impacts would be expected from construction projects that would be simultaneously ongoing, such as construction of the MSF and the USASOC Operations Building. These impacts would be short-term in nature due to construction being temporary. Similarly for other projects, HEC is large enough where additional projects would be occurring in other areas of HEC that would not necessarily be visible to people from outside the installation and would not reduce the overall campus-like appeal of HEC. Furthermore, construction projects would generally be staggered wherein not all projects would be at the same phase of construction. Lastly, once the projects are all completed, long-term, minor, and beneficial impacts would be expected from the updated appearance of HEC from new construction.

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#### **4.1.2. Air Quality**

Short-term, minor, adverse cumulative impacts on air quality would occur from the activities associated with the Proposed Action when combined with the cumulative projects occurring at HEC. Criteria pollutant and GHG emissions during project construction would occur. Air emissions from the Proposed Action would be below the *de minimis* threshold surrogate of 100 tons per year (tpy) of each pollutant. Based on the relative sizes of the projects, criteria pollutant emissions generated from the cumulative projects would also not be expected to exceed criteria thresholds based on the presumed size of the project. The limited annual emissions of GHGs from the Proposed Action and cumulative projects would not meaningfully contribute to the potential effects of global climate change. Therefore, no significant cumulative impacts on air quality would be expected.

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#### **4.1.3. Biological Resources**

Short- and long-term, minor, adverse cumulative impacts would occur on vegetation, wildlife, state- and federally-protected species, migratory birds, and the associated habitats from construction, demolition and operations associated with the Proposed Action when combined with cumulative projects. Construction would ultimately result in the permanent removal of existing vegetation; however, the Proposed Action and cumulative projects would be expected to remove only a small percentage of similar habitats in the immediate region. Construction would also result in temporary noise that would cause short-term, cumulative impacts on wildlife, including state- and federally-listed species and migratory birds; however, wildlife are likely habituated to noise, especially construction noise, because of the projects' proximity to existing roads and other development in the immediate area. Long-term, cumulative impacts on wildlife would occur from the permanent loss of habitat; however, wildlife would be able to use adjacent habitat that is readily available to nearby project sites.

1 Additionally, injury or mortality of small, less-mobile terrestrial species (e.g. reptiles, rodents, and  
2 small mammals) could occur from direct physical impact (e.g. vehicular traffic, construction and  
3 demolition equipment), particularly because of expansion of roadways; although, like previously  
4 mentioned, wildlife in the area are likely habituated to vehicular traffic and related noise. As a  
5 result, population-level impacts would not occur. No impacts on federally listed species would  
6 occur from the Proposed Action, but the cumulative projects could have negligible to minor,  
7 adverse impacts on federally listed species depending on the siting of proposed facilities.

#### 8 **4.1.4. Cultural Resources**

9 Ground disturbing activities associated with the Proposed Action and cumulative projects would  
10 have the potential to impact undocumented cultural resources such as buried archaeological  
11 sites, potentially resulting in short-term, negligible, adverse cumulative impacts. Should  
12 undocumented archaeological deposits, Native American graves, lost historic cemeteries, or  
13 human remains, etc. be discovered during any activity, the activity would be immediately halted  
14 and consultation with the appropriate preservation officer would occur. If the unexpected  
15 discovery were to occur on HEC, the installation would follow the provisions for unanticipated  
16 discoveries specified in the Fort Belvoir Integrated Cultural Resources Management Plan.

#### 17 **4.1.5. Geological Resources**

18 Short- and long-term, minor, adverse cumulative impacts on geological resources would occur  
19 from ground-disturbing activities associated with the Proposed Action when combined with  
20 cumulative projects. Site preparation and earthmoving associated with construction and  
21 demolition would excavate soils and expose rock materials, temporarily removing vegetation in  
22 some areas and potentially exposing soils to erosion. Soil productivity would decline in disturbed  
23 areas and eliminated in areas within the footprint of roadways or structures. An overall increase  
24 of impervious surface would ultimately reduce the amount of area for stormwater to infiltrate  
25 and increase stormwater runoff. In general, accelerated soil erosion would be minimized by  
26 designed facilities while considering any soil limitations, employing construction and stabilization  
27 techniques appropriate for the soil and climate, and implementing temporary and permanent  
28 erosion control measures. BMPs could include installing silt fencing and sediment traps, applying  
29 water to disturbed soil to minimize fugitive dust, and revegetating disturbed areas as soon as  
30 possible after the disturbance, as appropriate. Therefore, impacts on soils would be minor and  
31 localized to the construction area and project areas.

#### 32 **4.1.6. Solid and Hazardous Materials**

33 Short-term, minor, adverse cumulative impacts from the use of hazardous materials and the  
34 generation of solid and hazardous wastes would occur during construction associated with the  
35 Proposed Action when combined with cumulative projects. All hazardous materials, solid waste,

1 petroleum products, and hazardous waste support construction would be contained and stored  
2 in accordance with the applicable regulations to minimize the potential for releases.  
3 Furthermore, solid waste generated would be expected to be recycled to the maximum extent  
4 practicable in an effort to cut down on solid waste. Therefore, no significant cumulative adverse  
5 impacts from solid and hazardous materials would occur.

#### 6 **4.1.7. Infrastructure, Utilities and Traffic**

7 Short-term, minor, adverse cumulative impacts from temporary increases in utility and  
8 infrastructure usage from construction activities related to the Proposed Action and cumulative  
9 activities would be expected. Impacts to infrastructure and utilities would be expected to be  
10 temporary in nature as certain utilities (potable water, electrical, sanitary sewer, etc.) would be  
11 shut off to certain areas to allow for hook ups to new construction. Outages would be  
12 coordinated with area users and would not be expected to adversely impact the population on  
13 HEC. Additionally, impacts from cumulative projects would be coordinated with HECSA so that  
14 utilities and infrastructure are not shut off for extended periods of time. Ultimately, long-term,  
15 minor, adverse cumulative impacts on infrastructure and utilities would be expected from new  
16 facilities drawing on the existing infrastructure and utility system; though these new facilities  
17 would be expected to be energy efficient and would draw less on the system than some of the  
18 older facilities on HEC.

19 Short- and long-term, negligible to minor, adverse cumulative impacts on traffic and  
20 transportation at HEC would be expected from the construction of new facilities and additional  
21 personnel relocating to HEC. Construction of facilities would require the delivery of construction  
22 equipment and resources that could temporarily block and reroute HEC roadways. These impacts  
23 would be temporary and coordinated with area users and between projects prior to construction  
24 activities. The Kingman/Telegraph Road access point would be temporarily opened for the  
25 duration of the construction period to allow for delivery of materials to the proposed MSF site.  
26 Additionally, HEC would stagger development projects in the same areas in an effort to minimize  
27 construction traffic impacts. Additional cumulative impacts will result from additional personnel  
28 relocating and utilizing HEC roadways and parking lots. The anticipated number of personnel to  
29 relocate to HEC under the cumulative projects identified is not expected to be significant and it  
30 would be expected that HEC roadway infrastructure and surface parking lots could handle the  
31 additional personnel. Therefore, no significant cumulative adverse impacts on traffic at HEC  
32 would be expected.

#### 33 **4.1.8. Land Use**

34 Long-term, negligible, adverse impacts on land use at HEC would be expected from the  
35 cumulative construction of new facilities at HEC. It would be expected that construction of  
36 facilities such as the USASOC Operations Building and the Battalion Ops Facility that require

1 conversion of existing land uses to more appropriate land uses. These changes would also be  
2 captured in the proposed HEC Master Plan, which proposes updates to land use planning at HEC  
3 to accommodate the proposed construction of projects described within, including the  
4 cumulative action projects described above. Overall impacts on land use would be expected to  
5 be negligible because projects proposed under the HEC Master Plan have undergone careful  
6 consideration in terms of planning and alignment. Lastly, because there are no known areas of  
7 elevated MEC density, the potential for exposure to MEC is low, and in addition to the existing  
8 LUCs, impacts on LUCs and construction personnel would be short-term, negligible, and adverse.  
9 Overall, no significant cumulative adverse impacts on land use at HEC would be expected.

#### 10 **4.1.9. Noise**

11 Short-term, minor, adverse cumulative impacts on the ambient noise environment would occur  
12 from construction associated with the Proposed Action when combined with cumulative  
13 projects. Noise from construction equipment and construction-related traffic would be  
14 temporary and last only for the duration of construction activities. Additionally, because of the  
15 secluded nature of the HEC installation, on-installation noise generated from construction would  
16 be unlikely to travel off-site. Noise generated from the cumulative projects would be additive to  
17 the noise generated from the Proposed Action as well as the existing noise environment at HEC.  
18 This cumulative noise has the potential to be a periodic annoyance nearby residents, resulting in  
19 negligible to minor cumulative impacts. However, the added noise levels would not be expected  
20 to violate applicable federal, state or local noise regulations or ordinances, or create appreciable  
21 areas of incompatible land use off HEC. Ultimately, the Proposed Action and the cumulative  
22 projects would not be expected to result in significant cumulative impacts on noise.

#### 23 **4.1.10. Community Services**

24 Short- and long-term, negligible to minor, adverse cumulative impacts on community services  
25 would occur at HEC from the Proposed Action and cumulative projects. The Proposed Action and  
26 cumulative projects would all require construction workers who would rely on community  
27 services provided by off-installation services. Negligible to minor impacts could be expected if  
28 project construction timelines were to overlap from the potential over exasperation of  
29 community resources. HEC would coordinate construction schedules as to avoid similar  
30 construction activities from happening simultaneously. Ultimately, the Proposed Action and  
31 some of the cumulative projects will increase the on-installation population of HEC. This increase  
32 in personnel at HEC would be gradual and would not be expected to impact community  
33 resources. Therefore, the Proposed Action and the cumulative projects would not be expected  
34 to result in significant cumulative impacts on community services.



#### 1                    **4.1.11. Socioeconomics and Environmental Justice**

2    Short-term, negligible to minor, beneficial impacts would be expected on socioeconomics from  
3    the Proposed Action and cumulative projects at HEC. The Proposed Action and cumulative  
4    projects would all require construction workers from within the surrounding area, which would  
5    stimulate the regional job market by employing regional engineers, architects and construction  
6    workers. Additionally, construction companies working on HEC would likely purchase local  
7    supplies and eat at local restaurants, further stimulating the local economy immediately around  
8    HEC. Because the Proposed Action and cumulative projects at HEC would not all occur at the  
9    exact same time and would be staggered, the expected impact on the local construction economy  
10   would not be significantly impacted from over-construction at HEC. Additional short-term,  
11   negligible beneficial, cumulative impacts and long-term, negligible adverse cumulative impacts  
12   on socioeconomics resources would be expected from the increase of personnel at HEC. This  
13   increase in personnel would not be expected to adversely impact the local housing economy as  
14   the number of personnel transferring to HEC under the cumulative projects would not be  
15   expected to be significant.

16   Since all cumulative projects analyzed under this assessment would occur on HEC, and would not  
17   be expected to impact the area outside HEC, no impacts on Environmental Justice would be  
18   expected.

#### 19                    **4.1.12. Water Resources**

20   Short- and long-term, minor, adverse cumulative impacts on water resources would be expected  
21   from the Proposed Action in combination with the cumulative projects. The cumulative increase  
22   in impervious surfaces from the Proposed Action and cumulative projects would be considered a  
23   minor contribution in the context of the entire watershed, but could be noticeable on a more  
24   localized level. Increased impervious surfaces could result in a reduction of groundwater  
25   recharge rates and an increase in stormwater runoff volumes. BMPs, including erosion and  
26   stormwater controls, would be implemented to reduce the potential for erosion and increased  
27   volume of stormwater. No additional impacts on water resources would be expected from the  
28   Proposed Action and cumulative projects.

#### 29                    **4.2. Cumulative Actions and the Irreversible Commitment of Resources**

30   NEPA requires the identification of any irreversible and irretrievable commitment of resources  
31   that would be involved, not only in implementation of the Proposed Action, but also with the  
32   cumulative actions identified above. Irreversible and irretrievable resource commitments are  
33   primarily related to the use of nonrenewable resources and the impacts that the uses of these  
34   materials and resources could potentially have on the present and future generations.  
35   Irreversible impacts primarily result from the use or destruction of a specific resource (e.g.,

1 energy and minerals) that cannot be replaced within a reasonable timeframe. Irretrievable  
2 resource commitments involve the loss in value of an affected resource that cannot be restored  
3 as a result of the Proposed Action and cumulative actions (e.g. loss of landscape, permanent loss  
4 of green space).

5 Construction associated with the Proposed Action and cumulative actions would require  
6 consumption of raw materials typically associated with exterior and interior construction (e.g.  
7 concrete, wiring, piping, insulation, windows). Recycled materials would be used to the extent  
8 practicable, and the amount of these materials used would not significantly decrease the  
9 availability of these materials. Small amounts of nonrenewable resources would be required to  
10 be used; however, these amounts would not be appreciable and would not affect the overall  
11 availability of these resources. The Proposed Action and cumulative actions would also require  
12 consumption of fuels, including some that would be nonrenewable resources (e.g., petroleum-  
13 based fuel products for work vehicles and equipment)

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2018

# Appendix

## A

### Agency Coordination and Public Involvement

## Agency Coordination and Public Involvement

The following agencies, persons and tribes were consulted with during the Environmental Assessment (EA) process:

Mr. Marcel Acosta Executive Director National Capital Planning Commission	Chairman David Dale Mount Vernon Council of Citizens Associations
Chief Frank Adams Upper Mattaponi Indian Tribe	Mr. Kimberly Damon-Randall Deputy Regional Administrator National Marine Fisheries Service
Chief Stephen R. Adkins Chickahominy Indian Tribe	Mr. Ray Fernald Manager Department of Game and Inland Services Section
Mr. Troy Anderson Conservation Planning Assistance Supervisor U.S. Fish and Wildlife Service	Mr. Joe Gorney Senior Environmental Planner & Staff Liaison Fairfax County Department of Planning and Zoning
Mr. Tom Blackburn President The Audubon Society of Northern Virginia	Chief Robert Gray Pamunkey Indian Tribe
Tribal Chief Kenneth Branham Monacan Indian Nation	Ms. Katry Harris Program Analyst Advisory Council on Historic Preservation
Mr. John Bricker State Conservationist U.S. Department of Agricultural	Chief William Harris Catawba Indian Nation
Chief Joe Bunch United Keetoowah Band of Cherokee Indians in Oklahoma	Chairman Pat Herrity Fairfax County Planning Commission
Mr. Kevin Casalenuovo Park Manager Pohick Bay Regional Park	Chief Arnold Hewitt Tuscarora Nation
Ms. Sandy Collins Primary Conservator Friends of Accotink Creek	Mr. Rick Keller Chair Mount Vernon Group
Mr. Sean Corson Director National Marine Fisheries Service	Mr. Kirk W. Kincannon Fairfax County Park Authority



Ms. Julie Langan  
State Historic Preservation Officer  
Virginia Department of Historic Resources

Mr. Genevieve LaRouche  
Field Supervisor  
U.S Fish and Wildlife Service

Mr. Jeffrey McKay  
Supervisor  
Fairfax County Board of Supervisors

Ms. Laura McKay  
Virginia Department of Environmental Quality

Ms. Pat Montanio  
Director  
National Marine Fisheries Program

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

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

Ms. Mary Rafferty  
Executive Director

Ms. Bettina Rayfield  
Manager  
Virginia Department of Environmental Quality

Chief Anne Richardson  
Rappahannock Tribe

Ms. Barbara Rudnick  
NEPA Program Manager  
U.S Environmental Protection Agency

Ms. Karen Sheffield  
Director of Planning and Development  
Fairfax County Park Authority

Chief Gerald A. Stewart  
Chickahominy Indians Eastern Division

Supervisor Daniel G. Storck  
Fairfax County Board of Supervisors

Mr. Russel Townsend  
Eastern Band of Cherokee Indians

Chairwoman Katherine Ward  
Mount Vernon Council of Citizen's Associations

Mr. Greg Weiler  
Refuge Manager  
Mason Neck National Wildlife Refuge

**A.1 – Example Scoping Letter sent to Local, State and Federal Agencies and Stakeholders**

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

Ray Fernald  
Manager  
Environmental Services Section  
Department of Game and Inland Fisheries  
P.O. Box 90778  
Henrico, VA 23228

Dear Mr. Fernald,

The U.S. Army Corps of Engineers (USACE) and Humphreys Engineer Center (HEC) have initiated the development of an Environmental Assessment (EA) to evaluate the potential environmental, socioeconomic and cultural resource impacts from construction of a new Maintenance and Supply Facility at HEC, located in Fairfax County, Virginia. This project would support consolidation of maintenance and supply activities at HEC.

The purpose of this Proposed Action is to support U.S. Army Special Operations Command (USASOC) at HEC by establishing a functional, single, centralized area for efficient, synchronized unit operations and maintenance purposes by construction of a Maintenance and Supply Facility to meet mission requirements by co-locating maintenance, administrative, and supply functions. The need for the Proposed Action is to provide more efficient operations for USASOC by co-locating maintenance, supply and administrative functions to one centralized area. Furthermore, there is a current and future need for a functional maintenance facility which is necessary for efficient, synchronized unit operations to execute mobilization readiness, military operations, and contingency missions at HEC.

The proposed Maintenance and Supply Facility would be constructed in an approximately 5.5-acre wooded area adjacent to Telegraph Road (though no access from Telegraph road will be provided) and west of the existing Cude Building and would be constructed as one-story, 47,000 square foot, three-bay motor pool maintenance facility. The proposed facility would consist of concrete and steel construction with brick masonry veneer, and PVC membrane roofing system with high solar reflectance.

After completion of the Maintenance and Supply Facility, approximately three support staff members currently assigned to the maintenance facility located on Ft. Belvoir would be reassigned to the new Maintenance and Supply Facility on HEC. Furthermore, supply functions that are currently fulfilled in Building 2596 on HEC would transfer to the newly constructed facility.

In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation and comments on the enclosed *Final Description of the Proposed Action and Alternatives Addressing Proposed Construction of the Maintenance and Supply Facility at Humphreys Engineer Center Alexandria, Virginia*. Your comments will aid to help further

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develop the scope of the environmental analysis. The Draft EA will be distributed to your office when completed.

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 703-428-7328.

  
Dale F. Stoutenburgh  
Director

Enclosure: *Final Description of the Proposed Action and Alternatives Addressing Proposed Construction of the Maintenance and Supply Facility at Humphreys Engineer Center, Alexandria, Virginia*

## A.2 – Example Tribal Letter



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

Chief Leo Henry  
Tuscarora Nation of New York  
2006 Mt. Hope Road  
Lewiston, NY 14092

Dear Chief Henry,

The U.S. Army Corps of Engineers (USACE) and Humphreys Engineer Center (HEC) have initiated the development of an Environmental Assessment (EA) to evaluate the potential environmental, socioeconomic and cultural resource impacts from construction of a new Special Operation Forces Maintenance and Supply Facility at HEC (i.e. the Proposed Action), located in Fairfax County, Virginia. This project would support consolidation and construction of maintenance and supply activities at HEC.

The purpose of this Proposed Action is to support U.S. Army Special Operations Command (USASOC) at HEC by establishing a functional, single, centralized area for efficient, synchronized unit operations and maintenance purposes by construction of a Maintenance and Supply Facility to meet mission requirements by co-locating maintenance, administrative, and supply functions. The need for the Proposed Action is to provide more efficient operations for USASOC by co-locating maintenance, supply and administrative functions to one centralized area. Furthermore, there is a current and future need for a functional maintenance facility which is necessary for efficient, synchronized unit operations to execute mobilization readiness, military operations, and contingency missions at HEC.

The proposed Maintenance and Supply Facility would be constructed in an approximately 5.5-acre wooded area adjacent to Telegraph Road (though no access from Telegraph road will be provided) and west of the existing Cude Building and would be constructed as one-story, 47,000 square foot, three-bay motor pool maintenance facility. The proposed facility would consist of concrete and steel construction with brick masonry veneer, and PVC membrane roofing system with high solar reflectance.

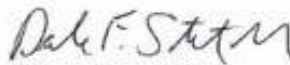
After completion of the Maintenance and Supply Facility, approximately three support staff members currently assigned to the maintenance facility located on Ft. Belvoir would be reassigned to the new Maintenance and Supply Facility on HEC. Furthermore, supply functions that are currently fulfilled in Building 2596 on HEC would transfer to the newly constructed facility.

In accordance with Section 106 of the National Historic Preservation Act, 36 Code of Federal Regulations § 800, and Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, your participation and comments are requested on the enclosed *Final Description of the Proposed Action and Alternatives Addressing Proposed Construction of the Maintenance*

Pg. 2

*and Supply Facility at Humphreys Engineer Center Alexandria, Virginia.* Your comments will aid to help further develop the scope of the environmental analysis. A copy of the Draft EA will be provided once it is completed.

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 703-428-7328.



Dale F. Stoutenburgh  
Director

Enclosure: *Final Description of the Proposed Action and Alternatives Addressing Proposed Construction of the Maintenance and Supply Facility at Humphreys Engineer Center, Alexandria, Virginia*

**A.3 – Section 106 Consultation Initiation Package**

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

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

Dear Ms. Langan,

The purpose of this letter is to initiate consultation with your office under Section 106 of the National Historic Preservation Act for an undertaking by the U.S. Army Corps of Engineers (USACE) at Humphreys Engineer Center (HEC), in Fairfax County, Virginia. The Department of the Army, Humphreys Engineer Support Activity (HECSA), U.S. Army Special Operations Command (USASOC) and Special Operations Forces propose to construct a Maintenance and Supply Facility in the northern portion of USACE's HEC property in Fairfax, Virginia.

The purpose of this Proposed Action is to support USASOC at HEC by establishing a functional, single, centralized area for efficient, synchronized unit operations and maintenance purposes by construction of a Maintenance and Supply Facility to meet mission requirements by co-locating maintenance, administrative, and supply functions. The need for the Proposed Action is to provide more efficient operations for USASOC by co-locating maintenance, supply and administrative functions to one centralized area. Furthermore, there is a current and future need for a functional maintenance facility which is necessary for efficient, synchronized unit operations to execute mobilization readiness, military operations, and contingency missions at HEC.

The proposed Maintenance and Supply Facility would be constructed in an approximately 5.5-acre wooded area adjacent to Telegraph Road (though no access from Telegraph road will be provided) and west of the existing Cude Building and would be constructed as one-story, 47,000 square foot, three-bay motor pool maintenance facility. The proposed facility would consist of concrete and steel construction with brick masonry veneer, and PVC membrane roofing system with high solar reflectance. The Area of Potential Effect (APE) indicates the boundaries of ground disturbance for this undertaking

After completion of the Maintenance and Supply Facility, approximately three support staff members currently assigned to the maintenance facility located on Ft. Belvoir would be reassigned to the new Maintenance and Supply Facility on HEC. Furthermore, supply functions that are currently fulfilled in Building 2596 on HEC would transfer to the newly constructed facility.

No archaeological sites have been identified by VDHR within the APE (Enclosure 1). Site 44FX0739, the Triplett Homestead and Cemetery, is approximately 575 feet to the northwest of the APE for the proposed Maintenance and Supply Facility. 44FX0739 is located adjacent to

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Building 2592 (Cude Building) and its northeast surface parking lot. According to VDHR, the site has not been evaluated yet (Enclosure 2).

This EA will analyze the Proposed Action (the Preferred Alternative), Alternative A, and the No Action Alternative. The No Action Alternative is the continuation of current practices where the Maintenance and Supply Facility would not be constructed. Under the No Action Alternative, the unit would continue to lack adequate space for storage and maintenance of mission critical equipment.

Pursuant to Section 106 of the National Historic Preservation Act, 36 Code of Federal Regulations § 800, and Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, we request your participation and comments on the enclosed *Final Description of the Proposed Action and Alternatives Addressing Proposed Construction of the Maintenance and Supply Facility at Humphreys Engineer Center Alexandria, Virginia*. Your comments will help develop the scope of our environmental review in the EA. The Draft EA will be distributed to your office when completed.

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 703-428-7328.

  
Dale F. Stoutenburgh  
Director

- Enclosure 1: Virginia Department of Historic Resources Archaeological Sites at Humphreys Engineer Center (HEC)
- Enclosure 2: Virginia Department of Historic Resources Archaeological Site Record for 44FX0739
- Enclosure 3: *Final Description of the Proposed Action and Alternatives Addressing Proposed Construction of the Maintenance and Supply Facility at Humphreys Engineer Center Alexandria, Virginia*

**A.4 – Section 7 Consultation Initiation Package**

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

Dr. Mary J. Ratnaswamy  
U.S. Fish and Wildlife Service  
Chesapeake Bay Field Office  
177 Admiral Cochrane Drive  
Annapolis, Maryland 21401-7307

Dear Dr. Ratnaswamy,

The purpose of this letter is to initiate consultation with your office under Section 7 of the Endangered Species Act for an undertaking by the U.S. Army Corps of Engineers (USACE) at Humphreys Engineer Center (HEC), in Fairfax County, Virginia. The Department of the Army, Humphreys Engineer Support Activity (HECSA), U.S. Arm Special Operations Command (USASOC) and Special Operations Forces propose to construct a Maintenance and Supply Facility in the northern portion of USACE's HEC property.

The purpose of this Proposed Action is to support USASOC at HEC by establishing a functional, single, centralized area for efficient, synchronized unit operations and maintenance purposes by construction of a Maintenance and Supply Facility to meet mission requirements by co-locating maintenance, administrative, and supply functions. The need for the Proposed Action is to provide more efficient operations for USASOC by co-locating maintenance, supply and administrative functions to one centralized area. Furthermore, there is a current and future need for a functional maintenance facility which is necessary for efficient, synchronized unit operations to execute mobilization readiness, military operations, and contingency missions at HEC.

The proposed Maintenance and Supply Facility would be constructed in an approximately 5.5-acre wooded area adjacent to Telegraph Road (though no access from Telegraph road will be provided) and west of the existing Cude Building and would be constructed as one-story, 47,000 square foot, three-bay motor pool maintenance facility. The proposed facility would consist of concrete and steel construction with brick masonry veneer, and PVC membrane roofing system with high solar reflectance.

After completion of the Maintenance and Supply Facility, approximately three support staff members currently assigned to the maintenance facility located on Ft. Belvoir would be reassigned to the new Maintenance and Supply Facility on HEC. Furthermore, supply functions that are currently fulfilled in Building 2596 on HEC would transfer to the newly constructed facility.

USACE has accessed the U.S. Fish & Wildlife Service's Information for Planning and Consultation (IPAC) website for the proposed project which produced the attached summary (Enclosure 1). Furthermore, a Self-Certification letter and species conclusion table has also been included (Enclosure 2 and 3). A Center for Conservation Biology Virginia Eagle Nest locator map



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(Enclosure 4) and Virginia Department of Game and In-Land Fisheries map for Northern long-eared bat Habitat and Roost Trees (Enclosure 5) have also been included with this letter.

We request any additional information your office may have on the presence of federally protected species of animals and plants listed by the Fish and Wildlife Coordination Act and Section 7 of the Endangered Species Act for the project area shown enclosed *Final Description of the Proposed Action and Alternatives Addressing Proposed Construction of the Maintenance and Supply Facility at Humphreys Engineer Center Alexandria, Virginia* (Enclosure 6).

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 703-428-7328.

  
Dale F. Stoutenburgh  
Director

Enclosure 1: U.S. Fish & Wildlife Service (USFWS)'s Information for Planning and Consultation (IPAC) Species List

Enclosure 2: Self-Certification Letter

Enclosure 3: Species Conclusion Table

Enclosure 4: The Center for Conservation Biology Virginia Eagle Nest Location Map

Enclosure 5: Virginia Department of Game and In-Land Fisheries map for Northern long-eared bat Habitat and Roost Trees

Enclosure 6: *Final Description of the Proposed Action and Alternatives Addressing Proposed Construction of the Maintenance and Supply Facility at Humphreys Engineer Center, Alexandria, Virginia*

## Enclosure 1:



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
 Virginia Ecological Services Field Office  
 6666 Short Lane  
 Gloucester, VA 23061-4410  
 Phone: (804) 693-6694 Fax: (804) 693-9032  
<http://www.fws.gov/northeast/virginiafield/>



In Reply Refer To: December 01, 2020  
 Consultation Code: 05E2VA00-2021-SL1-0905  
 Event Code: 05E2VA00-2021-E-02574  
 Project Name: HEC Maintenance and Supply Facility

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

## To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered



12/01/2020

Event Code: 05E2VA00-2021-E-02574

1

## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Virginia Ecological Services Field Office**  
6669 Short Lane  
Gloucester, VA 23061-4410  
(804) 693-6694

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12/01/2020

Event Code: 05E2VA00-2021-E-02574

2

### Project Summary

Consultation Code: 05E2VA00-2021-SLI-0905

Event Code: 05E2VA00-2021-E-02574

Project Name: HEC Maintenance and Supply Facility

Project Type: DEVELOPMENT

Project Description: Construction of a maintenance and supply facility at Humpheys Engineer Center in Alexandria, VA

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/38.74381687666248N77.14783085328227W>



Counties: Fairfax, VA

12/01/2020

Event Code: 05E2VA00-2021-E-02574

3

## Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Threatened

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

12/01/2020

Event Code: 05E2VA00-2021-E-02574

1

## **USFWS National Wildlife Refuge Lands And Fish Hatcheries**

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Enclosure 2:



## United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Virginia Field Office  
6669 Short Lane  
Gloucester, VA 23061



Date: March 25, 2019

**Self-Certification Letter**

Project Name: Maintenance and Supply Facility EA

Dear Applicant:

Thank you for using the U.S. Fish and Wildlife Service (Service) Virginia Ecological Services online project review process. By printing this letter in conjunction with your project review package, you are certifying that you have completed the online project review process for the project named above in accordance with all instructions provided, using the best available information to reach your conclusions. This letter, and the enclosed project review package, completes the review of your project in accordance with the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended (ESA), and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c, 54 Stat. 250), as amended (Eagle Act). This letter also provides information for your project review under the National Environmental Policy Act of 1969 (P.L. 91-190, 42 U.S.C. 4321-4347, 83 Stat. 852), as amended. A copy of this letter and the project review package must be submitted to this office for this certification to be valid. This letter and the project review package will be maintained in our records.

The species conclusions table in the enclosed project review package summarizes your ESA and Eagle Act conclusions. These conclusions resulted in:

- "no effect" determinations for proposed/listed species and/or proposed/designated critical habitat; and/or
- "may affect, not likely to adversely affect" determinations for proposed/listed species and/or proposed/designated critical habitat; and/or
- "may affect, likely to adversely affect" determination for the Northern long-eared bat (*Myotis septentrionalis*) and relying on the findings of the January 5, 2016 Programmatic Biological Opinion for the Final 4(d) Rule on the Northern long-eared bat; and/or
- "no Eagle Act permit required" determinations for eagles.



Applicant

Page 2

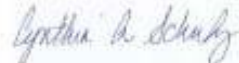
We certify that use of the online project review process in strict accordance with the instructions provided as documented in the enclosed project review package results in reaching the appropriate determinations. Therefore, we concur with the "no effect" or "not likely to adversely affect" determinations for proposed and listed species and proposed and designated critical habitat; the "may affect" determination for Northern long-eared bat; and/or the "no Eagle Act permit required" determinations for eagles. Additional coordination with this office is not needed.

Candidate species are not legally protected pursuant to the ESA. However, the Service encourages consideration of these species by avoiding adverse impacts to them. Please contact this office for additional coordination if your project action area contains candidate species.

Should project plans change or if additional information on the distribution of proposed or listed species, proposed or designated critical habitat, or bald eagles becomes available, this determination may be reconsidered. This certification letter is valid for 1 year.

Information about the online project review process including instructions and use, species information, and other information regarding project reviews within Virginia is available at our website [http://www.fws.gov/northeast/virginiafield/endspecies/project\\_reviews.html](http://www.fws.gov/northeast/virginiafield/endspecies/project_reviews.html). If you have any questions, please contact Troy Andersen of this office at (804) 824-2428.

Sincerely,



Cindy Schulz  
Field Supervisor  
Virginia Ecological Services

Enclosures - project review package

Enclosure 3:

**Species Conclusions Table**

Project Name: Maintenance and Supply Facility

Date: December 1, 2020

Species / Resource Name	Conclusion	ESA Section 7 / Eagle Act Determination	Notes / Documentation
Northern Long-eared Bat/ <i>Myotis septentrionalis</i>	Potential habitat present and no current survey conducted	May affect, not likely to adversely effect	Historically, there has been extensive coordination between Ft. Belvoir and USFWS. Based on previous coordination with USFWS and Ft. Belvoir, HEC will incorporate protection measures outlined in the <i>Memorandum of Instruction – Northern Long-eared Bat Protection on Ft. Belvoir</i> , dated 21 October 2015.
Critical Habitat	No critical habitat present	No effect	
Bald eagle	Unlikely to disturb nesting bald eagles	No Eagle Act permit required	No nests within 660' and not within a concentration area
Bald eagle	Does not intersect with an eagle concentration area	No Eagle Act permit required	Project is not within or adjacent to an eagle concentration area

Enclosure 4:



The Center for  
Conservation  
Biology

## CCB Mapping Portal



**Layers:** VA Eagle Nest Locator

**Map Center [longitude, latitude]:** [-77.14148988260497, 38.7427035559884]

**Map Link:**

[https://ccbbirds.org/mans/#layer=VA+Eagle+Nest+Locator&zoom=16&lat=38.7427035559884&lng=-77.14148998260497&legend=legend\\_tab\\_7c321b7e-e523-11e1-aaaf-0e0c41326911&base=Street+Map+%20OSM%29](https://ccbbirds.org/mans/#layer=VA+Eagle+Nest+Locator&zoom=16&lat=38.7427035559884&lng=-77.14148998260497&legend=legend_tab_7c321b7e-e523-11e1-aaaf-0e0c41326911&base=Street+Map+%20OSM%29)

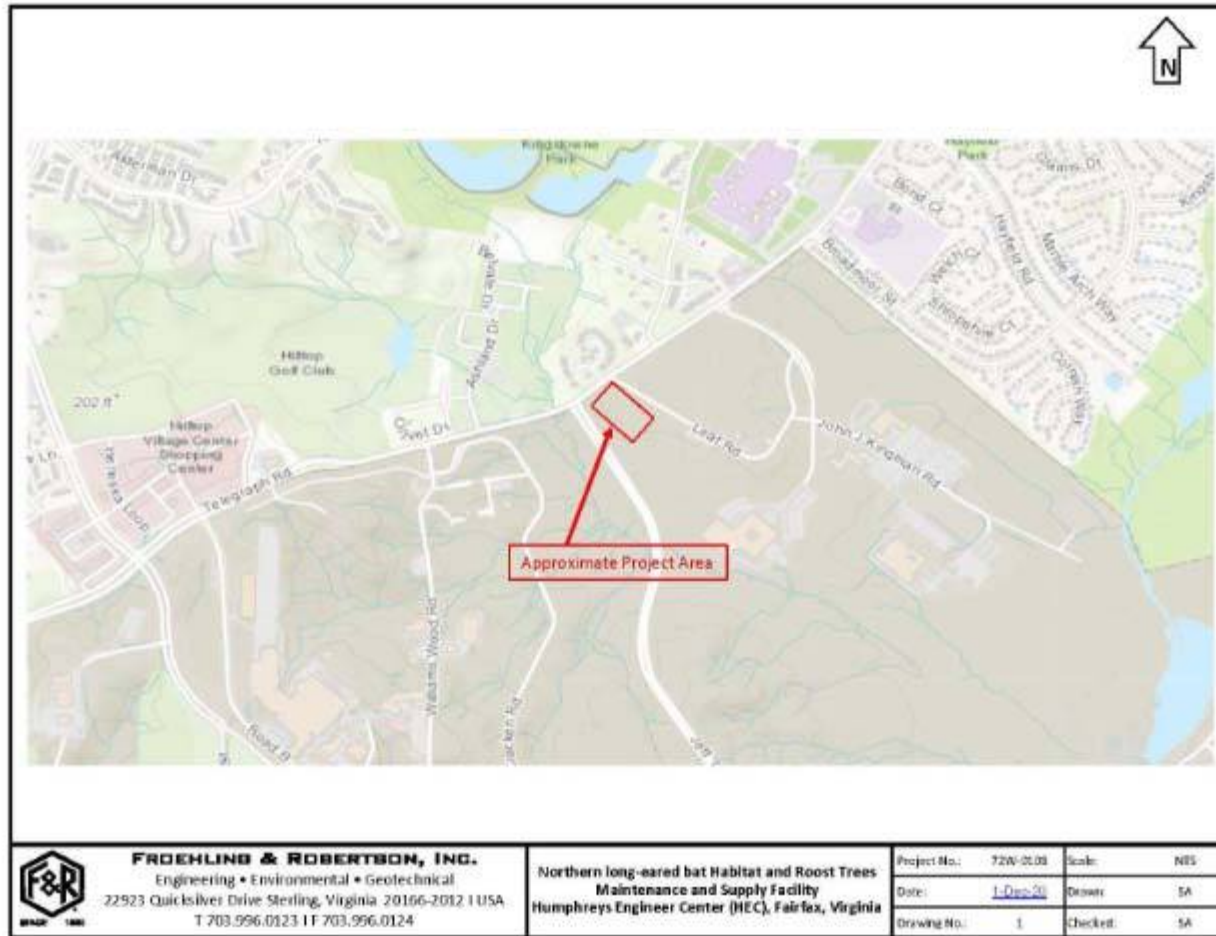
**Report Generated On:** 03/11/2019

The Center for Conservation Biology (CCB) provides certain data online as a free service to the public and the regulatory sector. CCB encourages the use of its data sets in wildlife conservation and management applications. These data are provided to Intellectual property laws. All users are instructed to view the Data Use Agreement to ensure compliance with our data use policies. For additional data access questions, view our Data Distribution Policy, or contact our Data Manager, Marie Pitts, at [mariepitts@ccb.org](mailto:mariepitts@ccb.org) or 717-251-1503.

Report generated by The Center for Conservation Biology Mapping Portal.

To learn more about CCB visit [ccbbirds.org](http://ccbbirds.org) or contact us at [info@ccbbirds.org](mailto:info@ccbbirds.org)

Enclosure 5:



A.5 Virginia Department of Historic Resources Section 106 Consultation Response Letter



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

1 March 2021

Mr. Dale F. Stoutenburgh  
Department of the Army  
US Army Corps of Engineers  
7701 Telegraph Road  
Alexandria, Virginia 22315-3860

Re: Proposed construction of a new Maintenance and Supply Facility  
Humphreys Engineering Center, Fairfax County  
DHR Project No. 2021-0047

Dear Mr. Stoutenburgh:

The Department of Historic Resources (DHR) has received the above referenced project for our review and comment. It is our understanding that the undertaking involves construction of a 47,000 sq. ft. Maintenance and Supply Facility. The proposed project area is included within the study area for previous archaeological surveys; however, the area of potential effects (APE) has not been subjected to systematic survey. The APE is located within the boundaries of the former Triplett Farm (Round Hill). According to an archaeological reconnaissance report (Israel 1983), in the early 19th century the Triplett farm contain a main house, two corn house, a granary, a meat house and quarters for enslaved people. Based on this information there is potential for subsurface archaeological deposits located within the APE.

In order to identify historic properties that may be affected by this undertaking, DHR recommends that a Phase I archaeological survey be conducted within the APE. This survey must be conducted by qualified professionals in accordance to the *Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines* (48 FR 44716-42) and DHR's *Guidelines for Conducting Historic Resources Survey in Virginia* (2017). Please provide one bound copy and one digital copy of the resulting archaeological survey report to our office for review.

If you have any questions about our comments, please contact me at (804) 482-6090.

Sincerely,

Marc Holma, Architectural Historian  
Review and Compliance Division

Administrative Services  
10 Courthouse Ave.  
Petersburg, VA 23803  
Tel: (804) 862-6408  
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Eastern Region Office  
2801 Kensington Avenue  
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Northern Region Office  
5357 Main Street  
PO Box 519  
Stephens City, VA 22655  
Tel: (540) 868-7029  
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**A.5 Verification letter for the HEC Maintenance and Supply Facility project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Exempted from Take Prohibitions**



**United States Department of the Interior**

FISH AND WILDLIFE SERVICE  
Virginia Ecological Services Field Office  
6669 Short Lane  
Gloucester, VA 23061-4410  
Phone: (804) 693-6694 Fax: (804) 693-9032  
<http://www.fws.gov/northeast/virginiafield/>



In Reply Refer To:  
Consultation Code: 05E2VA00-2021-TA-0905  
Event Code: 05E2VA00-2021-E-02575  
Project Name: HEC Maintenance and Supply Facility

December 01, 2020

Subject: Verification letter for the 'HEC Maintenance and Supply Facility' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Exempted from Take Prohibitions.

Dear Stephen Armstrong:

The U.S. Fish and Wildlife Service (Service) received on December 01, 2020 your effects determination for the 'HEC Maintenance and Supply Facility' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities exempted from "take"<sup>11</sup> prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

12/01/2020

Event Code: 05E2VA00-2021-E-02575

2

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

---

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

12/01/2020

Event Code: 05E2VA00-2021-E-02575

3

**Action Description**

You provided to IPaC the following name and description for the subject Action.

**1. Name**

HEC Maintenance and Supply Facility

**2. Description**

The following description was provided for the project 'HEC Maintenance and Supply Facility':

Construction of a maintenance and supply facility at Humpheys Engineer Center in Alexandria, VA

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/38.74381687666248N77.14783085328227W>

**Determination Key Result**

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

**Determination Key Description: Northern Long-eared Bat 4(d) Rule**

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.



12/01/2020

Event Code: 05E2VA00-2021-E-02575

4

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

12/01/2020

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5

## Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

## Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?  
Yes
2. Have you determined that the proposed action will have "no effect" on the northern long-eared bat? (If you are unsure select "No")  
No
3. Will your activity purposefully **Take** northern long-eared bats?  
No
4. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?  
**Automatically answered**  
No
5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at [www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html](http://www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html).

Yes

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6

6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

No

7. Will the action involve Tree Removal?

Yes

8. Will the action only remove hazardous trees for the protection of human life or property?

No

9. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

No

10. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

No

---

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7

## Project Questionnaire

**If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.**

1. Estimated total acres of forest conversion:

6.4

2. If known, estimated acres of forest conversion from April 1 to October 31

0

3. If known, estimated acres of forest conversion from June 1 to July 31

0

**If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.**

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

**If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.**

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

**If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.**

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8

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0



# Appendix

# B

Air Quality Conformity Analysis  
and Record of Non-Applicability

**Record of Non-Applicability**

In Accordance with the Clean Air Act – General Conformity Rule for the  
Proposed Construction of the Maintenance and Supply Facility  
Humphreys Engineer Center, Virginia

The Department of the Army, U.S. Specialist Operations Command (USASOC) 1<sup>st</sup> Capabilities Integration Group (1<sup>st</sup> CIG) and Humphreys Engineer Center Support Activity propose to construct a Maintenance and Supply Facility (MSF) at Humphreys Engineer Center (HEC) in Alexandria, Virginia.

The proposed MSF would be constructed in a 5.5-acre wooded area located in the northwestern area of HEC and would be constructed as a one-story, 47,300 gross square foot, three-bay motor pool maintenance facility located west of the Cude Building (see Figure 1.1). Construction would include concrete floor slab, steel framing, concrete masonry unit bearing walls with continuous exterior insulation and brick masonry veneer, and PVC membrane roofing system with high solar reflectance.

Construction of the MSF would take approximately 24 months and would include a buffer of 33 feet for antiterrorism/force protection (AT/FP) requirements. The proposed MSF would also include construction of new supporting infrastructure such as electrical, water, sewer and gas utility connections. Site and facility design would also include Americans with Disabilities Act (ADA)-accessible circulation within and around the facility.

The purpose of the Proposed Action is to support USASOC at HEC by establishing a functional, single, centralized area for efficient, synchronized unit operations and maintenance purposes by construction of a MSF to meet mission requirements by combining maintenance, administrative and supply functions. Furthermore, there is a current and future need for a functional maintenance facility which is necessary for efficient, synchronized unit operations to execute mobilization readiness, military operations, and contingency missions at HEC. The proposed layout and alignment of the proposed MSF is described in further detail in **Section 2.1** of the Environmental Assessment (EA) for the Proposed Construction of the Maintenance and Supply Facility at HEC.

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

The highest total annual direct and indirect emissions from the Proposed Action have been estimated at 6.4336 tons of carbon monoxide (CO), 6.0822 tons of nitrogen oxides (NO<sub>x</sub>), 4.5287 tons of particulate matter (PM), 0.0182 tons of sulfur dioxide (SO<sub>2</sub>), and 1.0895 tons of volatile organic compounds (VOCs), per year, which would be below the applicable threshold values of 50 tons for VOCs and 100 tons each for NO<sub>x</sub>, PM, CO and SO<sub>2</sub>.

Supporting documentation is provided in the following text.

---

Dale F. Stoutenburgh  
Director  
Humphreys Engineer Center Support Activity

## 1 **Emissions Estimations and Methodology**

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

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

## 19 **Total Project Construction Emissions**

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

27 **TABLE B-1. TOTAL EMISSIONS FROM CONSTRUCTION OF THE PROPOSED ACTION**

Phases	Total Estimated Construction Emissions (tons per year [tpy])					
	CO	NOx	PM	SO <sub>2</sub>	VOC	CO <sub>2</sub>
<b>Heavy Construction Equipment Emissions</b>	5.4023	5.9911	0.2631	0.0154	0.9629	1401.3584
<b>Worker Vehicle Emissions</b>	1.0313	0.0911	0.0416	0.0028	0.1261	287.7637
<b>Paving Off-Gas Emission</b>	N/A	N/A	N/A	N/A	0.0008	N/A
<b>Fugitive Dust Emissions</b>	N/A	N/A	7.26	N/A	N/A	N/A
<b>Total Emissions</b>	6.4336	6.0822	7.5647	0.0182	1.0898	1689.1220
<b>GCR <i>de minimis</i> Emission Levels</b>	100	100	100	100	50	N/A

28 Note: N/A – Not Applicable



## 1 **Heavy Construction Equipment**

2  
3 Emissions from heavy construction equipment associated with the construction of the proposed MSF  
4 were estimated for activities involving demolition of existing pavements and infrastructure, site clearing  
5 and grading, building construction and asphalt paving.  
6

7 Information regarding the number of pieces and types of construction equipment to be used on the  
8 project, the schedule of equipment use (days of use), and the approximately daily operating time (hours)  
9 were calculated using the dimensions, existing conditions and level of anticipated impact provided for the  
10 Proposed Action. The calculations are based on a 24 month construction schedule (approximately 720  
11 days). This information is provided in **Table B-2**.  
12

13 **TABLE B-2. ESTIMATED SCHEDULE OF CONSTRUCTION EQUIPMENT USE**

Heavy Construction Equipment Anticipated	Quantity	Days of Use	Hours Used/Day
<b>Site Preparation</b>			
Excavator	1	120	8
Rubber Tire Dozer	1	120	8
Tractors/loaders/backhoes	1	120	8
Dump truck	2	120	8
<b>Grading</b>			
Graders	1	400	8
Rubber Tire Dozers	1	400	8
Tractors/loaders/backhoes	2	400	8
<b>Building Construction</b>			
Cranes	1	160	7
Forklifts	2	160	8
Generator Sets	2	160	8
Tractors/loaders/backhoes	2	160	8
Welders	1	160	2
Trenchers	1	80	8
<b>Paving</b>			
Pavers	2	40	8
Paving Equipment	2	40	8
Rollers	2	40	8

14  
15 Emission factors for the heavy equipment identified in **Table B-2** were obtained from the South Coast Air  
16 Quality Management District (SCAQMD) Off Road – Model Mobile Source Emissions Factors for the year  
17 2022 (SCAQMD 2020a). Emission factors for 2022 were used as a conservative approach to estimating air  
18 emissions for the Proposed Action. These emission factors are provided in **Table B-3**.

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

Heavy Construction Equipment by Phase	Emission Factors (for year 2022)					
	CO	NOx	PM	SO <sub>2</sub>	VOC	CO <sub>2</sub>
	(pounds per hour)					
<b>Site Preparation</b>						
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
<b>Grading</b>						
Graders	0.5732	0.4657	0.0218	0.0015	0.0807	133
Rubber Tired Dozers	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
<b>Building Construction</b>						
Cranes	0.3822	0.5505	0.0203	0.0014	0.0798	129
Forklifts	0.2146	0.1265	0.0044	0.0006	0.0274	54.4
Generator Sets	0.2694	0.2783	0.0117	0.0007	0.0340	61.0
Tractors/loaders/backhoes	0.3599	0.2302	0.0095	0.0008	0.0384	66.8
Welders	0.1773	0.1557	0.0078	0.0003	0.0260	25.6
<b>Trenchers</b>	0.4186	0.4094	0.0284	0.0007	0.0819	58.7
<b>Paving</b>						
Pavers	0.4840	0.4750	0.0296	0.0009	0.0870	77.9
Paving Equipment	0.40842	0.4137	0.0261	0.0008	0.0666	68.9
Rollers	0.3799	0.3198	0.0181	0.0008	0.0500	67.0

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 B-2** and **Table B-3**:

6

7 
$$TPY_p = (T_h \times E_{fp} \times N \times D) / C$$

8  $TPY_p$  = Tons Per Year of Pollutant9  $T_h$  = Time (hours per day of operation)10  $E_{fp}$  = Emissions Factor for the given pollutant (Information from **Table B-3**)11  $N$  = Number of pieces of equipment12  $D$  = Days of use of equipment13  $C$  = Conversion from pounds (lbs) to tons

1 A sample calculation for construction equipment for CO from the use of a grader is depicted as follows:

$$2 \quad \text{TPY}_{\text{CO}} = (\text{T}_h \times \text{E}_{\text{fp}} \times \text{N} \times \text{D}) / \text{C}$$

$$3 \quad \text{TPY}_{\text{CO}} = (8 \times 0.5732 \times 1 \times 400) / 2000$$

$$4 \quad \text{TPY}_{\text{CO}} = (922.4) / 2000$$

$$5 \quad \text{TPY}_{\text{CO}} = 0.9170$$

6 The annual heavy construction equipment emissions are presented in **Table B-4** for each pollutant during  
7 each phase of construction.

8

9 **TABLE B-4. ANNUAL ESTIMATED CONSTRUCTION EQUIPMENT EMISSIONS**

Heavy Construction Equipment by Phase	Emission Factors (for year 2022)					
	CO	NOx	PM	SO <sub>2</sub>	VOC	CO <sub>2</sub>
	(pounds per hour)					
<b>Site Preparation</b>						
Excavator	0.2450	0.1522	0.0066	0.0006	0.0311	57.3981
Rubber Tire Dozer	0.3529	0.6534	0.0257	0.0012	0.0921	114.7591
Tractors/loaders/backhoes	0.1727	0.1105	0.0046	0.0004	0.0184	32.0632
Dumper/Haul Truck	0.0301	0.0558	0.0021	0.0001	0.0088	7.3194
<b>Total=</b>	<b>0.8008</b>	<b>0.9718</b>	<b>0.0390</b>	<b>0.0023</b>	<b>0.1505</b>	<b>211.5398</b>
<b>Grading</b>						
Graders	0.9170	0.7452	0.0349	0.0024	0.1291	212.3888
Rubber Tire Dozers	1.1764	2.1779	0.0858	0.0039	0.3071	382.5305
Tractors/loaders/backhoes	1.1516	0.7366	0.0305	0.0025	0.1228	213.7547
<b>Total=</b>	<b>3.2450</b>	<b>3.6596</b>	<b>0.1512</b>	<b>0.0088</b>	<b>0.5590</b>	<b>808.6740</b>
<b>Building Construction</b>						
Cranes	0.2140	0.3083	0.0114	0.0008	0.0447	72.0335
Forklifts	0.2747	0.1620	0.0056	0.0008	0.0351	69.6266
Generator Sets	0.3449	0.3562	0.0149	0.0009	0.0436	78.0706
Tractors/loaders/backhoes	0.0491	0.0744	0.0122	0.0010	0.0491	85.5019
Welders	0.0284	0.0249	0.0012	0.0001	0.0042	4.0964
Trenchers	0.1005	0.0983	0.0068	0.0002	0.0197	14.0910
<b>Total=</b>	<b>1.0115</b>	<b>1.0241</b>	<b>0.0522</b>	<b>0.0036</b>	<b>0.1962</b>	<b>323.4200</b>
<b>Paving</b>						
Pavers	0.1549	0.1520	0.0095	0.0003	0.0278	24.9385
Paving Equipment	0.1293	0.1324	0.0084	0.0003	0.0213	22.0601
Rollers	0.0608	0.0512	0.0029	0.0001	0.0080	10.7259
<b>Total=</b>	<b>0.3450</b>	<b>0.3355</b>	<b>0.0207</b>	<b>0.0007</b>	<b>0.0571</b>	<b>57.7245</b>

<b>Total Annual Emissions from Heavy Construction Equipment (tpy)</b>	<b>5.4023</b>	<b>5.9911</b>	<b>0.2631</b>	<b>0.0154</b>	<b>0.9629</b>	<b>1401.3584</b>
---	---------------	---------------	---------------	---------------	---------------	------------------

Note: Air emissions for CO, NOx, PM, VOCs and CO<sub>2</sub> are rounded up for a conservative estimate on construction-related emissions

1 **Construction Worker Vehicle Emissions**

2  
 3 Emissions from construction workers’ vehicles were included in this analysis. Emission factors for motor  
 4 vehicles were conservatively calculated using the SCAQMD EMFAC2007 Emission Factors for On-Road  
 5 Passenger Vehicles & Delivery Trucks mobile emissions inventory (SCAQMD 2020b). The analysis assumed  
 6 that workers would drive their vehicles 30 miles per day at an average speed of 35 miles per hour. **Table**  
 7 **B-5** details the emission factors used in this analysis.

8  
 9 **TABLE B-5. 2022 CONSTRUCTION WORKER VEHICLE EMISSION FACTORS**

	Emission Factors					
	CO	NOx	PM	SO <sub>2</sub>	VOC	CO <sub>2</sub>
<b>Worker Vehicle Emissions</b>						
pounds/mile	0.00398	0.00035	0.00016	0.00001	0.00049	1.11020

10 Source: SCAQMD 2020b

11  
 12 **Table B-6** summarizes the annual construction worker vehicle emissions. These emissions were  
 13 determined using the following equation:

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

16 TPY<sub>p</sub> = Tons Per Year of Pollutant

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

18 *Number of trips = 2; Miles/trip = 30; Commuting Factor = 0.6; Total Days = 720*

19 W = Number of Workers

20 *Short-term Workers = 20*

21 EF<sub>p</sub> = Emission Factor for the given pollutant (pounds/mile)

22 C = Conversion from pounds (lbs) to tons

23  
 24 A sample calculation for CO emissions from construction workers’ vehicles is provided below:

$$TPY_{CO} = (ME \times EF_p \times W) / C$$

$$TPY_{CO} = (25,920 \times 0.00398 \times 20) / C$$

$$TPY_{CO} = 1,022.976 / 2000$$

$$TPY_{CO} = 0.5754$$

1 **TABLE B-6. ESTIMATED ANNUAL VEHICLE EMISSIONS FROM CONSTRUCTION WORKERS' VEHICLES**

	Criteria Pollutants					
	CO	NOx	PM	SO <sub>2</sub>	VOC	CO <sub>2</sub>
<b>Worker Vehicle Emissions</b>						
tons/year	1.03127	0.09111	0.04160	0.00278	0.12612	287.76366

2  
3

4 **Asphalt Curing Emissions**

5

6 Asphalt paving would generate emissions from:

- 7 • Asphalt curing;
- 8 • operation of on-site paving equipment, and;
- 9 • operation of motor vehicles, including paving material delivery trucks.

10

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

16

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

17

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

19

20 Paved area (asphalt) = 0.62 acres

21

$$E = (0.62 \text{ acres} \times 2.62 \text{ lb VOC/acre}) / 2000 \text{ lb/ton}$$

22

$$E = 0.0008$$

23

24 Emissions for the other criteria pollutants are considered to be negligible for this phase of  
 25 construction, and therefore are reported as non-applicable (N/A) in the associated table.

26

27 **Surface Disturbance**

28

29 The quantity of particulate emissions from construction operation is roughly proportional to the area of  
 30 land being worked and the type of construction activity involved. Because the composite AP-42 emission  
 31 factors for total suspended solids (TSP) can provide only a rough estimate of PM<sub>10</sub> emissions it is  
 32 recommended in the *Estimating Particulate Matter Emissions from Construction Operations* 1999 report  
 33 to use alternative emission factors based on different levels of the construction activity. When only the  
 34 area of the construction site and the project's duration are known, two PM<sub>10</sub> emission factors are available  
 35 (average conditions [0.11 ton/acre/month] and worst-case [0.42 ton/acre/month]). Worst-case refers to  
 36 construction sites with active large-scale earth moving operations (USEPA 1999). Based on assumptions  
 37

1 and the anticipated level of construction effort, the average condition PM<sub>10</sub> emission factor was used in  
2 the following calculations:

3

4 Annual PM Emissions = PM<sub>10</sub> EF x Acres x 12 months

5 PM<sub>10</sub> EF = 0.11 tons/acre/month

6 Project Size (acres) = 5.5

7 12 Months Per Year

8

9 Annual PM Emissions = (0.11 x 5.5 x 12)

10 Annual Estimated PM Emissions = 7.26 tpy

11

12 Emissions for other criteria pollutants are considered to be negligible for this phase of construction, and  
13 therefore are reported as non-applicable (N/A) in **Table B-1**.

14

#### 15 **Operational Emissions**

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

20

#### 21 **References**

- SCAQMD 2020a South Coast Air Quality Management District (SCAQMD). 2020. "Off-Road – Model Mobile Source Emissions Factors." Available online <<http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/off-road-mobile-source-emission-factors>>. Accessed 2 January 2020.
- SCAQMD 2020b SCAQMD. 2020. "Highest (Most Conservative) EMFAC2007 (version 2.3) Emission Factors for On-Road Passenger Vehicles & Delivery Trucks – Scenario Year 2020." Available online <[https://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/emfac-2007-\(v2-3\)-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 2 January 2019.
- USEPA 1999 U.S. Environmental Protection Agency (USEPA). 1999. *Estimating Particulate Matter Emissions from Construction Operations*. 30 September 1999.

22

# Appendix

## C

Coastal Zone Federal Consistency  
Determination and Determination  
of Consistency with Virginia's  
Coastal Resources Management  
Plan

# Draft Coastal Zone Federal Consistency Determination and Determination of Consistency with Virginia's Coastal Resources Management Plan

Pursuant to Section 307 of the *Coastal Zone Management Act* of 1972, as amended, this is a Draft Federal Consistency Determination for the construction of the Maintenance Support Facility (MSF) at Humphreys Engineer Center (HEC) in Alexandria, Virginia. The U.S. Army Corps of Engineers (USACE) is required to determine the consistency of its activities affecting Virginia's coastal resources or coastal uses with the Virginia Coastal Resources Management Program (CRMP).

This document represents an analysis of the Proposed Action in the context of established Virginia CRMP Enforceable Policies and Programs. Furthermore, submission of this consistency determination reflects the commitment of USACE to comply with those Enforceable Policies and Programs. The Proposed Action would be constructed in a manner that is consistent with the Virginia CRMP. USACE has determined that the construction of the MSF would have negligible effects on any land and water uses or natural resources of the Commonwealth of Virginia's coastal zone.

## Description of the Proposed Action

The proposed MSF would be constructed in a 5.5-acre wooded area in the northwestern portion of HEC and would be constructed as a one-story, 47,300 gross square foot, three-bay motor pool maintenance facility located west of the Cude Building (see Figure 1.1). Construction would include concrete floor slab, steel framing, concrete masonry unit bearing walls with continuous exterior insulation and brick masonry veneer, and PVC membrane roofing system with high solar reflectance.

Construction of the MSF would take approximately 24 months and would include a buffer of 33 feet for antiterrorism/force protection (AT/FP) requirements. The proposed MSF would also include construction of new supporting infrastructure such as electrical, water, sewer and gas utility connections. Site and facility design would also include Americans with Disabilities Act (ADA)-compliant circulation within and around the facility.

The supply area, which will be collocated with the maintenance facility, will include a warehouse area and an administrative logistics functions area. The warehouse area will provide both conditioned and unconditioned storage for pallets and other equipment. The warehouse footprint will also include a pre-manufactured arms magazine (ARMAG) for temporary storage of small arms. The administrative logistics area will be designed to meet Sensitive Compartmented Information Facility (SCIF) requirements and will include a conference room. A raised access flooring system, located in the administrative logistics area provides flexibility and accessibility to cables and electrical wiring. Additionally, support spaces to serve the facility will include a bathroom (toilet/shower) and kitchenette.



1 The proposed location, orientation and alignment of the new facility is described in further detail  
2 in Section 2.1 of the Environmental Assessment (EA). Construction of the proposed MSF is  
3 estimated to take approximately 24 months.

#### 4 **Assessment of Probable Effects**

5 In compliance with the National Environmental Policy Act (NEPA) of 1969, USACE has prepared  
6 an EA to evaluate the environmental, socioeconomic and cultural resource impacts potentially  
7 resulting from construction of the MSF on HEC. Through this evaluation, USACE has determined  
8 that the Proposed Action is consistent, to the maximum extent practicable, with the  
9 Commonwealth of Virginia CRMP's enforceable policies, for the following reasons:

10 ***Tidal and Nontidal Wetlands.*** As described under Section 3.13.1 (Water Resources) of the EA,  
11 construction of the proposed MSF would not directly or indirectly affect tidal or nontidal  
12 wetlands. No wetlands have been delineated in the immediate vicinity of the Proposed Action  
13 or within the footprint of the proposed facility. The nearest wetland is approximately 60 feet  
14 toward the southwest. No direct impacts on wetlands would be expected from the Proposed  
15 Action. Indirect impacts on nearby wetlands would be avoided or minimized through erosion  
16 and sediment control measures. If, and as needed, flags or barriers would be put in place to  
17 clearly mark out the areas to be avoided and to ensure no activities (e.g. equipment staging or  
18 parking, stocking piling or materials, etc.) take place within tidal and nontidal wetlands. Following  
19 these practices would ensure no impacts would occur to tidal and nontidal wetlands surrounding  
20 the proposed MSF.

21 ***Subaqueous Lands.*** The management program for subaqueous lands establishes conditions for  
22 granting or denying permits to use state-owned bottomlands based on considerations of  
23 potential effects on marine and fisheries resources, wetlands, adjacent or nearby properties,  
24 anticipated public and private benefits, and water quality standards established by the Virginia  
25 Department of Environmental Quality (VDEQ) Water Division. The program is administered by  
26 the Virginia Marine Resources Commission (Virginia Code §28.2-1200 through §28.2-1213). The  
27 Proposed Action would not involve any encroachment in, on or over state-owned subaqueous  
28 lands.

29 ***Dunes and Beaches.*** Dune protection is carried out pursuant to the *Coastal Primary Sand Dune*  
30 *Protection Act* and is intended to prevent destruction or alteration of primary dunes. This  
31 program is administered by the Virginia Marine Resources Commission (Virginia Code §28.2-1400  
32 through §28.2-1420). No permanent alteration of or construction upon any coastal sand dune  
33 would take place under this Proposed Action.

34 ***Chesapeake Bay Preservation Areas.*** The Chesapeake Bay Preservation Act, which is  
35 administered by Virginia Department of Environmental Quality (VADEQ) (Virginia Code §§ 28.2-  
36 104.1, 62.1-44.15:24, 44.15:51, -44.15:67, -44.15:68, -44.15:69, -44.15:73, -44.15:74, and-  
37 44.15:78) and Chesapeake Bay Preservation Area Designation and Management Regulations (9  
38 VAC §§ 25-830-30, -40, -80, -90, -100, -120, -130, -140, and 150) aims to protect and improve the  
39 water quality of the Chesapeake Bay, its tributaries, and other state waters by minimizing the  
40 effect of human activity upon these waters. The Proposed Action would occur in Fairfax County

1 which falls within the localities in Virginia required to abide by the Chesapeake Bay Preservation  
2 Act. As noted under Section 3.13 of the EA, there are no Resource Protection Areas (RPAs) within  
3 the area of the Proposed Action. The nearest RPA is approximately 100 feet to the west,  
4 associated with Piney Branch Creek. Modern best management practices and mitigative  
5 measures would be utilized to mitigate potential off-site impacts to the Piney Branch Creek RPA  
6 and ultimately the Chesapeake Bay watershed. Additionally, best management practices  
7 recommended by the local, state and federal government would be adhered to and would further  
8 mitigate potential impacts to the Chesapeake Bay.

9 **Marine Fisheries.** The Proposed Action has no foreseeable impacts on fish or shellfish resources  
10 and would not affect the promotion of, or access to, commercial or recreational fisheries.  
11 Compliance with HEC's stormwater management plan and Virginia Erosion and Sediment Control  
12 regulations would best minimize the risk of sediment being transported off the site to Piney  
13 Branch Creek, Dogue Creek and ultimately the Potomac River Fishery. Best management  
14 practices recommended by the Virginia Department of Conservation and Recreation and Forestry  
15 would be employed. Effects on stormwater, groundwater and surface water are addressed in  
16 Section 3.13.2 (Water Resources).

17 **Wildlife and Inland Fisheries.** The Proposed Action has no foreseeable impacts on wildlife and  
18 inland fisheries and would not negatively impact the State of Virginia's efforts in conserving,  
19 protecting, replenishing, propagating and increasing of the supply of game birds, game animals,  
20 fish and other wildlife of Virginia, including fish or wildlife listed as threatened or endangered by  
21 the Virginia Department of Wildlife Resources (VADWR). The Proposed Action would occur in an  
22 existing wooded area in the western portion of the HEC campus. Construction of the Proposed  
23 Action would follow proper time of year restrictions (TOYR) as outlined in the EA. Furthermore,  
24 there are no water bodies within the area of the Proposed Action. As noted above under **Marine**  
25 **Fisheries**, compliance with HEC's stormwater management plan and compliance with Virginia  
26 Erosion and Sediment Control regulations would best minimize the risk of sediment being  
27 transported off the site to Piney Branch Creek. Additionally, as noted in the EA under Section  
28 3.4, no impacts to wildlife or inland fisheries would be expected.

29 **Plant Pests and Noxious Weeds.** The Virginia Department of Agriculture and Consumer Services  
30 (VADACS) is responsible for administering the policy addressing quarantines, importation of  
31 regulated articles, and plant pests and noxious weeds. The contractor will utilize best  
32 management practices and follow local, state and federal guidance regarding the transportation  
33 of plant pests and noxious weeds. Equipment will be cleaned off prior to being delivered to the  
34 job site and will inspected periodically to ensure it is not carrying unknown, foreign or  
35 unidentifiable plant matter. No impacts to the Virginia CRMP would be expected from plant pests  
36 and noxious weeds.

37 **Commonwealth Lands.** The VDWR and Virginia Department of Conservation and Recreation  
38 (VADCR) enforce policies related to the free passage of anadromous and other migratory fish,  
39 the removal of costal resources from Back Bay, encroachments into game refuges, tampering  
40 with VADWR owned or operated aquatic and terrestrial habitats, and fire use, hunting and  
41 fishing, feeding wildlife, boating and vehicle use in state parks. No impacts to Commonwealth

1 Lands under the Virginia CRMP would be expected from the Proposed Action as no resources  
2 identified occur in the area of the Proposed Action.

3 **Point Source Air Pollution.** Based on the presumed *de minimis* impacts on Air Quality from  
4 implementation of the Proposed Action, a draft record of non-applicability (RONA) was prepared  
5 indicating that emissions are below the applicability threshold for the attainment status of the  
6 area. Ultimately, the General Conformity Rule does not apply to this project because  
7 construction and related emissions will be below the *de minimis* threshold levels

8 **Point Source Water Pollution.** The Proposed Action would result in a new source (construction  
9 stormwater) of point source water pollution, however adverse impacts would be minimal,  
10 controlled through a stormwater pollution prevention plan, and subject to a Virginia Stormwater  
11 Management Program (VSMP) Permit. Compliance with Section 438 of the 2007 *Energy*  
12 *Independence and Security Act* (EISA) requires federal development projects with a footprint  
13 exceeding 5,000 square feet to include site planning, design, construction, and maintenance  
14 strategies to maintain or restore, to the maximum extent technically feasible, the  
15 predevelopment hydrology of the property with regard to the temperature, rate, volume, and  
16 duration of flow. These actions would minimize runoff and, in some cases, reserve adverse  
17 effects from present conditions, by compliance with EISA Section 438 and VDEQ's requirement  
18 for adequate outfall, which would also act to control water point source pollution. Effects  
19 pertaining to stormwater are discussed in Section 3.13.2 (Water Resources) of the EA. Use of on-  
20 site stormwater retention measures and incorporation of Low Impact Development Best  
21 Management Practices to comply with EISA Section 438 would reduce the amount and rate of  
22 stormwater discharging from the site after a rainfall for both short- and long-term projects.

23 **Non-point Source Water Pollution.** The Proposed Action would be constructed in compliance  
24 with the Virginia Erosion and Sediment Control law and regulations. The Proposed Action is  
25 therefore consistent with Virginia's non-point source pollution control program.

26 **Shoreline Sanitation.** The purpose of this program is to regulate the installation of septic tanks,  
27 set standards concerning soil types suitable for septic tanks, and specify the minimum distances  
28 that tanks must be placed away from streams, rivers, and other waters of the Commonwealth of  
29 Virginia. HEC would utilize its own sanitary sewer system and does not employ septic systems.  
30 The Proposed Action would therefore have no impact on shoreline sanitation.

31 **Coastal Lands.** Coastal Land Management is a state-local cooperator program administered by  
32 VDEQ's Water Division and 84 localities in Tidewater, Virginia, established pursuant to the  
33 Chesapeake Bay Preservation Act (Virginia Code §§ 62.1 – 44.15:67 through 62.1 – 44.15:79) and  
34 Chesapeake Bay Preservation Area Designation and Management Regulations (Virginia  
35 Administrative Code [VAC] 9 25-830-10 et seq.). The nearest resource protection area (RPA) is  
36 approximately 250 feet west of the Proposed Action location. No construction or staging of  
37 construction equipment related to the Proposed Action would occur in the RPA. Therefore the  
38 Proposed Action would have no impact on coastal land management and RPAs.

**1 Summary of Findings**

2 The preceding analysis is provided in more detail in the EA referenced above. USACE would  
3 ensure that the proposed MSF project design includes appropriate best management practices  
4 (BMPs), the construction contractor uses and maintains BMPs, project designers obtain the  
5 requisite permits and approvals, and HEC implements the appropriate mitigation measures to  
6 reduce potential impacts. Based on the analysis in the EA and the anticipated impacts of the  
7 Proposed Action, USACE has determined that the proposed construction of the MSF would be  
8 consistent to the maximum extent practicable with the federally approved enforceable policies  
9 of the Virginia CRMP, pursuant to the *Coastal Zone Management Act* of 1982, as amended, and  
10 in accordance with 15 CFR 930.30.

11 By certification that the Proposed Action is consistent with the Virginia CRMP Enforceable  
12 Policies, the Commonwealth of Virginia is hereby notified that it has 60 days from receipt of this  
13 document to concur with, or object to, this Federal Consistency Determination. However,  
14 pursuant to 15 CFR 930.62(b), if the Commonwealth of Virginia has not issued a decision within  
15 60 days from receipt of this determination, it shall notify USACE of the status of this matter and  
16 the basis for further delay. The point of contact for this project is Mr. Victor H. Stephenson via  
17 telephone at 703-428-7328, or by email at Victor.H.Stephenson@usace.army.mil.

18  
19  
20  
21

---

Dale F. Stoutenburgh  
Director

# Appendix

# D

Proposed MSF Building Forest  
Stand Delineation

**FOREST STAND DELINEATION REPORT  
FOR  
PROPOSED MAINTENANCE AND SUPPLY BUILDING  
HUMPHREYS ENGINEER CENTER**

DECEMBER 2020

PREPARED FOR:  
U.S. ARMY CORPS OF ENGINEERS  
BALTIMORE DISTRICT, ENGINEERING DIVISION, PPMD  
2 HOPKINS PLAZA  
BALTIMORE, MARYLAND 21201

PREPARED BY:  
U.S. ARMY CORPS OF ENGINEERS  
BALTIMORE DISTRICT, PLANNING DIVISION  
2 HOPKINS PLAZA  
BALTIMORE, MARYLAND 21201

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Daniel R. Cockerham – Maryland Department of Natural Resources Forest Conservation Qualified Professional



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**Appendix A** - Field Sampling Data Sheets

**Appendix B** - Forest Summary Sheets

**Appendix C** - Forest Stand Mapping





**FOREST STAND DELINEATION REPORT FOR  
PROPOSED BATTALION OPERATIONS FACILITY COMPLEX  
FORT GEORGE G. MEADE**

**I. Introduction**

U.S. Army Corps of Engineers proposes to construct a new facility maintenance and supply building on Humphreys Engineer Center, Virginia. The facility will include a one story building with associated parking, stormwater management facilities and infrastructure. The building will provide vehicle maintenance, electrical maintenance area, shipping and receiving area and warehouse. It will also contain offices, open office space, conference room, storage spaces and support spaces to serve approximately 50 occupants.

**II. Site Description**

The study area is approximately 6.6 acres, is currently forested, and situated in the northwestern corner of Humphreys Engineer Center. The study area is bounded by Leaf Road to the east, Telegraph Road to the north, Jeff Todd Way to the west, and contiguous forest to the south.

The study area is located on the Coastal Plain Physiographic Province. Elevation of the site ranges from 80 to 97 feet above mean sea level and slopes slightly from northeast to southwest. Soils of site consist of Beltsville silt loam (7B), the Lunt-Marumscu Complex (74B) and Woodstown sandy loam (109B). Underlying geology of the site is comprised of quartzose gravels, sands, and clays of the Jurassic and Cretaceous.

**III. Methodology**

Prior to field investigations topographic maps, soil survey and digital aerial photographs were reviewed to identify probable forest stand boundaries. The project area was field investigated in May 2020 to identify, delineate and characterize forest stands. Forest stands were distinguished primarily by differences in species composition and successional stage.

A full Forest Stand Delineation was conducted on 19 May 2020. A 1/10 acre fixed plot sampling technique was used to assess forest stand conditions and forest structure. Sampling plots were chosen so as to be evenly distributed throughout the stand. A stick flag was placed in the center of each plot and along the perimeter of the circular plot in each of the four cardinal directions. The plot center was marked in the field with orange flagging and the stand and plot number labeled with a black marker. All additional forest stand and forest structure procedures for data collection follow guidelines of the Maryland State Forest Conservation Technical Manual (Third edition, 1997). Although, this is not a requirement in Virginia, it is a significant method to catalogue forest resources. The priorities of the stands are given according to the guidelines in the Technical Manual. Priority 1 stands have wetlands, specimen trees, streams, steep slopes, and/or other sensitive areas. In some cases a stand can have a sensitive area within its boundaries, but be a low quality stand based upon quality of vegetation, presence of invasive species or other values. These are noted in the stand descriptions.

**IV. Results**

One forest stand was identified within the study area. The cover type was tulip poplar. Stand

variations result from changes in topographic position, degree of slope, and amount and type of historical human disturbance. Forest stand conditions and forest structure were assessed at sample plots within the stand as detailed in the following stand description (see also Appendix A). A summary of forest conditions within the stand is included in Appendix B. The attached map depicts the approximate location of the sampling plots and boundary of forest cover type within the study area. A brief description of the forest stand is as follows:

### **Stand 1**

**Sample Plots:** 3  
**Successional Stage:** Mid  
**Priority:** 3  
**Cover Type:** Tulip Poplar

Stand 1 is dominated by tulip poplar (*Liriodendron tulipifera*) of size class 12-19.9" diameter at breast height (dbh), with approximately 80% canopy closure. Trees in the sub-canopy included red maple (*Acer rubrum*) and sweetgum (*Liquidambar styraciflua*). The understory from 3' to 20' tall averages 60% coverage, and includes spicebush (*Lindera benzoin*), American holly (*Ilex opaca*), multiflora rose (*Rosa multiflora*), and Asiatic bittersweet (*Celastrus orbiculatus*). Common herbaceous and woody species 0' to 3' tall consist of wineberry (*Rubus phoenicolasius*), common greenbrier (*Smilax rotundifolia*), Virginia creeper (*Parthenocissus quinquefolia*), spicebush, and fox grape (*Vitis labrusca*) with approximately 100% coverage. Invasive species observed in the stand were multiflora rose, Asiatic bittersweet, Japanese barberry (*Berberis thunbergii*), mile-a-minute vine (*Persicaria perfoliata*), and Japanese honeysuckle (*Lonicera japonica*) with approximately 80% coverage. The wildlife value of the stand is moderate due to the presence of cover and forage, mostly in the form of soft mast and seeds, water sources are available in adjacent areas. The stand rates as a Priority 3 because there are no sensitive features within the stand and there is a high percentage of invasive species cover. It is contiguous with off-site forest stands.

### **Environmental Features**

Stand 1 contains no sensitive environmental features; such as wetlands, specimen trees or steep slopes and has a high occurrence of invasive species. Adjacent land uses include county roads, Federal facilities, and contiguous forest.

### **V. CONCLUSIONS**

One forest stand was delineated and assessed on the site. The cover type was tulip poplar. The site contains no sensitive environmental features. Invasive species coverage is very high in the understory and ground cover layers.

## REFERENCES

- Eyre, F.H. 1980. Forest Cover Types of the United States and Canada. Society of American Foresters, Washington, D.C. 148 pp.
- Maryland Dept. of Natural Resources, 3rd ed., 1997. State Forest Conservation Technical Manual. Dept. of Natural Resources, Annapolis, Maryland.
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service. 2020. Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/>.
- U.S. Fish and Wildlife Service. 2020. National Wetlands Inventory, Conterminous 48 States. Washington, D.C. Updated continuously.



**APPENDIX A**

**Field Sampling Data Sheets**



**FOREST STAND DELINEATION**  
Field Sampling Data Sheet

Property: FY19 Maintenance Bldg

Prepared By: DRC/LJ

Owner: HECSA

Stand #: 1

Plot #: 1

Forest Cover Type: Tulip poplar

Date: 19 May 2020

Plot Size: 1/10 Acre (37.5' radius)

Basal Area in Square Feet per Acre: 120		SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
TREE SPECIES	Crown Position	Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	Total
		Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		
1	Tulip poplar				1												80	1
2	Red maple			5			3										30	8
3	Sweetgum			1			1			3							20	5
4	S, red oak			1													20	1
5	Red cedar						1										20	1
6																		0
7																		0
8																		0
9																		0
Total Number of Trees per Size Class		7			6			3										16
Number & Size of Standing Dead Trees					1													1
<b>List of Woody Plant Species 3'-20':</b> spicebush, fox grape, Asiatic bittersweet, multiflora rose				<b>Canopy Closure:</b>					<b>Percent of Invasive Cover per Plot (all layers):</b>			<b>Plot Successional Stage:</b>						
				<b>C</b>	<b>N</b>	<b>E</b>	<b>S</b>	<b>W</b>	<b>%</b>									
				N	Y	Y	Y	N	60	80%			Mature					
<b>List of Understory Species 0'-3':</b> wineberry, spicebush, black cherry, Japanese barberry, deertongue grass, Christmas fern, trumpet creeper, common greenbrier, enchanters nightshade				<b>Understory Cover 3'-20':</b>					<b>List of Major Invasive Species per Plot (All Layers):</b>									
				<b>C</b>	<b>N</b>	<b>E</b>	<b>S</b>	<b>W</b>	<b>%</b>	multiflora rose, Asiatic bittersweet, mile-a-minute vine, Japanese honeysuckle, Japanese barberry								
				Y	Y	N	N	Y	60									
<b>Rare, etc. Species?</b>		No		<b>Herbaceous &amp; Woody Cover 0'-3':</b>					<b>HABITAT: What species present?</b>									
<b>Specimen Trees?</b>		No		<b>C</b>	<b>N</b>	<b>E</b>	<b>S</b>	<b>W</b>	<b>%</b>	white-tailed deer, raccoon								
<b>Historic Sites?</b>		No		Y	Y	Y	Y	Y	100	<b>Habitat size, location, configuration:</b>								
<b>Disease?</b>		No							stand surrounded by contiguous forest									
<b>Insects/Infestation?</b>		No		<b>Downed Woody Debris:</b>					<b>Wildlife cover/food/water?</b>									
<b>Exotic Plants?</b>		Yes		<b>C</b>	<b>N</b>	<b>E</b>	<b>S</b>	<b>W</b>	<b>%</b>	food and cover, wetlands present in adjacent stands								
<b>Leaf litter?</b>		light		N	N	Y	Y	N	40	<b>Stand corridor/patch?</b> Patch								
<b>Downed woody debris:</b>		light																
<b>FUNCTION: Where is stand in relation to sensitive areas on site?</b> adjacent to forested wetlands																		
<b>Comments:</b> Stands has dense understory and ground cover of invasive species. Mature canopy with little to no regeneration of native tree species.																		



**FOREST STAND DELINEATION  
Field Sampling Data Sheet**

Property: FY19 Maintenance Bldg

Prepared By: DRC/LJ

Owner: HECSA

Stand #: 1

Plot #: 2

Forest Cover Type: Tulip poplar

Date: 19 May 2020

Plot Size: 1/10 Acre (37.5' radius)

Basal Area in Square Feet per Acre: 90		SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
TREE SPECIES	Crown Position	Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	Total
		Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		
1	Tulip poplar				1			1			1						80	3
2	Red maple			2			2										30	4
3	Sweetgum			1			5			1							20	7
4																		0
5																		0
6																		0
7																		0
8																		0
9																		0
Total Number of Trees per Size Class		3			8			2			1							14
Number & Size of Standing Dead Trees					1													1
<b>List of Woody Plant Species 3'-20':</b> spicebush, American holly				<b>Canopy Closure:</b>					<b>Percent of Invasive Cover per Plot (all layers):</b>			<b>Plot Successional Stage:</b>						
				<b>C</b>	<b>N</b>	<b>E</b>	<b>S</b>	<b>W</b>	<b>%</b>									
				Y	Y	Y	Y	Y	100	80%			Mature					
<b>List of Understory Species 0'-3':</b> bristly dewberry, enchanters nightshade, American holly, Virginia creeper				<b>Understory Cover 3'-20':</b>					<b>List of Major Invasive Species per Plot (All Layers):</b>									
				<b>C</b>	<b>N</b>	<b>E</b>	<b>S</b>	<b>W</b>	<b>%</b>	multiflora rose, Asiatic bittersweet, Japanese honeysuckle, Japanese barberry								
				Y	Y	N	Y	Y	80									
<b>Rare, etc. Species?</b> No				<b>Herbaceous &amp; Woody Cover 0'-3':</b>					<b>HABITAT: What species present?</b>									
<b>Specimen Trees?</b> No				<b>C</b>	<b>N</b>	<b>E</b>	<b>S</b>	<b>W</b>	<b>%</b>	white-tailed deer, raccoon								
<b>Historic Sites?</b> No				Y	Y	Y	Y	Y	100	<b>Habitat size, location, configuration:</b>								
<b>Disease?</b> No									stand surrounded by contiguous forest									
<b>Insects/Infestation?</b> No				<b>Downed Woody Debris:</b>					<b>Wildlife cover/food/water?</b>									
<b>Exotic Plants?</b> Yes				<b>C</b>	<b>N</b>	<b>E</b>	<b>S</b>	<b>W</b>	<b>%</b>	food and cover, wetlands present in adjcent stands								
<b>Leaf litter?</b> light				Y	N	N	Y	N	40	<b>Stand corridor/patch?</b> Patch								
<b>Downed woody debris:</b> moderate																		
<b>FUNCTION: Where is stand in relation to sensitive areas on site?</b> adjacent to forested wetlands																		
<b>Comments:</b> Stands has dense understory of spicebush and dense ground cover of invasive species. Mature canopy with little to no regeneration of native tree species. Some large canopy gaps.																		

**FOREST STAND DELINEATION  
Field Sampling Data Sheet**

Property: FY19 Maintenance Bldg

Prepared By: DRC/LJ

Owner: HECSA

Stand #: 1

Plot #: 3

Forest Cover Type: Tulip poplar

Date: 19 May 2020

Plot Size: 1/10 Acre (37.5' radius)

Basal Area in Square Feet per Acre: 90		SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
TREE SPECIES	Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	Total	
	Crown Position			Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other			
1	Tulip poplar	1							2							80	5	
2	Red maple			2					2							30	4	
3	Sweetgum								2							20	2	
4																	0	
5																	0	
6																	0	
7																	0	
8																	0	
9																	0	
Total Number of Trees per Size Class		3			4			2			2							11
Number & Size of Standing Dead Trees																		0
<b>List of Woody Plant Species 3'-20':</b>				<b>Canopy Closure:</b>				<b>Percent of Invasive Cover per Plot (all layers):</b>				<b>Plot Successional Stage:</b>						
American holly, ironwood, multiflora rose, spicebush				<b>C</b>	<b>N</b>	<b>E</b>	<b>S</b>	<b>W</b>	<b>%</b>	80%				Mature				
				Y	N	Y	Y	Y	80									
<b>List of Understory Species 0'-3':</b>				<b>Understory Cover 3'-20':</b>				<b>List of Major Invasive Species per Plot (All Layers):</b>										
wineberry, bristly dewberry, common blackberry, black cherry, Virginia creeper, poison ivy, Virginia jumpseed, hogpeanut				<b>C</b>	<b>N</b>	<b>E</b>	<b>S</b>	<b>W</b>	<b>%</b>	multiflora rose, Asiatic bittersweet, Japanese honeysuckle								
				N	Y	N	Y	N	40									
<b>Rare, etc. Species?</b>	No	<b>Herbaceous &amp; Woody Cover 0'-3':</b>				<b>HABITAT: What species present?</b>												
<b>Specimen Trees?</b>	No	<b>C</b>	<b>N</b>	<b>E</b>	<b>S</b>	<b>W</b>	<b>%</b>	white-tailed deer, raccoon										
<b>Historic Sites?</b>	No	Y	Y	Y	Y	Y	100	<b>Habitat size, location, configuration:</b>										
<b>Disease?</b>	No	<b>Downed Woody Debris:</b>				stand surrounded by contiguous forest												
<b>Insects/Infestation?</b>	No	<b>C</b>	<b>N</b>	<b>E</b>	<b>S</b>	<b>W</b>	<b>%</b>	<b>Wildlife cover/food/water?</b>										
<b>Exotic Plants?</b>	Yes	N	N	N	N	Y	20	food and cover, wetlands present in adjcent stands										
<b>Leaf litter?</b>	light					<b>Stand corridor/patch?</b> Patch												
<b>Downed woody debris:</b>	moderate																	
<b>FUNCTION: Where is stand in relation to sensitive areas on site?</b> adjacent to forested wetlands																		
<b>Comments:</b> Stands has dense understory and ground cover of invasive species. Mature canopy with little to no regeneration of native tree species.																		



**APPENDIX B**

**Forest Stand Summary Sheets**



## FOREST STAND DELINEATION - FOREST STAND SUMMARY SHEET

Project Name: FY19 Maintenance Bldg

Prepared By: DRC

Owner: HECSA

Location: Humphrey's Engineer Center

Date: 21 May 2020

Stand Variable	Stand 1		
1. Dominant species/ Codominant species	Tulip poplar		
2. Successional stage	Mature		
3. Basal area in s.f. per acre	100		
4. Size class of dominant species	12"-19.9"		
5. Percent of canopy closure	80%		
6. Average number of tree species per plot	3		
7. Common understory species 3' to 20' tall	spicebush, Asiatic bittersweet, multiflora rose, American holly		
8. Percent of understory cover 3' to 20' tall	60%		
9. Number of woody plant species 3' to 20' tall	4		
10. Common understory species 0' to 3' tall	wineberry, fox grape, common greenbrier, christmas fern, trumpet creeper, spicebush, Virginia creeper, enchanters nightshade, bristly dewberry, Virginia jumpseed		
11. Percent of herbaceous & woody plant cover 0' to 3' tall	100%		
12. List of major invasive plant species & percent of cover	Asiatic bittersweet, Japanese honeysuckle, multiflora rose, mile-a- minute vine, Japanese barberry		
13. Number of standing dead trees $\geq 6$ " dbh per acre	10		
Comments:	Stand is dominated by invasive species in the understory and ground cover layers. Little to no regeneration of native tree species and no wetlands or steep slopes.		
15. Priority (1,2,3)	3		

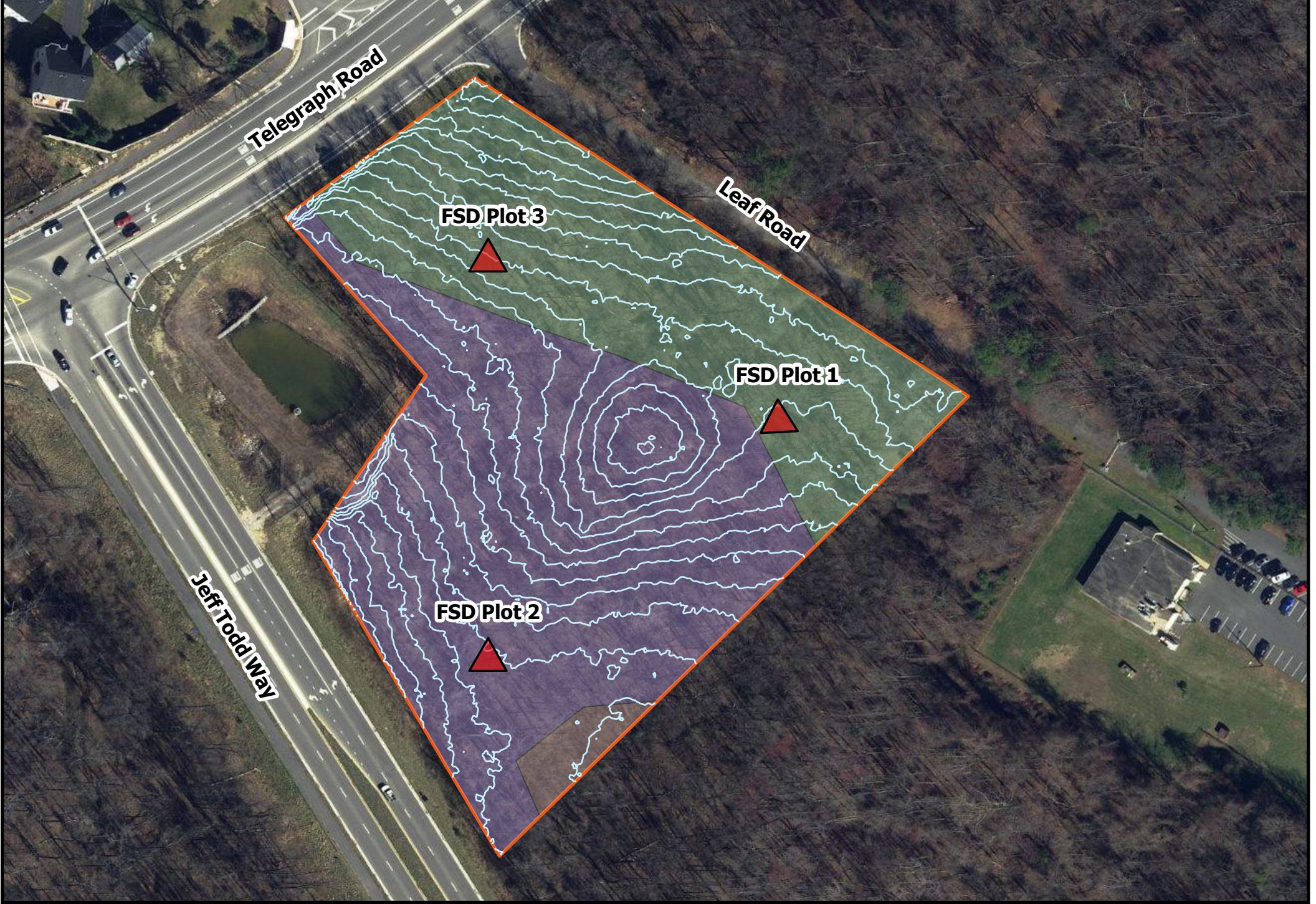


## **APPENDIX C**

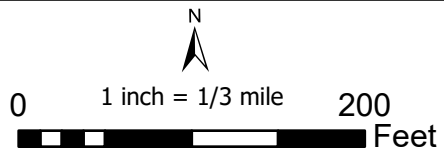
### **Forest Stand Mapping**











**Humphreys Engineer Center  
 FY 19 Maintenance and Supply Building  
 Forest Stand Delineation**



	Site/Forest Stand Boundary		109B
	1 Foot Contour		74B
			7B