PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

IMPLEMENTATION OF A

BORROW PIT MANAGEMENT PROGRAM

ON

FORT STEWART/HUNTER ARMY AIRFIELD,

GEORGIA

January 2024

In compliance with the National Environmental Policy Act of 1969

PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

FOR

IMPLEMENTATION of a BORROW PIT MANAGEMENT PROGRAM

FOR FORT STEWART/HUNTER ARMY AIRFIELD, GEORGIA

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Date: JAN 22 2024

UNITED STATES ARMY GARRISON
FORT STEWART/HUNTER ARMY AIRFIELD
FINDING OF NO SIGNIFICANT IMPACT FOR IMPLEMENTATION OF A BORROW PIT MANAGEMENT PROGRAM ON FORT STEWART AND HUNTER ARMY AIRFIELD, GEORGIA

1.0 Introduction

Fort Stewart/Hunter Army Airfield (FSGA/HAAF) collectively serves as a major power project platform and provides a full spectrum of individual and collective training for combat, combat service, and combat service support personnel. The installation also provides administrative, residential, recreational, and other valuable support services to the Soldiers, their Families, and the Civilian employees who work and/or reside on the installation. This includes repair and maintenance of existing facilities, roads, bridges, and grounds, as well as a variety of other support services, including some minor construction, renovation, and demolition activities. These actions are all vital to the support of the mission on the installation and many of these projects benefit from an ample supply of existing fill materials on-Post, obtained from the 74 on-Post borrow pits, which are operated, managed, and maintained by the FSGA/HAAF Directorate of Public Works. It has been almost 20 years since the excavation of new borrow pits on the installation, or the expansion of existing borrow pits, and the existing borrow pits are near the end of their useful life. Based on known future needs on the installation, it is prudent to implement these actions to ensure the Borrow Pit Management Program (BPMP) can fully support these requirements. If not, the installation may have to purchase fill materials off-Post once all existing pits are depleted.

This Programmatic Environmental Assessment (PEA) was prepared to analyze the potential impacts of implementing a BPMP on the natural, cultural, and Socioeconomic environment on FSGA/HAAF. This PEA has been completed in accordance with the National Environmental Policy Act of 1969 (NEPA) (Title 42 of the *United States Code* [U.S.C.] Section [§] 4321), the Council on Environmental Quality (CEQ) NEPA regulations (Title 40 of the *Code of Federal Regulations* [C.F.R.] Parts 1500–1508), and the Army's NEPA implementing regulation (32 C.F.R. Part 651), *Environmental Analysis of Army Actions*. Army proponents prepare many types of management plans that must include or be accompanied by appropriate NEPA analysis and many of these can be accomplished with a programmatic approach, creating an analysis that covers a number of smaller projects or activities or actions assembled within a plan.

The environmental analysis in this document will serve as a basis for subsequent analysis, if required, eliminating duplication. The document's programmatic approach allows for early planning, coordination, and flexibility in project implementation and the identification of potential environmental impacts and provides the decision maker with the appropriate information required to make an informed decision. Analysis in this PEA will be used to determine whether a Finding of No Significant Impact (FONSI) is warranted or whether the implementation of the BPMP will require an Environmental Impact Statement (EIS) due to significant environmental impacts.

2.0 Purpose and Need

The U.S. Army proposes to implement a BPMP on FSGA/HAAF, Georgia. The purpose of the proposed action is to ensure borrow pits and (the fill materials they contain) are managed in a programmatic nature, in accordance with defined standards and guidelines established by installation experts and stakeholders, and in accordance with local, state, and federal laws. The proposed action is needed to ensure land management actions are implemented in a manner that ensures compliance with laws and regulations while maintaining access for training, testing, and mission requirements.

These stewardship actions on Army lands can also help mitigate emerging threats such as climate change by safeguarding forests and other beneficial environments that are essential to carbon sequestration efforts alongside mission and training activities, while ensuring that suitable types and amounts of fill material are available to support actions implemented on installation lands.

3.0 Description of the Alternatives

An Interdisciplinary (ID) Team was developed to identify screening criteria (SC) for the management of borrow pits on the installation and consisted of the FSGA/HAAF Environmental Division, Planning and Engineering Division, Operations and Management Division, and Range Division. During their planning sessions, it was determined that the installation required (1) the excavation of new borrow pits to meet borrow material demands for current and future actions on the installation; (2) the expansion of existing borrow pits with highly prized soil types for current and future actions on the installation; and (3) the closure of existing borrow pits that had expended their useful life. The ID Team determined these requirements could be identified and established SC to ensure all locations reviewed for those purposes would be thoroughly, accurately, and adequately assessed as part of their inclusion.

Alternative I: No Action. Under this alternative, the U.S. Army will manage the 74 existing borrow pits in their existing configurations and will not implement any of the BPMP recommendations from the ID Team, to include excavation of new borrow pits or expansion of existing borrow pits. This will not support known and anticipated future actions on the installation, as the existing borrow pits will eventually run out of amounts and types of usable borrow materials and the installation will have to rely on off-Post sources for borrow material needs, potentially impacting mission readiness. However, all actions will occur in accordance with existing federal, state, and local laws and regulations. Although this alternative does not meet the purpose and need for the proposed action, its inclusion is prescribed by the CEQ regulations as the benchmark against which all federal actions are evaluated. Also under the No Action Alternative, the ongoing, routine, day-to-day actions that support the installation's mission and that rely on fill material from the existing borrow pits will continue in the cantonment and range and training lands. These activities are vital to the support of the mission on the installation, have been determined to result in no adverse impacts.

Alternative II Implement Borrow Pit Management Program (BPMP) and ID Team Recommendations. Under this alternative, the U.S. Army will implement a BPMP on

FSGA/HAAF and the recommendations of the ID Team. This will include excavation of 14 new borrow pits on FSGA, expansion of 36 existing borrow pits on FSGA, the closure of one borrow pit on FSGA, and the closure of one borrow pit on HAAF. Because of the high ground water table, water constantly fills most holes dug on FSGA and HAAF, including borrow pits. This water is either (a) pumped into an adjacent pond (often a closed or inactive borrow pit itself) or (b) discharged to wooded or forested areas outside the pit, contained with appropriate Best Management Practices (BMPs), and eventually filtered back into the ground, recharging the groundwater table. All borrow pit design, excavation, and expansion actions support the potential for the depleted borrow pits to remain containing water and become a fishing pond or man-made, created wetland, if soil conditions, location, and groundwater resources favor such development. Operators are required to grade all peaks, ridges, and valleys resulting from surface mining, and to backfill all pits and trenches in a manner to minimize effects adjacent to any trail or road. Installation staff mark the boundaries of the excavation area prior to use.

4.0 Environmental Analysis

Chapter 3 of the PEA focuses on the potential environmental consequences that may arise as a result of implementing the proposed action. A thorough discussion is provided in the PEA and a summary is provided below. Each new borrow pit excavation and existing borrow pit expansion will undergo supplemental review as it enters the design process and prior to any actual ground disturbance, to include all associated and required permitting.

The Preferred Alternative (Alternative II) is anticipated to result in negligible adverse impacts to Wildlife and Migratory Birds and Vegetation, Protected Species, and minor adverse impacts to Air Quality, Protected Species, Prescribed Burn Programming, Groundwater, Surface Water, Floodplains, and Wetlands. All coordination and consultation requirements for potential impacts to Protected Species are complete and are available for review in the PEA for this action. Minor-to-moderate adverse impacts are anticipated to Cultural Resources; however, the installation will consult with the Georgia State Historic Preservation Office (SHPO) on all borrow pits with the potential to impact cultural resources prior to any actions occurring in the field. This supplemental review process will ensure adherence to federal, state, and local laws and regulations requirements, as well as ensuring a site-specific means by which to minimize and /or mitigate potential adverse impacts.

Moderate beneficial impacts are anticipated to land use, as the two borrow pits proposed for closure will naturally attenuate over time into ponds, a valuable recreational resource on the installation. Moderate beneficial impacts are also anticipated to Socioeconomics, as new and expanded borrow pit activities will stimulate jobs in the study area. No impacts are anticipated to Environmental Justice.

The No Action Alternative (Alternative I) is anticipated to result in negligible adverse impacts to Air Quality, Protected Species, Wildlife and Migratory Birds, Groundwater, Surface Water, Floodplains, Wetlands, and negligible-to-minor adverse impacts to Cultural Resources. No SHPO or other consultation/coordination requirements are

identified under this alternative; however, all actions on the installation are conducted in accordance with federal, state, and local laws and regulations requirements. Minor beneficial impacts are also anticipated to Socioeconomics, as new and expanded borrow pit activities will stimulate jobs in the study area. No impacts are anticipated to Land Use or Environmental Justice.

5.0 Mitigation and Monitoring Measures

Implementation of the Preferred Alternative (Alternative I) will entail environmental mitigation and monitoring measures, typically associated with permitting and/or consultation requirements, as described in detail in the PEA Chapter 3.0 and as summarized below. For the resources not specifically discussed below, no specific mitigation or monitoring is proposed at this time, beyond standard, routine minimization measures and BMPs, to include adherence to federal, state, local, and installation laws, regulations, policies, and procedures, and they are accordingly not discussed in this section of the FONSI.

Water Resources. Impacts to surface waters, streambanks, associated wetlands, and the floodplain will be minimized via the implementation and adherence to permits associated with the Clean Water Act (CWA), Erosion Sedimentation Control Act, Georgia Water Quality Control Act, and Executive Orders (EOs) 11988 (Floodplains) and 11990 (Wetlands). Site-specific permitting and site-specific erosion and sedimentation (E&S) control BMPs will be implemented prior to any land disturbance, site preparation, timber harvest, and borrow pit preparation activities. BMPs are identified early, must be utilized continuously, and are routinely and consistently inspected by the FSGA/HAAF Stormwater/E&S, Wetlands, and Floodplains Program Managers (PMs) for adequacy. Notices of Intent for coverage under the State's National Pollutant Discharge Elimination System Permits are strictly adhered to and all requirements are inspected periodically by the Stormwater/E&S PM.

Due to the predominance of wetlands and floodplains on the installation, their avoidance is not always practicable. The establishment of a borrow pit, as well as expansion of an existing borrow pit, does not fall within the category of classic construction, and impacts are primarily anticipated from timber harvest of approximately 150 acres of land and excavation to establish the new or expanded borrow pits. The installation stakeholders conducted site surveys to locate potential borrow pits in non-floodplain areas; however, site surveys did not identify enough non-wetland and non-floodplain sites that were the right size and soil type sufficient to meet the needs of the installation. The locations identified will generate around 65,340 cubic yards (cy) during their useful life and all existing borrow pits proposed for expansion will generate an additional 9,680 cy of fill during their useful life; site surveys confirm they contain the required fill materials. Non-floodplain/non-wetland forested lands on post are also primarily reserved for training on the installation and not always available for development, which further restricts siting options. All identified locations are adjacent to the existing transportation network, and all were determined to have no significant adverse impacts to protected species, wetlands, or cultural resources, as verified by the FSGA/HAAF Environmental Division subject matter experts. Accordingly, it was determined that the there is no practicable

alternative to siting all new borrow pits and expanded borrow pits within the floodplain and wetlands on FSGA.

Fort Stewart shall minimize flooding, erosion and/or sedimentation on adjacent upstream or downstream properties. As this is not classic construction, and work at these sites cannot be elevated up and out of the floodplain. Instead, work will emphasize drainage and stormwater management practices that minimize impacts to floodplains, and each borrow pit user will prepare and adhere to required BMPs in the Notice of Intent (NOI) prepared for and associated with each individual project, all of which is coordinated through the installation Borrow Pit and Floodplains Point of Contact (POCs). These measures will minimize potential adverse impacts at these locations. No new borrow pit excavation or expansion of existing borrow pits is proposed on HAAF and there are no impacts to floodplains anticipated at that location.

The installation utilizes the National Wetlands Inventory as a planning tool to identify wetlands during the siting process; however, as each new or expanded borrow pit project develops, is funded and designed, a wetland site visit and field survey will determine actual versus estimated impacts, followed by the submittal of a Jurisdictional Determination Request to the U.S. Army Corps of Engineers-Savannah District. This occurs prior to any excavation activities on each site. A similar process is followed for floodplain analysis, with the installation Floodplains POC. Due to the association of location and implementation mechanisms for these projects (borrow pits), it was deemed advantageous to consolidate all into one Programmatic Finding of No Practicable Alternative (FONPA). All combine to minimize the availability of as many practicable siting alternatives that are not within or adjacent to floodplains and wetlands as possible and to minimize potential impacts associated with those that do remain within or proximate to these resources. The installation works diligently, however, during the siting and design phases to shift out of and away from wetlands and floodplains to the best of their ability. In accordance with the CWA and EOs 11990 and 11988, a FONPA has been prepared; see PEA Section 3.4, Water Quality, for additional details.

Air Quality. Implementation of standard air quality and installation BMPs during all ground-disturbing activities will be utilized to minimize the potential for adverse impacts resulting from airborne particulates and fugitive dust, as well as the greenhouse gases associated with site clearing and construction processes. These include watering of exposed surfaces and covering areas with exposed soils. Dust resulting from construction and maintenance traffic can also be minimized by limiting speed limits on unimproved roads, as well as by limiting vehicular access on these surfaces and/or times of usage on these unimproved vehicular networks. When there are periods of high wind during excavation and grading, temporary suspension of those activities would also reduce the volume of fugitive dust they emit. These minimization efforts will assist the installation in ensuring it does not fall out of attainment status, and all such actions will be tracked by the installation Air Quality Manager, none of which are anticipated to result in a non-attainment status. No modification to permits is required.

Cultural Resources. The Cultural Resources Management Program (CRM) will review individual borrow pit proposals as they are enacted. The FSGA/HAAF CRM PM will consult with the SHPO and Federally Recognized Indian Tribes to ensure all National

Historic Preservation Act/other requirements are complete and the results of all consultation are considered during the development of the proposed action and its implementation, to include minimization and mitigation measures. CRM will coordinate with the BPMP PM (if the new/expanded borrow pits are near cemeteries or historic properties), ensuring potential impacts are anticipated early and ensuring there is ample time to conduct required actions, to include additional surveys, consultation, and, if required, mitigation.

Protected Species. The FSGA completed a Biological Assessment (BA) for this action, which was approved by the U.S. Fish and Wildlife Service via a Biological Opinion for this action. Two of the proposed new borrow pits (D1.3, Landfill) did not require discussion in the BA, as they were not located within protected species habitat. Although the proposed action will remove some habitat from protected species on the installation, the BA determined there is no potential to adversely impact these species on FSGA/HAAF. The Fish and Wildlife Branch will review individual borrow pit proposals as they are enacted to ensure this determination stands and no conditions have changed warranting further review.

6.0 Public Review and Comments

In accordance with 32 CFR Part 651, the Notice of Availability (NOA) of the PEA/FONSI/FONPA for this action was published in the Savannah Morning News and the Coastal Courier during the public review period (June 22-July 21, 2023). Notification of the PEA/FONSI/FONPA's availability was mailed to the members of the regulatory/local community with whom the installation consults and who have jurisdiction that could be affected by the Proposed Action. A copy of the NOA and all letters mailed to the regulatory/local community are in Appendix A of the Final PEA.

One comment was received on the draft PEA during the public review period. The GA Environmental Protection Division (EPD)-Land Protection Branch (LPB) indicated that the PEA did not mention the remediation sites on FSGA that were in proximity to the proposed Borrow Pit activities. Since the GA EPD-LPB's Department of Defense Facilities Unit is responsible for overseeing the environmental corrective action measures at FSGA, it was recommended that a section be added to demonstrate that implementation of the proposed action would have no impact on active remedial activities or land use controls at those sites. Accordingly, Section 8.4.8, Hazardous Materials/Waste Management and Remediation, was created in the Final PEA. The GA EPD-LPB also recommended that the PEA be reviewed by the air and soils programs within the GA EPD. The main office of the GA EPD receives all EAs/EISs and disperses these documents to others in the GA EPD as they deem appropriate; however, the installation is willing to add these additional resource specific POCs at the GA EPD to the NEPA Mailing List for future coordination efforts. The comments from the GA EPD-LPB are in Appendix A of the Final PEA. No other comments were received. At this time, the PEA was also revised to meet new page limit requirements under Section 302 of the Fiscal Responsibility Act of 2023, i.e., "the Builder Act." To do so, portions of the existing environment under Section 3.4.2 Climate Change and Extreme Weather, Section 3.4.3 Protected Species, and Section 3.4.7 Socioeconomics and Environmental Justice, were removed from the main body of the PEA and placed in a new Appendix E,

Supplementary Resource Information. This ensured that the PEA met legal requirements, while still ensuring that all pertinent information utilized by the Decision Maker and made available to the public was still present.

7.0 Conclusions

Based on a careful review of the information and analysis presented in the PEA, which is incorporated by reference, I have determined that no significant direct, indirect, and cumulative impacts to the human and/or natural environment will occur as a result of implementation of the proposed action, *Implementation of a Borrow Pit Management Program on Fort Stewart/Hunter Army Airfield, Georgia*. The Army's review indicates that the PEA's analysis is adequate and its conclusion that there are no significant impacts from the alternatives analyzed is valid.

The Army concludes that the Proposed Action is not a major Federal action that would significantly affect the quality of the environment per Section 102(2)(c) of NEPA and an environmental impact statement is not required and will not be prepared. This decision meets the requirements of NEPA and its implementing regulations and has been made after taking into account all submitted information and considering a full range of reasonable alternatives and all environmental impacts.

JAN 2 2 2024

MARC J. AUSTIN
Colonel, U.S. Army
Commanding

Date

DEPARTMENT OF DEFENSE
UNITED STATES ARMY
PROGRAMMATIC FINDING OF NO PRACTICABLE ALTERNATIVE FOR IMPLEMENTATION OF A BORROW PIT MANAGEMENT PROGRAM ON FORT STEWART AND HUNTER ARMY AIRFIELD, GEORGIA

1.0 INTRODUCTION

Fort Stewart, Georgia (FSGA) is a 289,000-acre U.S. Army Installation Management Command (IMCOM) installation located in southeastern Georgia (Figure 1) and is home to the 3rd Infantry Division (3ID), a combined arms and infantry division, and direct subordinate unit of the XVIII Airborne Corps. Hunter Army Airfield, Georgia (HAAF) is a 5,400 acre IMCOM installation located 40 miles to the east of FSGA and is the home of the 3ID Combat Aviation Brigade.

FSGA/HAAF also provide administrative, residential, and recreational support services to the Soldiers, their Families, and the Civilian employees who work and/or reside there. These actions are supported by fill materials obtained from the 74 on-post borrow pits operated and maintained by the installation, although these borrow pits are nearing the end of their useful life. Accordingly, to support current and future needs, the installation proposes to implement a Borrow Pit Management Program (BPMP) to efficiently manage these borrow pit resources on the installation, including excavating 14 new borrow pits and expanding 36 existing borrow pits on FSGA; if not implemented, the installation must eventually purchase fill materials from off-post sources to support the mission. No new or expanded borrow pits are proposed on HAAF as all available land is reserved for mission activities and future identified construction requirements and is not available for borrow pit development.

Installation stakeholders conducted surveys on FSGA to identify locations suitable for new and expanded borrow pit development, all of which must contain both the required amount of fill (useful life) and the specific soil types required to support installation actions (see Programmatic Environmental Assessment for detailed discussion). Borrow pits are also sited based on their proximity to where the fill materials are needed for installation operational needs (such as tank trail repairs, site-specific construction support, timber sale site rehabilitation, etc.). Avoidance of wetlands and floodplains is always a siting goal; however, FSGA contains 176,420 acres of floodplains and 85,785 acres of wetlands (Figure 2), and they are interconnected in many locations, making their avoidance difficult during siting processes. Accordingly, not all the sites containing both the needed amount and type of fill are available outside of wetlands and floodplains. In addition, the majority of the non-floodplain/non-wetland undeveloped land outside the FSGA cantonment area is reserved for mission-essential training activities, further restricting siting options.

There is a large open area in the western portion of FSGA that appears suitable for siting new borrow pits; however, this is the Western Maneuver Corridor (WMC) (Figure 2) and is dedicated to military vehicular training activities. Siting new borrow pits within

this area is not feasible for the following reasons. First, due to operational and safety constraints, no training is allowed at, within, or adjacent to borrow pits. Second, due to the importance of the training that occurs within the WMC, no new construction is proposed there, eliminating the need to site new borrow pits in this area. Also, excavation and transportation of soils (haul route) from borrow pits sited in the WMC to other parts of the installation would be cost and time prohibitive, compared to use of existing, expanded, and/or new borrow pits strategically located near identified and/or known needs. In addition, there are plans to expand existing borrow pits located to the north and south of the WMC (Figure 2), the soils from which are already dedicated to the support, repair, and maintenance of the training infrastructure in this (western) portion of the installation, creating no known need for new borrow pits in the WMC.

For these collective reasons, it was determined that there is no practicable alternative to borrow pit development within wetlands and floodplains on FSGA. This finding was available for a 30-day public review period on the installation webpage (https://home.army.mil/stewart/index.php/about/Garrison/DPW/environmental/prevention-and-compliance/nepa) for 30 days (April 28-May 27, 2023), and a Notice of its Availability was also published in the Savannah Morning News, Coastal Courier, and The Frontline, which is hereby incorporated by reference. A copy of the Draft Programmatic Environmental Assessment (PEA), Draft Finding of No Practicable Alternative (FONPA), and Draft Finding of No Significant Impact (FONSI) was also mailed to the members of the regulatory community and joint land use partners with whom the installation consults. One comment was received on the Draft PEA from the GA Environmental Protection Division-Land Protection Branch and is addressed in the PEA. This finding incorporates the analysis in the PEA, which was written in accordance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality regulations that implement NEPA, and 32 Code of Federal Regulations (CFR) Part 651, Environmental Analysis of Army Actions.

2.0 PROPOSED ACTION

Fort Stewart/HAAF programmatically proposes that there is no practicable alternative to impacting floodplains and/or wetlands in order to meet current and future infrastructure needs on FSGA/HAAF. This need may be met by opening up new borrow pits and/or expanding existing borrow pits on FSGA.

The FSGA/HAAF Wetlands, Floodplains, and Borrow Pit PMs will review all project submittals and will determine if an action meets the criteria suitable for tiering from this PFONPA. These criteria are: (a) the anticipated impact is no more than minorly adverse to wetland and/or floodplains; (b) the action falls within the boundary of those approved in this PFONPA; and (c) the action meets all requirements to tier from the PEA and FONSI prepared for this action, per 32 CFR Part 651 (Appendix B). If an action does not meet these criteria, the NEPA PM will begin preparation of an individual FONPA for that action, as well as any supplementary NEPA documentation that might be required, in accordance 32 CFR Part 651 (Appendix B) and EOs 11988, 13690, and 11990.

The actions covered under this PFONPA include the excavation of 14 new borrow pits, the expansion of 36 existing borrow pits, the closure of one borrow pit, and the ongoing operations of the existing borrow pits, all on FSGA (Figure 2). No new or expanded borrow pits are proposed on HAAF and the existing borrow pits on HAAF do not lie within wetlands or floodplains. Accordingly, this PFONPA focuses on FSGA. All actions occur in accordance with the Borrow Pit Excavation Management Plan, Borrow Pit SOP, and all federal, state, and local laws and regulations.

3.0 IMPACTS AND MITIGATION MEASURES

3.1 Floodplain

EO 11988, Floodplain Management, and EO 13690, Establishing a Federal Flood risk Management Standard, state that if the only practicable alternative requires siting in a floodplain, the agency shall, prior to taking action, design or modify its action to minimize potential harm to or within the floodplain, and it is Department of Defense policy to minimize construction within floodplains.

Excavation of new borrow pits will impact approximately 34 acres of floodplains and expansion of existing borrow pits will impact approximately 30 acres of floodplains on FSGA (Figure 2). The FSGA/HAAF Floodplain PM will review the design for each borrow pit as it is funded, and the installation will follow all local, state, and federal laws, including the incorporation of best management practices (BMPs) at each location of work. Taken together, these mitigation tactics would avoid and/or minimize impacts to floodplains, and these measures represent all practicable measures to minimize harm to floodplains.

3.2 Wetlands

Executive Order 11990, Protection of Wetlands, requires that each federal agency, to the extent permitted by law, shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds: (1) there is no practicable alternative to such construction and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

No new borrow pits are sited in wetlands; however, FSGA proposes to expand four existing borrow pits that are already located within wetlands. Excavation at those locations, if funded, is anticipated to impact approximately 30 acres of wetlands on FSGA (Figure 2). The FSGA/HAAF Wetlands PM will review the design for each borrow pit as it is funded, as discussed in the PEA and FONSI for this action, and the installation will follow all local, state, and federal laws, as well as any permitting requirements, including the incorporation of BMPs at each location of work. Taken together, these mitigation tactics would avoid and/or minimize impacts to wetlands, and these measures represent all practicable measures to minimize harm to wetlands.

4.0 FINDING OF NO PRACTICABLE ALTERNATIVE

Following an evaluation of the impacts associated with the development and implementation of a BPMP on FSGA and HAAF, as defined in this PFONPA, I find that there is no practicable alternative to conducting these activities within wetlands and the floodplain, due in part to the preponderance of these resources on this installation. Furthermore, pursuant to EOs 11988, 13690, and 11990, and as described above, FSGA/HAAF will take all practical measures to minimize impacts associated with these activities to and within the wetlands and floodplain environment. This Programmatic FONPA is effective from the date on which it is signed and will be reviewed in association with each borrow pit, as funded and designed, by the applicable installation subject matter experts to ensure protection of installation resources.

01 AUG 2024

Date

Christopher O. Mohan
Lieutenant General, U.S. Army
Deputy Commanding General
and Acting Commander, AMC

Attachments:
Attachments:
Figure 1. FSGA/HAAF Location Map
Figure 2. FSGA Borrow Pit Actions in Wetlands and Floodplains on FSGA

References:
EO 11988
EO 11990
EO 13690

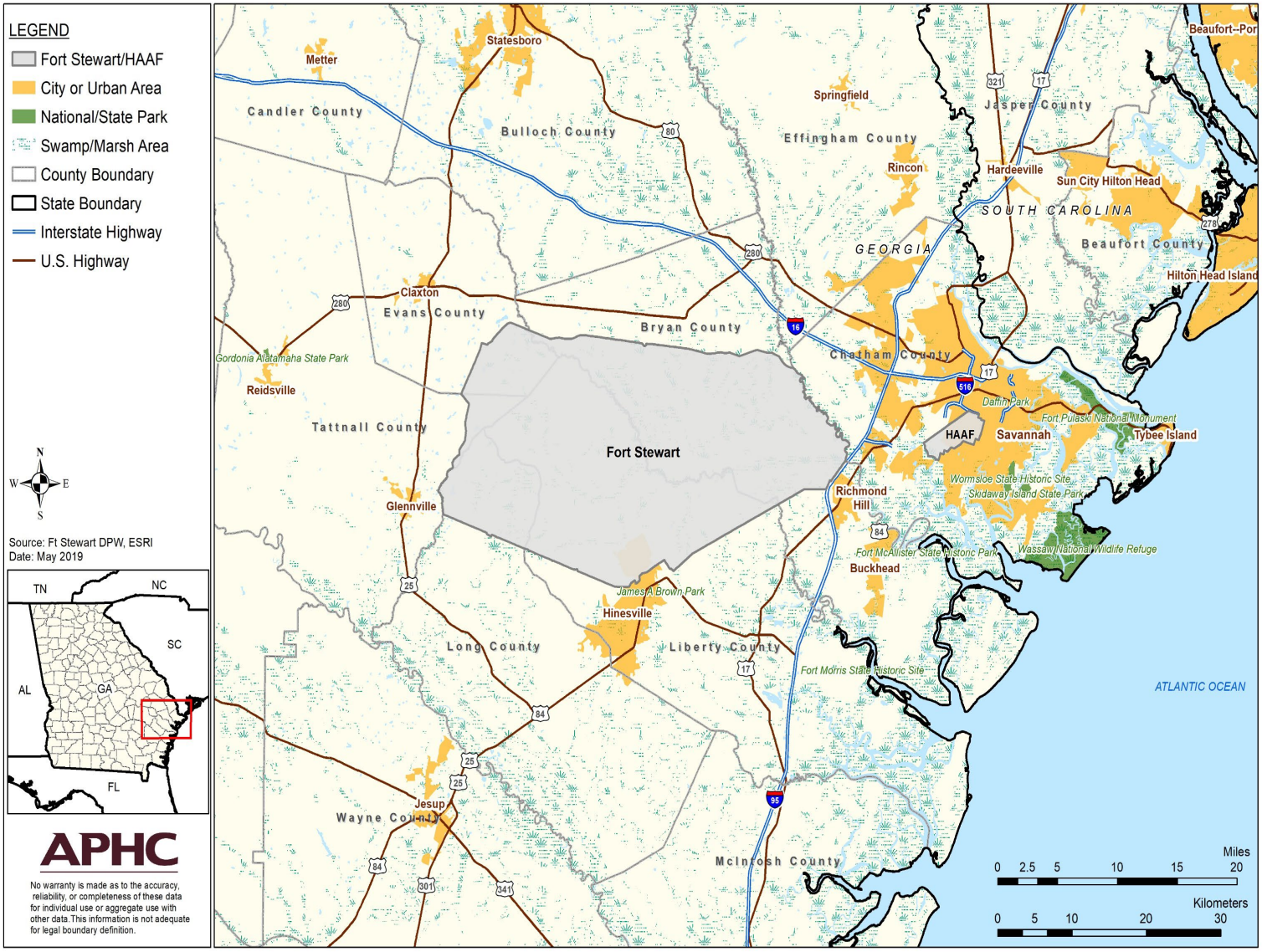

Figure 1: Fort Stewart and Hunter Army Airfield, Georgia, Location Map.

Figure 2: Borrow Pit Actions in Wetlands and Floodplains on Fort Stewart, Georgia.

EXECUTIVE SUMMARY

This Programmatic Environmental Assessment (PEA) provides an analysis of the potential environmental impacts associated with implementing a Borrow Pit Management Program (BPMP) on Fort Stewart (FSGA) and Hunter Army Airfield (HAAF), Georgia. The FSGA is located in southeastern Georgia, adjacent to the City of Hinesville, and is home to the 3rd Infantry Division (3ID), a combined arms and infantry division, and direct subordinate unit of the XVII Airborne Corps, as well as various tenant units, including (but not limited to) the 188th Infantry Brigade, 385th Military Police Battalion, 92nd Engineer Battalion, 63rd Expeditionary Signal Battalion, and the Army Field Support Battalion. The Fort Stewart Military Reservation also includes HAAF, a subordinate installation located adjacent to the City of Savannah that is home to the 3rd Combat Aviation Brigade, the aviation component of the 3ID, as well as a multitude of tenant units within the Department of the Army and the Department of Defense.

The FSGA/HAAF collectively serves as a major power project platform and provides a full spectrum of individual and collective training for combat, combat service, and combat service support personnel. The installation also provides administrative, residential, recreational, and other valuable support services to the Soldiers, their Families, and the Civilian employees who work and/or reside on the installation. This includes repair and maintenance of existing facilities, roads, bridges, and grounds, as well as a variety of other support services, including some minor construction, renovation, and demolition activities. These actions are all vital to the support of the mission on the installation and many of these projects benefit from an ample supply of existing fill materials on-Post, which is obtained from the 74 on-Post borrow pits. These borrow pits are operated, managed, and maintained by the FSGA/HAAF Directorate of Public Works in accordance with local, state, and federal requirements. To ensure full compliance, a permit is required to obtain fill materials from these borrow pits, obtained with assistance from the FSGA/HAAF Environmental Division, within the parameters of the BPMP, and in accordance with its Standard Operating Procedures. It has been almost 20 years since the excavation of new borrow pits on the installation, or the expansion of existing borrow pits, and the 74 existing borrow pits are near the end of their useful life. Based on known and future needs on the installation, it is prudent to excavate new borrow pits and expand existing borrow pits to ensure the BPMP can fully support these requirements. If not, the installation may have to purchase fill materials off-Post once the 74 existing pits are depleted.

This PEA was prepared to analyze the potential impacts of implementing a BPMP on the natural, cultural, and socioeconomic environment and was completed in accordance with the National Environmental Policy Act of 1969 (NEPA) (Title 42 of the *United States Code* Section 4321), the Council on Environmental Quality NEPA regulations (Title 40 of the *Code of Federal Regulations* [CFR] Parts 1500–1508), and the Army's NEPA implementing regulation (32 CFR Part 651), *Environmental Analysis of Army Actions*. Two alternatives were analyzed in this PEA, including the No Action Alternative (Alternative I), under which the installation would not implement a BPMP, and the Preferred Alternative (Alternative II), under which the installation will implement a BPMP on installation lands. No potential significant impacts are anticipated under either of the alternatives, and all potential environmental impacts associated with each alternative are summarized in PEA Table 5. This programmatic document, and its analysis, will serve as the basis for future site-specific analysis as each borrow pit expansion or excavation occurs, and will assist the Army decision-makers in making a determination of the potential direct, indirect, and cumulative impacts to the human and/or natural environment as a result of the implementation of the proposed action.

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APPENDICES

1.0 INTRODUCTION

Fort Stewart, Georgia (FSGA) is a Forces Command (FORSCOM) installation located in southeastern Georgia. The installation is approximately 280,000 acres, located adjacent to the City of Hinesville, and lies within portions of five separate counties (Bryan, Evans, Liberty, Long, and Tattnall). The FSGA is home to the 3rd Infantry Division (3ID), a combined arms and infantry division, and direct subordinate unit of the XVII Airborne Corps. This includes the 1st Armored Brigade Combat Team (ABCT), the 2ABCT, 3ID Sustainment Brigade, 3ID Artillery (DIVARTY), and Division Headquarters and Headquarters Battalion. Fort Stewart is also home to various tenant units, including (but not limited to) the 188th Infantry Brigade, 385th Military Police Battalion, 92nd Engineer Battalion, 63rd Expeditionary Signal Battalion, and the Army Field Support Battalion. The Fort Stewart Military Reservation also includes Hunter Army Airfield (HAAF) (Figure 1), a subordinate installation of approximately 5,600 acres, and is located adjacent to the City of Savannah within Chatham County. The HAAF is home to the 3rd Combat Aviation Brigade (3CAB), the aviation component of the 3ID, as well as a multitude of tenant units within the Department of the Army and the Department of Defense (DoD).

The FSGA/HAAF collectively serves as a major power project platform and provides a full spectrum of individual and collective training for combat, combat service, and combat service support personnel. Logistical rollout for deployment is a strong strategic asset for the installation, and FSGA can stage approximately 50 rail cars, with processing capabilities for more than 100 cars, and can assemble from motorpool to rail in a 24-hour period. The City of Savannah is located 40 miles to the east of FSGA, surrounding HAAF, and is the location for ocean terminal staging of military assets for the installation. A 208-acre staging area at this location allows for up to three shipping vessels to support more than 100 rail cars or convoy carriers, with warehousing, crane, and lift capabilities to support rapid staging. The HAAF's massive concrete runway and aircraft parking apron, dating back to the installation's days as a Strategic Air Command base in the 1950s, make the base the Army's premier power projection platform on the east coast. The HAAF's facilities are large enough to handle any aircraft in the world and enable the United States Army (U.S. Army) to rapidly deploy a quick reaction strike-force anywhere on the globe.

The installation also provides administrative, residential, recreational, and other valuable support services to the Soldiers, their Families, and the Civilian employees who work and/or reside on the installation. This includes repair and maintenance of existing facilities, roads, bridges, and grounds, as well as a variety of other support services, including some minor construction, renovation, and demolition activities. These actions are all vital to the support of the mission on the installation and many of these projects benefit from an ample supply of existing fill materials on-Post. These materials are obtained from the 74 on-Post borrow pits, which are operated, managed, and maintained by the FSGA/HAAF Directorate of Public Works (DPW). Some of the basic borrow pit requirements on-Post include providing soil stabilization layers for the three active landfills on FSGA, which require an average of 100 cubic yards per day (cys). The DPW Roads and Grounds Maintenance Crew also utilizes fill to conduct its routine repair and maintenance of installation roads on FSGA and HAAF, and the installation provides these materials to the Georgia Department of Transportation to maintain the portions of Georgia State Roads 144 and 119 that lie within the boundaries of FSGA. The DPW Engineering Branch also uses approximately 70,000 cys of fill per year for the minor renovation and construction projects they oversee on the installation.

Accordingly, it is important to ensure FSGA/HAAF has a suitable source and supply of fill materials and that they are located throughout the installation. This ensures that these materials are near

project site(s) and minimizes potential adverse impacts associated with hauling these materials to the site of use. It has been almost 20 years since the excavation of new borrow pits on the excavation, or the expansion of existing borrow pits, and the existing borrow pits are near the end of their useful life. Based on known and future needs on the installation, it is prudent to excavate new borrow pits and expand existing borrow pits to ensure the Borrow Pit Management Program (BPMP) can fully support these requirements. If not, the installation may have to purchase fill materials off-Post once all existing pits are depleted.

Borrow pits are operated, managed, and maintained by the FSGA/HAAF DPW in accordance with local, state, and federal requirements. To ensure full compliance, a permit is required to obtain fill materials from these borrow pits, obtained with assistance from the FSGA/HAAF Environmental Division, within the parameters of the BPMP, and in accordance with its Standard Operating Procedures (SOP). For each project utilizing the borrow pit, the contracting officer responsible (COR)/project manager contact the Borrow Pit Program Manager to obtain a borrow pit application, which is submitted to and reviewed by the Borrow Pit Program Manager. Once he confirms that all Erosion & Sedimentation (E&S) permits (Notices of Intent) are obtained, he issues the borrow pit permit (a copy of the application signed by the COR and Borrow Pit Program Manager, and a borrow pit permit with a project number). Once issued, a permit is not transferable from one user to another or from one site to another; rather, it is tied to the project for which borrow pit materials are needed and the borrow pit identified on the permit. Once a permit is issued, a site visit is coordinated (with COR, contractor, and Borrow Pit Program Manager) to go over the boundary of the pit, the excavation plan, and the performance criteria before usage of the borrow pit can begin. The Borrow Pit Program Manager will conduct site visits for the duration of the borrow pit's use to ensure compliance with established requirements for each site. A close-out site visit is conducted once the borrow pit is no longer needed and the borrow pit is released from that user. The Borrow Pit Program Manager maintains copies of all permits.

This Programmatic Environmental Assessment (PEA) was prepared to analyze the potential impacts of implementing a BPMP on the natural, cultural, and Socioeconomic environment. This PEA was completed in accordance with the National Environmental Policy Act of 1969 (NEPA) (Title 42 of the *United States Code* [U.S.C.] Section [§] 4321), the Council on Environmental Quality (CEQ) NEPA regulations (Title 40 of the *Code of Federal Regulations* [C.F.R.] Parts 1500–1508), and the Army's NEPA implementing regulation (32 C.F.R. Part 651), *Environmental Analysis of Army Actions*. In general, these regulations require that, prior to implementing any major action, the federal agency must evaluate the proposal's potential impacts on the human and natural environments and involve the public in the agency's decision-making process.

Army proponents prepare many types of management plans that must include or be accompanied by appropriate NEPA analysis and many of these can be accomplished with a programmatic approach, creating an analysis that covers a number of smaller projects or activities, such as the expansion of existing borrow pits or the excavation of new borrow pits proposed in this PEA. As each borrow pit expansion or new borrow pit excavation is proposed, its individual scope of work and design will be reviewed. If no additional analysis required, a Record of Environmental Consideration (REC) will be prepared to document that review and coordination. If additional analysis is required, a Supplemental EA will be prepared. The programmatic nature of this PEA allows for early planning, coordination, and flexibility in project implementation and the identification of potential environmental impacts and provides the decision maker with the appropriate information required to make an informed decision.

1.1 INSTALLATION BACKGROUND

Archaeological surveys confirm that people have occupied the lands comprising FSGA and HAAF for approximately 10,000 years, with its rich landscape, golden coast, and abundant rivers providing a steady source of food and water resources. During the late 1500s and 1600s, the Spanish colonized Florida to the south and the British founded the Charles Town colony in the Carolinas to the north. In 1733, James Oglethorpe established a colony in the name of Great Britain in the area of southeast Georgia that would become the City of Savannah. The purpose of this settlement, called Georgia, was creating a buffer between the Carolinas, of British interest, and Florida, of Spanish interest. Oglethorpe also established a settlement in what is now the FSGA area, called Fort Argyle, which is located on the west bank of the Ogeechee River. There was also at least one colonial settlement at HAAF on the Little Ogeechee River. In 1775, Great Britain's North American colonies revolted against English rule and won independence in the Revolutionary War. One of these heroes of the new United States of America included General Daniel Stewart, a Liberty County native for whom FSGA would be named.

After the war, roads were developed through the area, connecting the older coastal Georgia farms and towns to the new land opening up in the interior for settlement. The push west necessitated the creation of more counties, such as Bryan County in 1793 and Tattnall County in 1801. The forested portions of their lands provided livestock ranges and timber sources, and rice cultivation continued to be an important activity in areas conducive to such agriculture. No major military actions occurred in the FSGA/HAAF area during the Civil War (1861-1865), but the struggle greatly disrupted the economic and social life of residents of the region. Union General Sherman's troops marched through the Bryan County area of the FSGA tract in 1864 but met little resistance from local Confederate forces, with the exception of a small skirmish across the Canoochee River at Harper's Bridge. During this time, the lands comprising HAAF supported numerous rice and cotton plantations/farms, and its far western tip was the extreme left flank of the Confederate lines during Sherman's December 1864 siege of Savannah.

Reconstruction following the Civil War was a time of great social and economic adjustment for the region, perhaps the most significant of which was an increase in the exploitation of local forest resources, such as turpentine and timber. New communities sprang up, and by the 1880s, the timber and turpentine industries were firmly established as the economic foundations of the area. To support this industry, railroads and small tram lines began serving the area, the most significant of which was the *Savannah and Southern Railroad* which stretched across the region and joined the *Seaboard Coast Line Railroad* (formerly the *Seaboard Air Line*) running north to the *Glennville and Register Railroad* at Glennville, GA. Various tram lines occurred on the installation and are often collectively known as the *Dunlevie Tramlines*.

In 1929 the City of Savannah constructed the Savannah Municipal Airport on what is now HAAF, ushering in the aviation age to the coastal city, as well as a flurry of commercial and industrial development in both Savannah and its surrounding smaller communities. World War II transformed these lands into bustling military Posts, with the Army acquired the land comprising FSGA in 1940-41 to establish Camp Stewart, becoming an anti-aircraft artillery training base with a number of small arms and artillery ranges. The military also stationed Women Air Service Pilots (WASPs) at a former Civilian air facility, Liberty Field (now Wright Army Airfield) on FSGA. The WASPs towed targets or operated remote control drones for anti-aircraft gunnery practice. In Savannah, the Army Air Corps acquired the Savannah Airport and renamed Hunter Field in 1940, developing it into a training and staging base primarily for light and medium bombers. After the

war, it spent a few more years as the Savannah Airport before being reacquired by the Army and permanently designated as HAAF in 1967.

The Korean War (1950-1953) led to Camp Stewart's designation in 1950 as the Third Army Antiaircraft Artillery Training Camp and, in late 1953, the Army authorized construction of tank firing ranges and maneuver areas. The following year the base was renamed Camp Stewart Antiaircraft Artillery and Tank Training Center, and in 1956 the Army officially designated the base a permanent installation, Fort Stewart. In 1950 HAAF, became an Air Force Strategic Air Command base supporting B-47 jet bombers armed with nuclear and thermonuclear weapons, vitally important to the U.S. Cold War strategy of nuclear deterrence. In 1974, FSGA became home to the 24th Infantry Division, reflagged in 1996 as the 3rd Infantry Division (Mechanized). Many of the smaller cantonment areas on FSGA originate from this time, including Evans Army Airfield and Wright Army Airfield. Fort Stewart was utilized as needs evolved for the Cuban Missile Crisis, Vietnam War, Desert Storm, and Operation Enduring Freedom.

1.2 SCOPE AND METHODOLOGY

This PEA was prepared in accordance with NEPA (42 United States Code Section [U.S.C] 4321 et seq.); the CEQ regulations that implement NEPA (Title 40 CFR, Parts 1500 to 1508); and 32 CFR Part 651, Environmental Effects of Army Actions. Potential effects resulting from implementation of the alternatives will be addressed, and minimization and mitigation measures will be identified, as applicable. Analysis in this PEA will be used to determine whether a Finding of No Significant Impact (FONSI) is warranted or whether the implementation of the BPMP will require an Environmental Impact Statement (EIS) due to significant environmental impacts.

Army proponents prepare many types of management plans that must include or be accompanied by appropriate NEPA analysis and many of these can be accomplished with a programmatic approach, creating an analysis that covers a number of smaller projects or activities, such as the expansion of existing borrow pits or the excavation of new borrow pits proposed in this PEA. As each expansion or excavation activity is proposed, supplemental analysis will be conducted via the review of the individual scope of work and design for that specific action. If no additional analysis required, a REC will be prepared to document the review and coordination of the specific action. If additional analysis is required, it will ‘‘tier’’ off this PEA with a Supplemental EA. The programmatic nature of this PEA allows for early planning, coordination, and flexibility in project implementation and the identification of potential environmental impacts and provides the decision maker with the appropriate information required to make an informed decision.

1.3 AGENCY AND INTERGOVERNMENTAL COORDINATION AND CONSULTATIONS

1.3.1 Agency Coordination/Consultation

In accordance with 32 CFR Part 651, the Notice of Availability (NOA) of the PEA/FONSI/Finding of No Practicable Alternative (FONPA) for this action was published in the *Savannah Morning News*, *Coastal Courier*, and *The Frontline,* which covers the Savannah/HAAF/Hinesville/FSGA geographic area. Notification of the PEA/FONSI/FONPA's availability was mailed to the members of the regulatory/local governmental community with whom the installation consults and who have jurisdiction that could be affected by the Proposed Action, a copy of which is in Appendix A.

One comment on the Draft PEA was received during the public review period. The Georgia\ Environmental Protection Division (EPD)-Land Protection Branch (LPB) indicated that the PEA did not fully address remediation sites on FSGA in proximity to the actions proposed in the PEA

(new pits, pit expansions). Accordingly, a Hazardous Materials/Waste Management and Remediation Section was added to the Final PEA (section 3.4.8), versus its brief discussion in the Draft EA's appendix. The GA EPD-LPB also recommended that, since two sections of the PEA deal with erosion and air quality, that the PEA also be reviewed by appropriate programs within the GA EPD. However, the FSGA/HAAF NEPA Point of Contract (POC) sends all Draft EAs to the main office of the GA EPD, who then disperses the document to others in the EPD; however, the installation is willing to add these additional resource specific POCs at the EPD to the NEPA Mailing List for future coordination efforts.

1.3.2 Government to Government Consultations

Executive Order (EO) 13175, *Consultation and Coordination with Indian Tribal Governments* (6 November 2000), directs federal agencies to coordinate with and consult Native American Tribal Governments whose interests might be directly and substantially affected by activities on federally administered lands. Accordingly, FSGA/HAAF conducts government-to-government consultation with the Federally Recognized Tribal Governments associated with the installation when there is a potential to impact resources of Tribal interest. No consultation and/or notification was made at this time, as this is a programmatic document and does not assess potential impacts to specific sites. Instead, prior to any expansion of existing borrow pits or excavation of new borrow pits identified in this PEA, the installation will consult with the Tribes if there is a potential for adverse impact to historic properties, in accordance with the National Historic Preservation Act (NHPA), and/or if there is a potential impact to cultural items, as defined under the Native American Graves Protection and Repatriation Act, which may be affected by the undertaking.

1.3.3 Public Review Process

Public participation is essential to a successful NEPA analysis and consideration of the views, and informing all interested persons promotes open communication and enables better decision-making. FSGA/HAAF will notify the interested public when the PEA is available and ensure they have access to the findings of the environmental analysis. The PEA/FONSI/FONPA was available for a 30-day public review and comment period (June 22 - July 21, 2023), announced via publication of its NOA in the local media and on the FSGA/HAAF NEPA webpage ((https://home.army.mil/stewart/index.php/about/Garrison/DPW/environmental/prevention-and-compliance/nepa.), and via placement of the documents in the local libraries. A public meeting was not required, but hard copies of the documents were noted as being available upon request. A copy of all public notifications is available in Appendix A of the Final PEA. No comments from the public, although one comment was received from the GA EPD-LPB (see Section 1.3.1).

1.3.4 Cooperating Agency Status

No agencies requested Cooperating Agency status for this document.

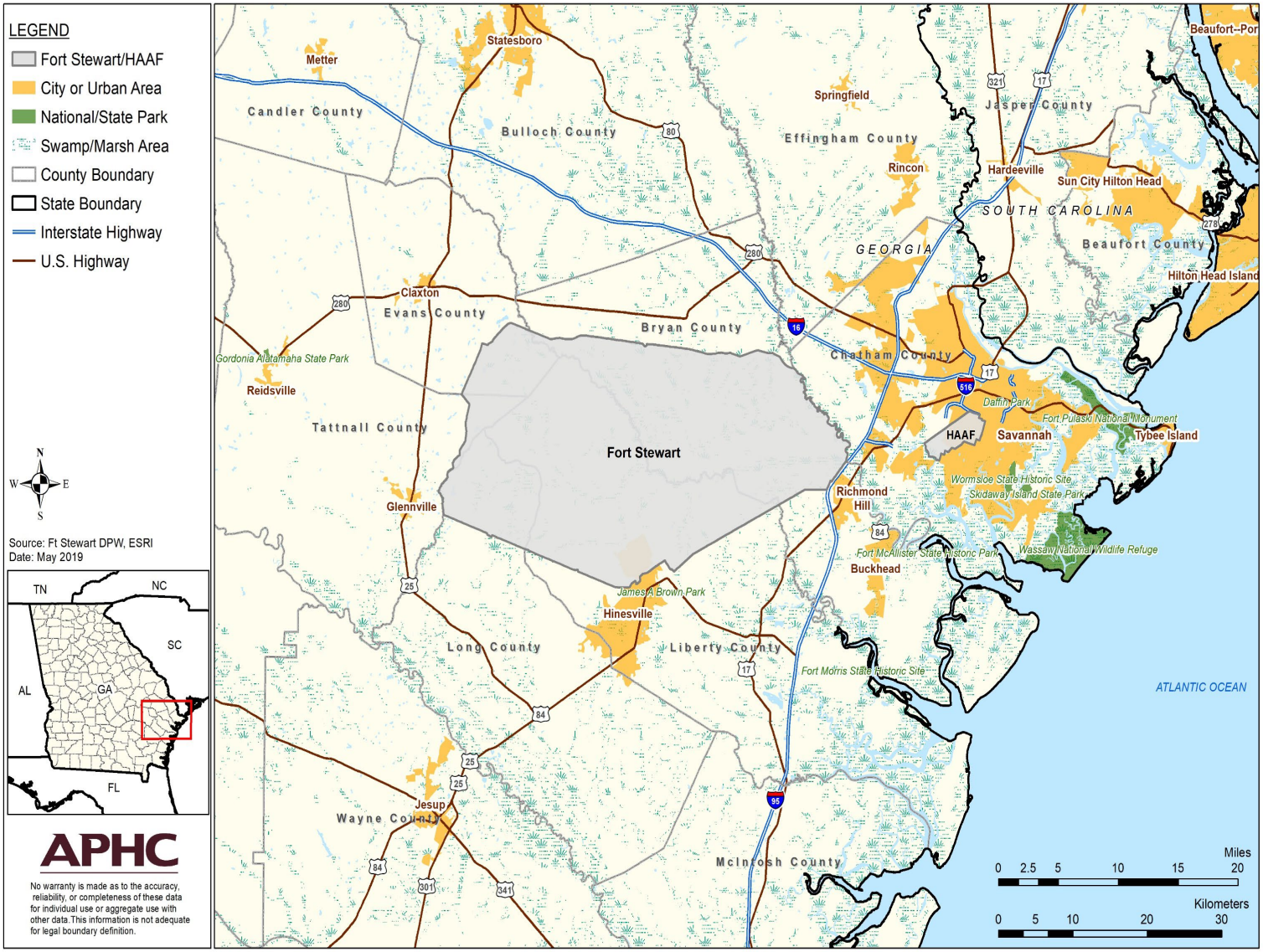


Figure 1: Location of Fort Stewart and Hunter Army Airfield, Georgia.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 PURPOSE AND NEED

The U.S. Army proposes to implement a BPMP on FSGA/HAAF, Georgia. The purpose of the proposed action is to ensure borrow pits and (the fill materials they contain) are managed in a programmatic nature, in accordance with defined standards and guidelines established by installation experts and stakeholders, and in accordance with local, state, and federal laws. The proposed action is needed to ensure land management actions are implemented in a manner that ensures compliance with laws and regulations while maintaining access for training, testing, and mission requirements. The proposed action is also needed to ensure sufficient amounts and types of borrow materials are available, as no new borrow pits have been excavated or expanded in almost 20 years and the existing borrow pits on the installation are nearing the end of their useful life.

These stewardship actions on Army lands can also help mitigate emerging threats such as climate change by safeguarding forests and other beneficial environments that are essential to carbon sequestration efforts alongside mission and training activities, while ensuring that suitable types and amounts of fill material are available to support actions implemented on installation lands.

2.2 DEVELOPMENT OF SCREENING CRITERIA

An Interdisciplinary (ID) Team was developed to identify screening criteria (SC) for the management of borrow pits on the installation and consisted of the FSGA/HAAF Environmental Division, Planning and Engineering Division, Operations and Management Division, and Range Division. During their planning sessions, it was determined that the installation required (1) the excavation of new borrow pits to meet borrow material demands for current and future actions on the installation; (2) the expansion of existing borrow pits with highly prized soil types for current and future actions on the installation; and (3) the closure of existing borrow pits that had expended their useful life. The ID Team determined these requirements could be identified and established SC to ensure all locations reviewed for those purposes would be thoroughly, accurately, and adequately assessed as part of their inclusion. The SC are identified and discussed below.

Borrow Pit must provide suitable cubic yards of borrow materials: ID Team members collectively discussed known and proposed future actions on the installation for which borrow materials would be needed to try and define minimum size requirements for new borrow pits and the expansion of existing borrow pits. Based on usage rates from prior fiscal years on the installation, it was determined that new borrow pits should be at least four acres in size, generating approximately 65,340 cy of fill in their useful life. Existing borrow pits should be expanded by at least one acre, generating an additional 9,680 cy of fill in their useful life.

Accordingly, the ID Team utilized Geographic Information System (GIS) mapping technology to identify locations on FSGA that would accommodate new borrow pits that were at least four acres in size and to identify existing borrow pits that would accommodate an expansion of at least one acre, while minimizing potential impacts to environmentally sensitive resources and existing military training sites. No new borrow pits or borrow pit expansion is proposed on HAAF, as there is limited land available at that location for that purpose. Should the installation propose new or expanded borrow pits on HAAF in the future, it will be addressed via supplementation of this NEPA document.

Borrow Pit must provide suitable soil types: Soil types desired are clay, sand, and a sand-clay mixture to accommodate the soil types on which projects are typically sited on the installation, based on historical data at the FSGA/HAAF DPW. Soil types are determined via the United States Department of Agriculture's soil maps and confirmed via soil boring and typing analysis by the Project Manager. Accordingly, only locations with these specific soil types are suitable for siting new borrow pits and only existing borrow pits with these soil types are proposed for expansion. Locations with other soil types are automatically excluded from further consideration.

Borrow Pit must have access to existing transportation network: The ID Team utilized GIS mapping technology to identify locations that are adjacent to existing roads and/or tank trails (accessible by haul vehicles) when siting potential new borrow pit locations on FSGA. This most easily facilitates work at these sites and minimizes costs associated with constructing new roads for their access. Sites not adjacent to the existing FSGA transportation network are automatically excluded from further consideration. Existing borrow pits on FSGA are already located adjacent to the FSGA transportation network and all borrow pits proposed for expansion already meet this SC. No new borrow pits are proposed on HAAF and no GIS search was conducted at that location.

Borrow Pit must have minimal-to-no environmental impacts: The ID Team utilized GIS mapping technology to identify locations proposed for new borrow pits and existing borrow pit expansion that have minimal-to-no environmental issues of concern. For example, new borrow pits are not sited within wetlands, as the high-water table on the installation means they would require frequent dewatering, and because hydric soils do not compact well and are not suitable for borrow purposes.

Following the GIS mapping exercise and discussion of the results, the ID Team summarized their results and recommended the following: 14 locations on FSGA were identified as favorable for the excavation of new borrow pits; 36 existing borrow pits on FSGA were identified as favorable for expansion; and 2 borrow pits were identified as having met the end of their useful life (one on FSGA, one on HAAF), as they have less than 9,680 cy of fill remaining, with no potential for expansion. These results were incorporated into the alternatives discussed in this PEA.

2.3 ALTERNATIVE I: NO ACTION

Under this alternative, the U.S. Army will continue to manage the 74 existing borrow pits in their existing configurations (Figures 2-3) and will not implement any of the BPMP recommendations from the ID Team, to include excavation of new borrow pits or expansion of existing borrow pits. This will not support known and anticipated future actions on the installation, as the existing borrow pits will eventually run out of amounts and types of usable borrow materials and the installation will have to rely on off-Post sources for borrow material needs, potentially impacting mission readiness. All actions will occur in accordance with existing federal, state, and local laws and regulations and use of the existing borrow pits must be in accordance with the Borrow Pit Excavation Management Plan (Appendix B). Although this alternative does not meet the purpose and need for the proposed action, its inclusion is prescribed by the CEQ regulations as the benchmark against which all Federal actions are evaluated.

Also, under the No Action Alternative, the ongoing, routine, day-to-day actions that support the installation's mission and that rely on fill material from the existing borrow pits will continue in the cantonment, range and training lands. These activities are vital to the support of the mission on the installation, have been determined to result in no adverse impacts, and will include the following:

- Public Works: Examples include routine maintenance of trails, roads, bridges, culverts, landscaped areas/grounds, and buildings, all in accordance with installation plans (see final bullet, below).
- Real Estate Transactions: Examples include property leases to the City of Hinesville/City of Savannah, licenses to groups such as the Red Cross, and easements to local/state utility companies.
- Recreation: Examples include routine use, repair, and maintenance of pools, play areas, camping areas, fishing ponds, and annual events.
- Airfield Operations: Examples include routine use, repair, and maintenance of paved areas (runways, taxiways, aprons), debris removal, and maintenance or fire protection systems.
- Fuel and Petroleum Product Operations: Examples include use, receipt, and storage of Class III fuels, fueling and defueling equipment, and maintenance of fuel storage tanks.
- Vehicle Maintenance and Repair: Examples include welding support activities, vehicular fluid changes, and vehicular exterior repairs.
- Routine Training Activities: Examples include local unit training activities (Physical Training in unit barracks and obstacle courses), vehicular maneuvers in the range and training areas, weapons qualifications on existing ranges, and other training within existing areas for which environmental review and guidance is complete, such as existing position artillery areas (PAAs), firing points (FPs), and observation points.
- Routine Integrated Training Area Management (ITAM) Operations: Examples include routine repair and maintenance actions on FSGA/HAAF training resources, to include tank trails, ranges, PAAs, and other training resources.
- Implement installation Management Plans: Operations on the installation will be implemented in accordance with installation management plans, for which NEPA is complete. These include (but not limited to) the Integrated Natural Resources Management Plan, Integrated Cultural Resources Management Plan, Wildland Fire Plan, Integrated Pest Management Plan, Tree Management Plan and Policy, installation Energy and Water Plan, Army Compatible Use Buffer (ACUB) Program, Joint Land Use Initiative, and others (as discussed in associated sections of Section 3.0).

2.4 ALTERNATIVE II: IMPLEMENT BPMP AND ID TEAM RECOMMENDATIONS

Under this alternative, the U.S. Army will implement a BPMP on FSGA/HAAF and the recommendations of the ID Team. This will include excavation of 14 new borrow pits on FSGA, expansion of 36 existing borrow pits on FSGA, the closure of one borrow pit on FSGA, the closure of one borrow pit on HAAF, as discussed in detail in Section 2.2 and as shown on Figures 2-7. All borrow pit design, excavation, and expansion actions support the potential for the depleted borrow pits to become a fishing pond or man-made, created wetland, if soil conditions, location, and groundwater resources favor such development. Operators are required to grade all peaks, ridges, and valleys resulting from surface mining, and to backfill all pits and trenches in a manner to minimize effects adjacent to any trail or road. Installation staff mark the boundaries of the excavation area prior to use.

Because of the high ground water table, water constantly fills most holes dug at Fort Stewart, including borrow pits. This water is either (a) pumped into an adjacent pond (often a closed or inactive borrow pit itself) or (b) discharged to wooded or forested areas outside the pit, contained with appropriate Best Management Practices (BMPs), and eventually filtered back into the ground, recharging the groundwater table. Nearby streams and wetlands are avoided during this

process and protected using BMPs for soil and erosion control. Fill materials are stockpiled to dry/dewater before transport to its final destination. The slopes of the borrow pit are graded and seeded in between users/projects and again when it is no longer a viable source of fill material and when the closure process begins. As previously stated, all borrow pit activities are permitted activities and are managed by the FSGA/HAAF Borrow Pit Program Manager. Implementation of this alternative will ensure there is a suitable, on-Post source of soils to support the identified activities on the installation that require these materials. All use of the borrow pits must be in accordance with the Borrow Pit Excavation Management Plan and Borrow Pit SOP (Appendix B).

Above: Materials removed from the borrow pit are transported away from the edge of the borrow pit and alowed to dry. Once dry, the materials are taken to a site for use.

Below Left: A closed borrow pit that has naturally attnuated into a pond.

This alternative will also include the ongoing management of the existing borrow pits on the installation, for which no expansion or closure is proposed, as discussed under Alternative I. Ongoing, routine activities on FSGA/HAAF will also continue under this alternative (also as discussed under Alternative I).

2.5 ALTERNATIVES DISMISSED FROM FURTHER REVIEW

Utilize off-Post Borrow Pits for all Actions. Under this alternative, the DPW and its designees will acquire borrow material for all actions on FSGA/HAAF from off-Post commercial sources, using protocols and procedures defined in the Borrow Pit Excavation Management Plan and SOP for the use of off-Post fill materials on installation lands (Appendix B); no use of existing on-Post borrow pits would occur. Discussions amongst the ID Team determined this was not a feasible alternative for two main reasons: abandonment of existing open borrow pits on-Post and added cost/time to identified projects. First, the installation currently has access to a set of 76 open borrow pits on FSGA/HAAF and no rationale can be identified for the abandonment of those sources in favor of sources off-Post. Second, although funding and convenience are not a rationale for selection of an alternative, it was noted that the sole utilization of off-Post fill material sources would result in substantially higher added costs and time to identified actions on FSGA/HAAF, as costs for acquisition of fill, haul routes, and testing (and the time to accomplish said actions) are factored into each identified project. For these reasons, the sole utilization of off-Post borrow pits was eliminated from further review as a feasible alternative in this PEA.

Figure 2: Location of Existing Borrow Pits on Fort Stewart, Georgia.

Image Redacted for Operation Security.

Figure 3: Location of Existing Borrow Pits on Hunter Army Airfield, Georgia.

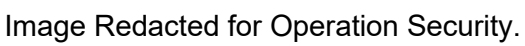


Figure 4: Location of Proposed Borrow Pit Expansions on Fort Stewart, Georgia.

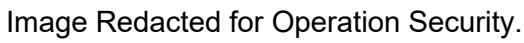


Figure 5: Location of Proposed New Borrow Pits on Fort Stewart, Georgia

Image Redacted for Operation Security.

Figure 6: Location of Proposed Borrow Pit Closure on Fort Stewart, Georgia.

Image Redacted for Operation Security.

Figure 7: Location of Proposed Borrow Pit Closure on Hunter Army Airfield, Georgia.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter focuses on those components of the natural and human environment potentially impacted by the proposed action and its alternatives. Potential direct, indirect, and cumulative impacts to the affected environment are discussed as they relate to each alternative. Direct impacts are those caused specifically by each alternative and that occur at the same time and place. Indirect impacts are also caused by each alternative, but later in time or farther in distance. Cumulative impacts "result from the incremental impact of the action" when added to "other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or what person undertakes such other actions" (Canter et. al, 2007). The levels of intensity of potential impacts are described as follows:

- *Adverse*. A negative net impact.
- *Beneficial.* A positive net impact.
- *Negligible.* Impacts are so low that they are not perceptible or measurable.
- *Minor.* Short-term but measurable impacts are expected. The resource would recover in a relatively short period of time (days to months).
- *Moderate.* Measurable and long-term impacts that may not remain localized but are considered less than significant. Recovery may require several years or decades.
- *Significant.* Based on context and intensity, impacts would result in substantial change or loss of a resource. This applies to both beneficial and adverse impacts.
- *Direct.* Impacts of an action that are caused by the action and that occur at the same time and place.
- *Indirect.* Impacts of an action that are caused by the action but occur later in time and/or farther removed in distance but are still reasonably foreseeable.
- *Cumulative.* The impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

3.1 STUDY AREA AND REGION OF INFLUENCE

The scope of the affected environment involves both the geographic extent of the effects and the time in which the effects may occur. The environmental consequences analysis for this proposed action, in which direct and indirect impacts may be felt, is confined to the lands lying within the physical boundaries of Fort Stewart and HAAF, referred to in this document as the Study Area (Figures 8a and 8b). This determination is based on that fact that the borrow pits are located within the physical boundaries of FSGA and HAAF and the majority of the impacts associated with these resources will be experienced in their more immediate vicinity (the installation).

Reasonably foreseeable (cumulative) impacts are also analyzed in this section, and these are potential impacts that may be felt on a broader scale, depending on the resource under analysis, with the potential to ripple out to a larger Region of Influence (ROI). The ROI for each resource area analyzed is identified and discussed in its specific section.

3.2 PAST AND PRESENT ACTIONS

Initial development in the Study Area converted the land from a forested environment to an agricultural, farmed community, requiring timber harvest and the planting of crops. Residential,

commercial, and industrial land uses followed, resulting in the development of the FSGA and HAAF military installation and the communities that thrive in the Study Area today. The FSGA places an emphasis on sound, ecological management of the lands within its boundaries, especially in areas where military training occurs, including the placement of hardened stream crossings in the training areas to minimize potential future damage to soils and water sources in these locations. This trend in land rehabilitation is highly effective and major efforts are underway to restore the longleaf-wiregrass ecosystem, to include wiregrass restoration projects along the runways at Wright Army Airfield and within the training areas. The FSGA also works with the local communities and private/public landholders to manage adjacent lands via the ACUB Program on FSGA (FSGA/HAAF, 2019c). Many of these actions are supported through the use of fill materials from the installation's on-Post borrow pits.

The FSGA is located within the Coastal Plain Province in southeastern Georgia, which is one of the fastest growing regions in the state and is an area that is attempting to balance the ever-present need for growth with maintaining the integrity of its natural and cultural resources Coastal Regional Commission (CRC), 2012). The Georgia Department of Community Affairs (DCA) established standards and procedures for regional planning in accordance with O.C.G.A. 50-8-1 Et. Seq., which became effective in 2009. The *Regional Plan of Coastal Georgia* was finalized in 2010 and amended in 2012 and 2017 to provide developmental guidance to regional and business leaders, local government, state and federal agencies, and citizens (CRC, 2017). Primary conservation areas are considered an equally important regional planning aspect, alongside infrastructure and economic development actions, and these areas include wetlands, floodplains, streams, endangered species and critical habitat, and prime agricultural lands (CRC, 2017). Figure 9 depicts the regional future development map where conservation areas are expected to be preserved in order to protect important resources and environmentally sensitive areas, including those associated with FSGA/HAAF.

The CRC utilizes a Quality Growth Effectiveness (QGE) Assessment Survey as an Evaluation and Monitoring tool to measure performance standards as they relate to ongoing implementation of the Regional Plan. The QGE survey compiles a "State of the Region" through responses from local jurisdictions regarding consistency with the Regional Plan of Coastal Georgia. These answers determine the Plan's effectiveness, identifies implementation barriers, areas of best practices and most importantly areas of the Regional Plan that may require modification moving forward. The Regional Future Development Map (Figure 9) reflects the most recent trends and projected land use patterns from local Comprehensive Plans created or updated under DCA's Local Planning Requirements and the most recent comprehensive inventory of the Region's natural and cultural resources. As local comprehensive plans are amended and updated, local development trends inherently evolve. The Coastal Regional Commission continues to update the Future Development Map as necessary to reflect the most responsible, appropriate, and desired, long range development patterns for the Coastal Region of Georgia. Factors affecting future amendments to the Future Development Map may include changes to regional transportation plans, strategic plans, and other applicable studies, many of which are referenced further in this PEA.

In 2021, FSGA/HAAF commissioned an Economic Impact and Contribution Analysis (EICA) through the Center for Business Analytics and Economic Research (CBAER), a component of the Business Innovation Group at Georgia Southern University. The study is a comprehensive analysis of the economic contribution the installation makes to the Savannah-Hinesville-Statesboro Combined Statistical Area (SHSCSA), which includes Bulloch, Bryan, Effingham, Chatham, Liberty, Long and Wayne Counties and includes the entirety of FSGA and HAAF. The

EICA did not analyze indices associated with Environmental Justice (EJ); accordingly, the installation utilizes the Environmental Protection Agency's EJ Screening Tool (EJ Screen) to identify existing conditions associated with EJ in the local, regional, state, and national environment. The EJ Screening Tool utilized data from Chatham, Bryan, Liberty, Evans, and Long Counties (EJ ROI), which account for all of HAAF and all but a small portion of the northwestern corner of FSGA (Tattnall). All of these resources are utilized to identify past and present natural and cultural aspects of the Study Area for this PEA.

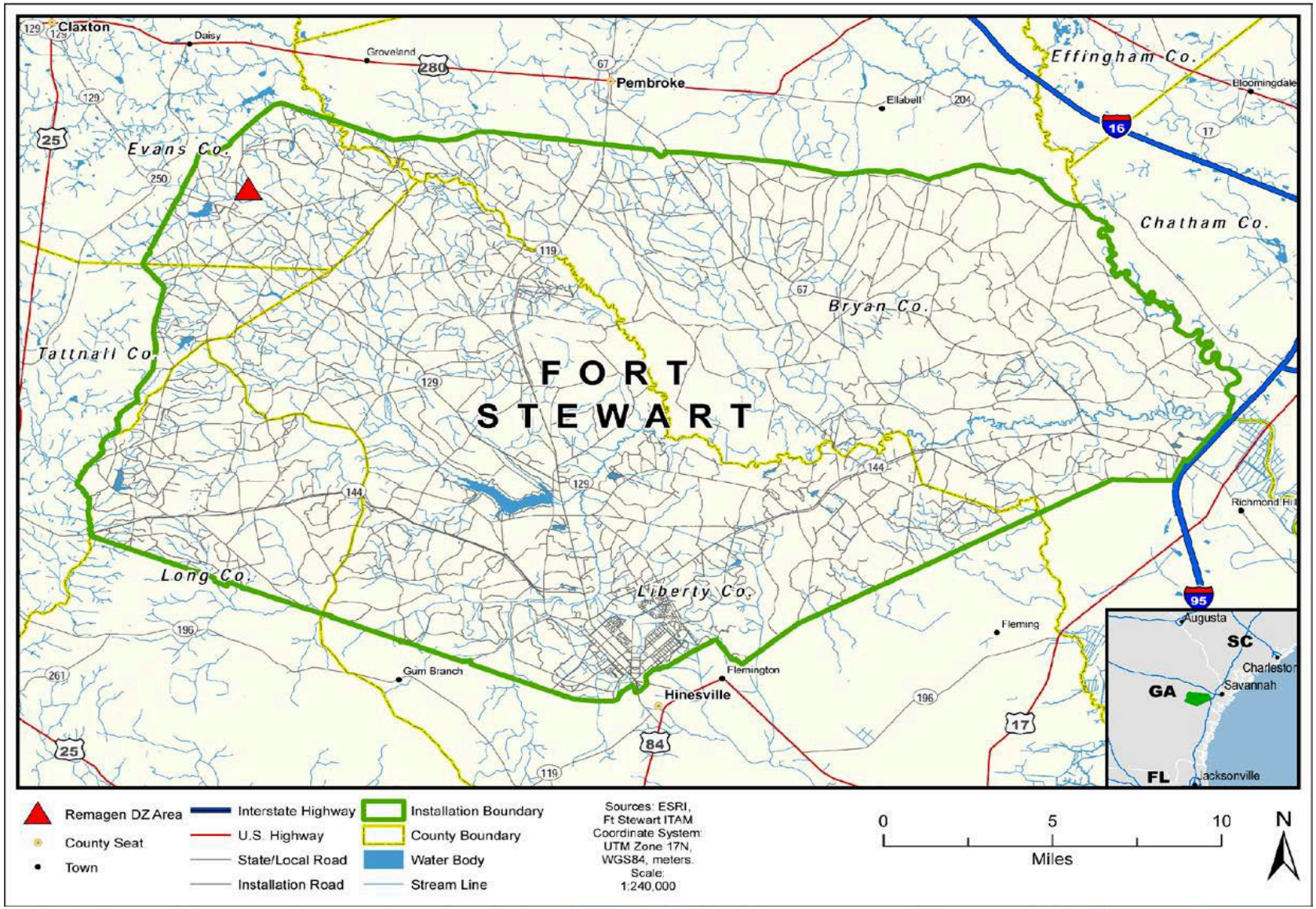


Figure 8a. Fort Stewart Study Area.

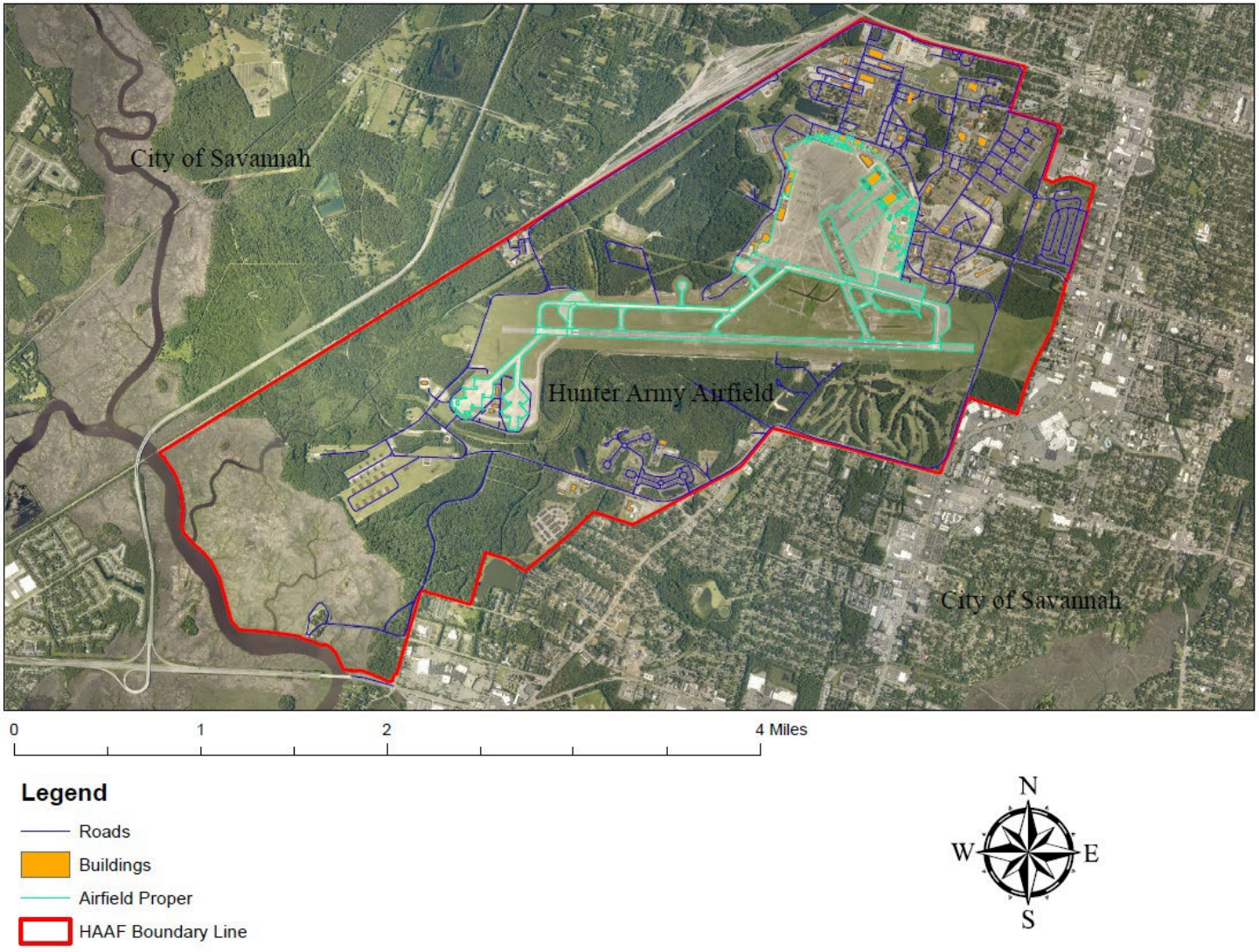


Figure 8b. Hunter Army Airfield Study Area.

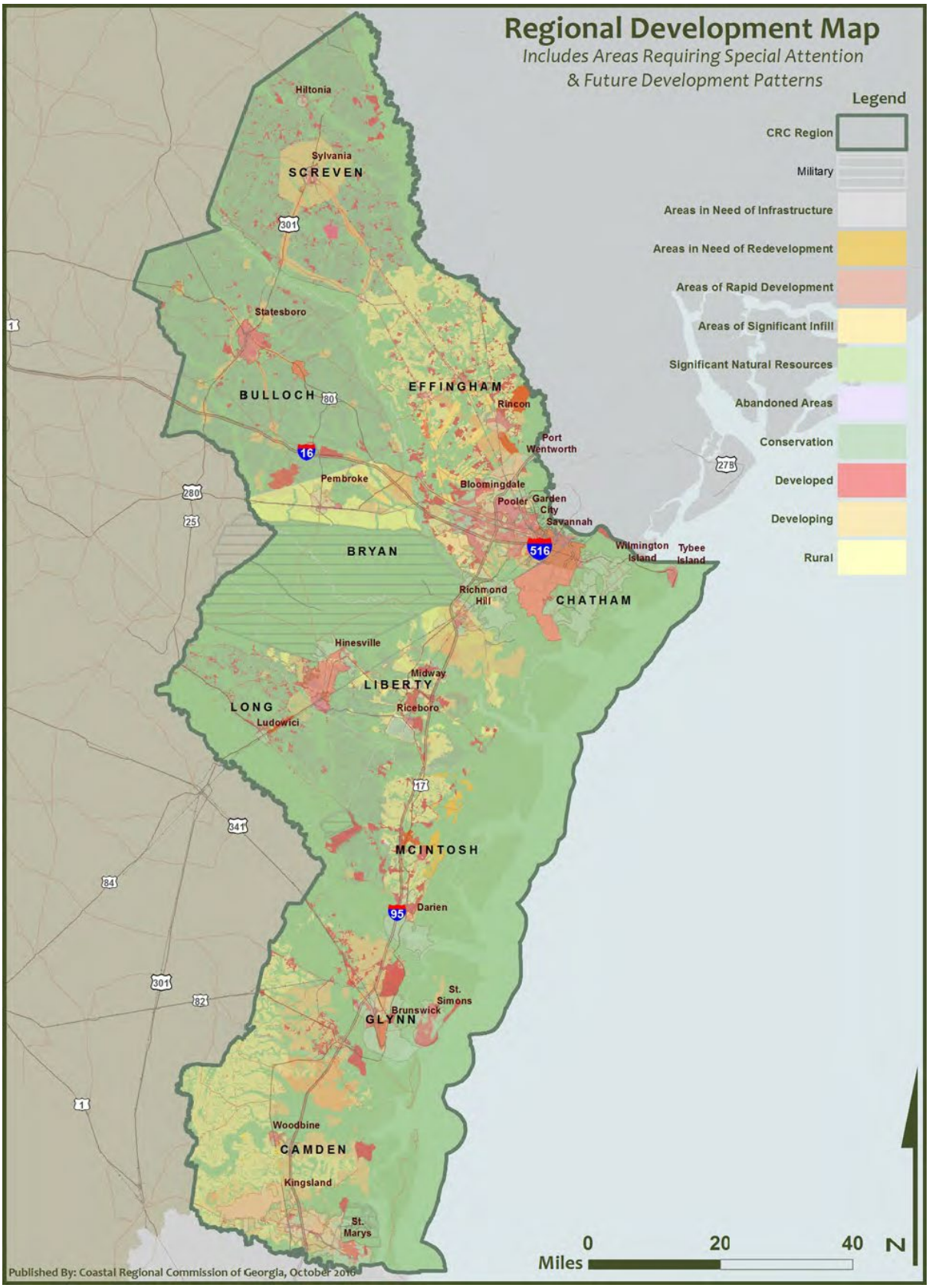


Figure 9. Coastal Georgia Regional Future Development Map (CRC, 2017).

3.3 REASONABLY FORESEEABLE FUTURE ACTIONS

Reasonably foreseeable future actions anticipated in the Study Area/ROI are discussed below and summarized for quick and easy future reference in Table 1 and maps showing the location of all actions (if sited) are in Appendix C. These actions were identified by researching installation and regional development/planning documents in the Study Area/ROI and via discussions with the FSGA/HAAF Master Planning Branch. These are actions that will/may utilize substantial amounts of fill from FSGA/HAAF borrow pits or which will occur in the vicinity of known/proposed future borrow pits on FSGA/HAAF.

- Army Weapons Modernization Strategy (no maps, not sited). In 2019, the U.S. Army issued the Army Modernization Strategy (AMS) to describe how it will transform into a multi-domain force by 2035. The primary end state is a modernized Army capable of conducting Multi-Domain Operations (MDO) as part of an integrated Joint Force by 2028 and ready to conduct MDO across an array of scenarios in multiple theaters by 2035. Those with a known potential to be enacted at FSGA are:

  - Multi Domain Task Force (MDTF). The MDTF is built around a Field Artillery Brigade and their long-range, land-based, missile and rocketry forces, integrated with cyber and electronic warfare capabilities. The MDTF consists of 400-3000 Soldiers and requires approximately 18-93 acres of facility capacity. Construction is anticipated within the cantonment area on FSGA and may require use of materials from on-Post borrow pits. No siting alternatives are available at this time and there are no figures. No construction of ranges is required, and no anticipated impacts in the range and training areas.

  - Extended Range Cannon Artillery (ERCA) System. The ERCA is the next-generation 155-millimeter artillery system replacing or supplement the Paladin self-propelled howitzer M109A6 and M109A7. Its systems include the cannon, gun mount, artillery projectile, and propelling charges, and its system is integrated onto the existing M109A7 Paladin chassis. Construction is anticipated within the cantonment area on FSGA and may require use of materials from on-Post borrow pits. No siting alternatives are available at this time and there are no figures. No construction of ranges is required, and no anticipated impacts in the range and training areas.

- Convoy Live Fire Range (CLFR) (Appendix C). This range tests Soldiers, crews, and units on the skills necessary to detect, identify, engage, and defeat stationary and moving vehicle and infantry targets from moving vehicles using all assigned weapons and weapon systems. The targets may be presented individually or as part of a tactical array in an open or urban environment. The FSGA proposes to construct this range atop an existing range in the Red Cloud Range Complex to ensure minimal ground disturbance and potential environmental impacts. The proposed footprint for the CLFR is in the vicinity of an existing borrow pit and its construction may require use of materials from on-Post borrow pits.
- Scout/Reconnaissance (RECCE) Range (Appendix C). Provides comprehensive and realistic training for scout reconnaissance crews on the skills necessary to zero the bore sight of weapons systems and to detect, identify, engage, and defeat stationary and moving infantry and armor targets in a tactical array. Weapons used include small arms up to and including the M-50 machine gun and the MK-19 grenade launcher. The FSGA would also construct this range atop an existing range to ensure minimal ground disturbance and potential environmental impacts. The proposed footprint is in the vicinity of an existing borrow pit and its construction may require use of materials from on-Post borrow pits.

- 3/160th Special Operations Aviation Regiment (SOAR) Relocation (Appendix C). Relocate the 3/160th SOAR from their current location north of the existing flightline on HAAF to an undeveloped area south of the flightline in new construction, to include a Parachute Rigging Facility, a Battalion headquarters, a Company Operations Facility, barracks, a Human Performance Training Center Facility, and Tactical Equipment Maintenance Facility. These projects are part of the short, mid, and long-range components of the Area Development Plan for HAAF. Construction of these facilities will occur in the vicinity of an on-Post borrow pit. There are limited fill materials available on HAAF and no plans to excavate new borrow pits or expand the existing borrow pits on HAAF; accordingly, borrow materials required for this project must be acquired from off-Post sources.

- Conduct Stormwater Drainage System Repairs and Airfield Apron and Taxiway Reconstruction (Appendix C). The U.S. Army proposes to conduct restoration and reconstruction actions based on the results of the 2015 Storm Drain Repair Survey and will conduct removal and replacement of 2,700 linear feet of pipe, debris removal within 1,700 linear feet of pipe, and sliplining of approximately 21,000 linear feet of pipe, using cured-in-place pipe technique. Pipe work will occur in the existing location, ensuring minimal ground disturbance. Work on apron will consist of full-depth pavement removal and replacement, but only on those portions of the airfield pavement determined to be deficient. These portions will receive new pavement that meets current airfield standards, per Unified Facilities Criteria (UFC) 3-260-02, *Pavement Design for Airfields*, and Department of the Army Pamphlet 420-1-3, *Transportation Infrastructure and Dams*. There are limited fill materials available on HAAF and there are no plans to excavate new borrow pits or expand the existing borrow pits on HAAF; accordingly, borrow materials required for this project must be acquired from off-Post sources.

Table 1: Reasonably Foreseeable Future Actions in the Region of Influence for the Proposed Action.

Future Actions in the ROI				
Project Title	**Location**	**Project Description**	**Area Potentially Impacted**	**Timeframe**
Army Modernization Strategy and Realignment Actions	FSGA	Actions proposed to transform the Army into a multi-domain force by 2035. Actions include stationing/realignment, equipment upgrades, and construction.	Around 25 acres in the Cantonment Area for support facilities. Moderate amount of fill required.	Next 5-15 years
Convoy Love Fire Range	FSGA	Range will provide year-round, comprehensive, and realistic live-fire training and range facility for the training of all combat, combat support and combat service support units.	Around 15 acres in the Range and Training Area, north-eastern part of FSGA. Minor amount of fill required; proximate to borrow pits.	Next 5-15 years
Scout/RECCE Range	FSGA	Range will test scout vehicle crews on the skills necessary to detect, identify, engage, and defeat stationary and moving infantry and armor targets in a tactical array.	Around 15 acres in the Range and Training Area, north-eastern part of FSGA. Moderate amount of fill required; proximate to borrow pits.	Next 5-15 years
3/160th SOAR Relocation	HAAF	Relocate 3/160th SOAR from north of flightline to south of flightline.	Around 20 acres in central portion of HAAF. Moderate amount of fill required; proximate to the borrow pits.	2025-2035
Conduct Stormwater Drainage System Repairs and Airfield Apron and Taxiway Reconstruction	HAAF	Repair stormwater drainage lines and improve parking apron (taxiway currently not funded)	Minimal ground disturbance; minimal fill needed; in vicinity of borrow pit.	2023-2025
These actions will result in approximately 55 acres of ground disturbance on FSGA and 20 acres of ground disturbance on HAAF.				

3.4 RESOURCES ANALYZED

Implementing the action or no action alternatives may impact Air Quality, Biological Resources, Water Quality, Cultural Resources, Land Use, and Socioeconomic Resources; accordingly, these potential impacts as well as potential avoidance, minimization, and mitigation measures, as pertinent, are discussed in this chapter. Greenhouse Gasses/Climate Change/Extreme Weather are also addressed in this section. Review determined there will be no anticipated impact to Health and Safety, Airspace and Airfield Operations, Noise, Transportation, Visual Resources, Utilities; accordingly, these resources are briefly discussed below in Appendix D, along with their reasons for dismissal.

3.4.1 AIR QUALITY

3.4.1.1 AFFECTED ENVIRONMENT

Air quality in a given location is described by the concentration of various pollutants in the atmosphere. A region's air quality is influenced by many factors including the type and number of pollutants emitted into the atmosphere, the size and topography of the air basin in which it is located, and its prevailing meteorological conditions. The significance of the pollutant concentration is determined by comparing it to those of the Federal and State ambient air quality standards. Both FSGA and HAAF are located within the Savannah Beaufort Air Quality Control Region (SB AQCR), as defined in Section 302(f) of the Clean Air Act (CAA), consisting of Bryan, Chandler, Chatham, Effingham, Evans, Liberty, and Tattnall counties in GA, and Beaufort, Coleton, Hampton, and Jasper counties in South Carolina, and this AQCR is in attainment. *Note: Climate Change and Extreme Weather, although connected to Air Quality, are not solely associated with this resource area alone and are accordingly discussed separately in Section 3.4.2.*

The CAA Permitting. FSGA and HAAF operate in accordance with a CAA Title V Permit. In an attainment area, a facility is considered a major source for criteria pollutants if its emissions of criteria pollutants exceed 100 tons per year (tpy). A facility can also be a major source of hazardous air pollutants (HAPs) if potential emissions of any individual regulated HAP exceed 10 tpy or potential emissions of all HAPs combined exceed 25 tpy. Both FSGA/HAAF meet this criterion and is classified as a major source for criteria pollutants and for HAPs.

Stationary emission sources consist primarily of heating units, stationary combustion engines, fueling operations, spray painting booths, and storage tanks. The installation maintains compliance with its Title V permit via periodic inspections, monthly monitoring, and semiannual and annual reporting procedures for its significant sources of emissions. Mobile source emissions on-Post include aircraft operations, military vehicle engines, and weapons fired during military training exercises. Stationary emission sources on the installation consist primarily of boilers for comfort heating, organic liquid storage tanks, vehicle fueling stations, solvent usage, surface coating operations, stack releases from the Central Energy Plant (CEP), wastewater treatment, and other miscellaneous general process operations. The GA EPD does not regulate the mobile sources on FSGA/HAAF because these emissions are regulated at the manufacturers level (for example, the car manufacturer meets the emission limits) and they are not factored into the inventories maintained on the installation. The FSGA/HAAF Prescribed Burn Program emissions are also not factored into these inventories, as prescribed burning is an exempt activity under the Georgia Rule for Air Quality Control (391-3-1-.03(10)(g)). Emissions from training events on the

installation are categorized as fugitive emissions and are also not factored into the installation's permitting processes, per guidance from the GA EPD.

The installation tracks potential emissions associated with construction on the installation via the Minor Source Pre-Construction Permitting process, including Notice of Construction, Approval to Operate, Permit to Operate, etc. This covers a series of exempted sources, such as temporary sources that will be on-site less than 90 days (construction equipment), small boilers or furnaces (residential vs commercial size), and ventilation systems. These actions are tracked by the installation Air Quality Program Manager via the NEPA project review process. No permitting is required for any of the existing or future borrow pit operations.

Prevention of Significant Deterioration (PSD). The CAA includes the PSD program, which imposes permitting requirements for the construction of new major stationary source facilities and "major modifications" at existing facilities in attainment areas. A new source is classified as a major stationary source if it has the potential to emit any regulated pollutant in amounts equal to or exceeding specified major source thresholds, which are predicated on the source's industrial category. A major modification is a physical change or change in the method of operation at an existing major stationary source that causes a significant "net emissions increase" at the source of any regulated pollutant. The purpose of the program is to prevent the degradation of ambient air quality in attainment areas and to address ambient air quality concerns associated with other non-criteria pollutants, while still allowing for industrial and commercial growth. FSGA/HAAF has not been required to conduct PSD permitting by operational limits to stay under the permitting thresholds.

As part of the PSD program, mandatory Class I status was assigned by Congress to all national parks, national wilderness areas, memorial parks greater than 5,000 acres, and national parks greater than 6,000 acres. In Class I areas, visibility impairment is defined as a reduction in visual range and atmospheric discoloration. Stationary sources, such as industrial complexes, are typically an issue for visibility within a Class I PSD area. For new sources that may impair visibility or degrade air quality, applicants may be required to analyze potential impacts to Class I areas within 100 kilometers (62 miles) of the source. There is only one PSD Class 1 area/protected vista within a 100-kilometer (standard review distance) radius of FSGA, and that is Wolf Island Wilderness, Georgia (38 miles away from FSGA; 51 miles from HAAF).

National Ambient Air Quality Standards (NAAQS). The CAA and its subsequent amendments (CAAA) established the NAAQS for six "criteria" pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM), and lead (Pb). These standards represent the maximum allowable atmospheric concentrations that may occur while ensuring protection of public health and welfare, within a reasonable margin of safety. Short-term standards (1-, 8-, and 24-hour periods) are established for pollutants contributing to acute health effects, while long-term standards (quarterly and annual averages) are established for pollutants contributing to chronic health effects. The NAAQS are used to determine if an area is in attainment. The CAA requires each state to develop a State Implementation Plan (SIP) that serves as its primary mechanism for ensuring that the NAAQS are achieved and maintained within that state. According to plans outlined in the SIP, designated state and local agencies implement regulations to control sources of criteria pollutants. The CAA provides that federal actions in non-attainment and maintenance areas do not hinder future attainment with the NAAQS and conform to the applicable SIP.

The GA EPD adopted the NAAQS as the standards for the state of Georgia, and FSGA/HAAF's AQCR has proven consistently better than the NAAQS. Georgia has established a network of

monitoring stations to consolidate ambient concentrations of criteria pollutants and the EPA uses this monitoring data to determine each area's attainment status on a pollutant-by-pollutant basis. As part of its permitting process, FSGA/HAAF compiles an annual Air Emissions Inventory (AEI) that summarizes its criteria pollutant emissions (particulate matter, carbon monoxide, nitrogen oxides, and sulfur dioxide), HAP emissions, and Greenhouse Gas (GHGs) emissions on the installation. Operations at the installation's borrow pits have not been shown to historically result in criteria pollutant emissions, other than negligible amounts of PM associated with excavation activities.

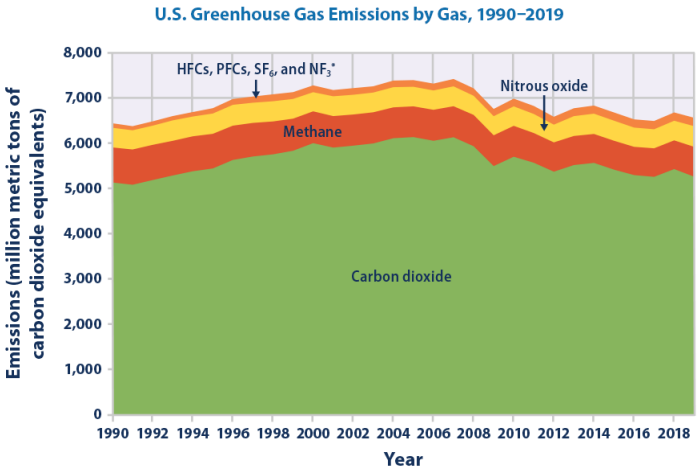
Greenhouse Gas Emissions. Both natural and human activities result in emissions of GHGs. As GHG emissions from human activities increase, they build up in the atmosphere and, as many of the major GHGs stay in the atmosphere for tens to hundreds of years after being released, their warming effects on the climate may persist over time (see Section 3.4.2, Climate Change/Extreme Weather, for additional discussion). To combat these potential impacts to air quality and address climate change, federal agencies are working to reduce their GHG emissions, as set forth in EO 13845, *Efficient Federal Operations* (2018). The Environmental Protection Agency (EPA) GHG Reporting Program collects GHG data from large emission sources and suppliers of products that could emit GHGs. Reports generated in this program include a total of 41 source categories, accounting for 85-90% of U.S. GHG emissions (EPA, 2022). Their annual "Inventory of U.S. GHG Emissions and Sinks" tracks total national emissions of GHGs since 1990.

The installation quantifies its emissions of GHGs (Appendix E) as an addendum to the AEI (Seva, 2022). The 2021 GHG emissions are calculated as metric tons (MT) of carbon dioxide equivalent (CO_2e). Mobile sources are not included in the estimate, as discussed under CAA Permitting, nor are indirect sources of GHG emissions such as offsite energy production. The principal GHGs and their sources are listed below and graphically at Figure 10:

- Carbon Dioxide (CO_2): CO_2 enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees, and wood products, and also as a result of other chemical reactions (e.g., manufacture of cement). However, CO_2 is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of biological carbon sequestration.
- Methane (CH_4): Methane is emitted during the production, transport, and combustion of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- Nitrous Oxide (N_2O): Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste. Fluorinated Gases: Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone (O_3)-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as High Global Warming Potential gases.

Carbon Dioxide is emitted during forest fires and FSGA/HAAF has an active prescribed burn program; however, the forests on the installation serve as a natural reservoir, or carbon sink, for GHGs and more CO_2 is absorbed during forest fires than is emitted due to carbon sequestration. Carbon sinks may be biological, geological, or technological. Geological carbon sequestration is the process of storing carbon dioxide in underground geologic formations, or rocks. Scientists are also exploring utilizing machinery to directly capture CO2 from the air (direct capture) (U.C. Davis, 2022). As FSGA/HAAF does not utilize either of these practices they are not discussed further in this document. During biological carbon sequestration, CO_2 is stored in aboveground and belowground vegetation, woody debris, and soil, as well as the ocean (GFC, 2022) and not released into the atmosphere. Studies indicate approximately 25 percent of global carbon emissions are captured by plant-rich landscapes in this manner (U.C. Davis, 2022).

Figure 10: Greenhouse Gas Emissions.



* HFCs are hydrofluorocarbons, PFCs are perfluorocarbons, SF_6 is sulfur hexafluoride, and NF_3 is nitrogen trifluoride.

Data source: U.S. EPA (U.S. Environmental Protection Agency). 2021. Inventory of U.S. greenhouse gas emissions and sinks: 1990–2019. EPA 430-R-21-005. www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks.

For more information, visit U.S. EPA's "Climate Change Indicators in the United States" at www.epa.gov/climate-indicators.

3.4.1.2 ENVIRONMENTAL CONSEQUENCES

3.4.1.2.1 ALTERNATIVE I: NO ACTION

PSD. No impacts associated with PSD are anticipated under the No Action Alternative, as no construction of new major stationary sources and no major modifications to existing sources on FSGA/HAAF is proposed. Routine, day-to-day actions that support the installation's mission (as identified in Section 2.3) will occur, none of which are anticipated to result in emissions capable of impacting Air Quality at nearby Class I Sites such as Wolf Island National Refuge.

CAA Permitting. No impacts are anticipated under the No Action Alternative. Routine, day-to-day actions that support the installation's mission (as identified in Section 2.3) and that will rely on fill dirt from existing borrow pits will continue, some of which result in air emissions on the installation. All occur in compliance with the installation's existing CAA Title V Permits and none are anticipated to require modification to the existing Title V Permit. Sources of emissions associated with these actions are short-term and direct, associated with fixed and defined activities and/or facilities, and are managed by installation personnel familiar with established practices and protocols. The installation is located within an attainment area and ensures all data associated with its actions and activities is tracked, managed, and reported to the installation Air Quality Program Manager for permit management and reporting requirements. There are no air permits associated with the existing borrow pits on the installation and no impacts to Air Quality are anticipated at those locations.

NAAQs and GHGs. Operation and maintenance of the existing borrow pits and routine operations that rely on fill dirt from these resources are anticipated to contribute to long-term, direct, negligible, adverse impacts to Air Quality. Routine, day-to-day actions will continue, including training activities on installation range and training lands and activities at permitted locations. The FSGA permitted emissions sources include boilers, emergency generators, pumps, and landfills (Table 2). Other sources of GHG emissions such as purchased electricity usage, emissions from mobile sources/vehicles, and process/fugitive sources are not included, as they are not reported under the United States Environmental Protection Agency (USEPA) Mandatory Reporting Rule (MRR). The highest level/source of emissions are due to the combustion of wood at the CEP, followed by emissions from the landfills, emergency diesel generators and fuel oil boilers (Appendix E, full report).

As shown on Table 3, HAAF emission sources consist almost exclusively of boilers, emergency generators and pumps. There are no open landfills on HAAF, and no emissions are associated with that source. As with FSGA, other sources of GHG emissions such as purchased electricity usage, emissions from mobile sources/vehicles, and process/fugitive sources are not tracked, for the same reason. HAAF does not exceed the 25,000 MTs of CO_2e per year, is not identified as a major source, and the installation is not required to report the GHG emissions to the EPA; however, HAAF is occasionally required to report GHGs as part of DoD and Army data calls and maintains this information accordingly.

GHG emissions are not associated with operations of borrow pits. Although they are associated with vehicles transporting these materials to a designated user (i.e., the haul route), these mobile sources are not accounted for in the installation's AEI or GHG accounting process, as previously discussed. Routine actions on the installation all undergo individual project-level review (from concept through each iteration of design) and the installation Air Program Manager determines which specific requirements apply to each action, to include required data tracking and associated air permitting, as/if applicable.

Table 2: FSGA 2021 GHG Emissions Estimate Summary.

Source Category	Type of Fuel	Fuel Used for CY 2021	GHG Emissions CO2e (MT)
External Combustion Units	Wood	0 short tons	0.00
	Natural Gas	718,456,547 cubic feet	39,152.85
	No.2 Fuel Oil	3,099 gallons	31.73
	LPG	57,811 gallons	329.56
Landfills	N/A	N/A	33,141.58
Internal Combustion Engines (emergency)	Diese l	42,298 gallons	433.20
Total CO2e (minus exempt Emergency Diesel Generators)			72,655.73
Total CO2e (including exempt Emergency Diesel Generators)			73,088.92

Table 3: HAAF 2021 GHG Emissions Summary.

Source Category	Type of Fuel	Fuel Used for CY 2020	GHG Emissions CO_2e (MT)
External Combustion Units	Natural Gas	81,794,700 cubic feet	4,457.47
	No.2 Fuel Oil	0 gallons	0
	LPG	0 gallons	0
Internal Combustion Engines (emergency)	Diesel	2,642 gallons	26.97
Engine Testing	Jet A	6,564 gallons	67.22
Total CO_2e (minus exempt Emergency Diesel Generators)			4,484.44
Total CO_2e (including exempt Emergency Diesel Generators)			4,551.66

GHGs are biologically sequestered by the installation's forest and soils and do not persist in the environment (see calculations below). Approximately 240,000 acres on FSGA and 5,000 acres on HAAF are forested, providing a valuable biological sink for CO_2 emissions on the installation. This acreage is actively managed and maintained, as discussed further in Section 3.4.3.4, Vegetation. FSGA/HAAF has not conducted a site-specific analysis for the rate of carbon sequestration associated with its forest; however, using the EPA GHG Equivalencies Calculator (2022) it is estimated that 0.84 MT CO2e is sequestered annually by one acre of an average forest.

Accordingly, for the approximately 240,000 forested acres of FSGA (240,000 acres x 0.84 MT CO_2e/acre/year), approximately 201,600 MT CO_2e is sequestered per year. Subtracting the GHG emissions from 2021 from this amount indicates that FSGA is sequestering more carbon than it is releasing into the atmosphere, as calculated below.

201,600- 73,088.92= 128,511.08 MT CO_2e sequestered per year at FSGA

Likewise, for HAAF, for the approximately 5,000 forested acres of HAAF (5,000 acres x 0.84 MT CO2e/acre/year), approximately 4,200 MT CO2e is sequestered per year. Subtracting the GHG emissions from 2021 from the carbon sequestered indicates that HAAF is sequestering more CO_{2e} than it is releasing into the atmosphere, as calculated below.

4,551.66 – 4200 = 351.66 MT CO_2e sequestered per year at HAAF

Borrow pit operations, and the prescribed fire program on post, can also result in the deposition of PM, but these impacts were determined to be localized, with the PM settling out of the air rapidly, and not leaving the installation boundary. Overall, long-term, direct, negligible, adverse impacts to Air Quality are anticipated as criteria pollutants and PM are released into the environment; impacts are no more than negligible, as the forested lands on post provide a carbon sink that absorbs more emissions than are released and PM remains localized to the installation.

3.4.1.2.2 ALTERNATIVE II: IMPLEMENT BPMP AND ID TEAM RECOMMENDATIONS

PSD: No impacts associated with PSD are anticipated, as discussed under Alternative I.

CAA Permitting. Excavation of new borrow pits and expansion of existing borrow pits will not require the installation to modify its Title V Permit, as no emissions are associated with any phase of their excavation or operations. Routine activities on the installation will continue, as discussed under Alternative I, for which no impacts were anticipated. The installation is located within an attainment area and ensures all data associated with its actions and activities is tracked, managed, and reported to the installation Air Quality Program Manager for permit management and reporting requirements. Accordingly, no impacts to Air Quality are anticipated.

NAAQS and GHGs. The installation will implement the BPMP under this alternative. Short-term, direct, minor, adverse impacts are anticipated to Air Quality due to GHGs, as discussed under Alternative I; however, there would be 150 acres less vegetation due to excavation of the 14 new borrow pits and the expansion of the 36 existing borrow pits. Even subtracting the 150 acres from the forested lands, FSGA is still sequestering more CO_{2e} than it is releasing into the atmosphere under this alternative (239,850 acres x 0.84 MT CO_2e/acre/year = 201,474 MT CO_2e).

201,474- 73,088.92 (2021 CO2e emissions) = 128,385.08 MT CO2e sequestered per year at FSGA

No new or expanded borrow pits are proposed for HAAF so no change is anticipated at that location and HAAF is still sequestering 351.66 MT CO_2e per year. Routine actions will continue, as discussed under Alternative I, which are already factored into the equations above. As under Alternative I, borrow pit operations, and the prescribed fire program on post, can result in the deposition of PM, but these impacts remain localized. Under this alternative, there are long-term, direct, minor, adverse impacts to Air Quality in the Study Area as PM may be released into the environment by the haul route and excavation activities associated with the creation of the 14 new borrow pits and the expansion of the 36 existing borrow pits. However, as with Alternative I, these impacts are minimized to a level no more than minor because the forested lands on-Post provide a carbon sink that absorbs more GHGs than are emitted and PM remains localized to the installation.

3.4.1.3 CUMULATIVE IMPACTS

The ROI for Air Quality lies within FSGA and HAAF and the lands immediately adjacent, as shown in Figures 8a, 8b, and 9. Past, present, and reasonably foreseeable future events with the potential to result in cumulative impacts to Air Quality are discussed in the analysis below.

3.4.1.3.1 ALTERNATIVE I: NO ACTION

Past actions in the ROI consist of the historical development of the communities of Hinesville and FSGA, Savannah and HAAF, and the associated infrastructure and transportation network that supports them, all of which required substantial amounts of earth-moving and fill materials to be properly established. This included periodic iterations of timber harvest, site clearing/grading/stabilization, and construction, as well as the emissions and PM associated with the operations and activities that accompanied this development. Present actions in the ROI that rely on fill dirt from the on-Post borrow pits are commensurate with these past actions, as discussed under the assessment of direct and indirect impacts. No more than negligible, adverse impacts to Air Quality are anticipated from these present actions, as the forested lands on post provide a carbon sink that absorbs more emissions than are released and PM remains localized to the installation.

Reasonably foreseeable future actions (RFFAs) in the ROI that will rely on fill material from on-Post borrow pits include potential implementation of the MDTF and/or the ERCA units on FSGA, which may add 500 plus Soldiers, their Families (per action), and associated support activities within the ROI. Construction of facilities to support these units is required, resulting in approximately 25 acres of additional ground disturbance on FSGA and the associated site clearance, grading, site stabilization, and increase in criteria pollutants and GHG emissions in the ROI. There will also be an increase in training-related activities on the range and training lands on FSGA to ensure the units' mission essential requirements are met. Similar construction impacts are anticipated from the construction of the CLFR and Scout/RECCE Range on FSGA and the 3/160th Complex on HAAF, which will require an anticipated 30 acres on FSGA and 20 acres of ground disturbance on HAAF and similar potential impacts to the MDTF/ERCA. Fill materials from the on-Post borrow pits would be required to support these new construction project, although estimates are not known prior to the design process. As discussed earlier, there are only 74 existing borrow pits on the installation and many are nearing the end of their useful life. Therefore, if suitable types and quantities of fill are not available on-Post, they will be sought and priced from off-Post locations within the ROI. If there are not enough housing units on the cantonment area to support the MDTF/ERCA and/or their Families, there may be a commensurate amount of construction in Hinesville to ensure their support, resulting in additional borrow pit requirements from existing sources in that portion of the ROI.

The FSGA/HAAF sequesters more CO_{2e} than it releases into the atmosphere and carbon sequestration is also occurring on a large scale on the forested lands within the off-Post portion of the ROI, as well. As shown on Figure 9, Regional Future Development Map, there is a strong regional focus on preserving and protecting the environmentally sensitive areas surrounding the installation, such as the forests that are shaded green on this map (CRC, 2017). In addition, a 2019 study by the U.S. Forest Service estimates that more than 1.5 billion MT of CO_{2e} is sequestered each year on Georgia timberlands (GFC, 2022), providing a valuable carbon sink both within the ROI and on its neighboring lands to offset potential emissions. The FSGA/HAAF's robust ACUB program works to ensure neighboring off-Post land uses remain compatible to maintaining an environment conducive to the management of a healthy forest; this, in turn, promotes a valuable carbon sink within the ROI.

Accordingly, despite the great potential for construction and ground disturbance in the ROI, no more than minor adverse cumulative impacts to Air Quality are anticipated because it is not a statistically significant amount of acreage compared to the total forested acreage on post and off post. The FSGA/HAAF and the surrounding off post forested lands sequester more CO_{2e} than is emitted into the atmosphere, due to the carbon sink provided by the forested lands within the ROI, and no more than minor adverse cumulative impacts are anticipated. In addition, existing protocols and BMPs ensure that disturbed areas are stabilized and revegetated as much as possible at the conclusion of work, per existing state and federal laws and installation Standard Operating Procedures (SOPs). No cumulative impacts are anticipated to PSD and CAA Permitting as no direct impacts are anticipated.

3.4.1.3.2 ALTERNATIVE II: IMPLEMENT BPMP AND ID TEAM RECOMMENDATIONS

Overall, minor adverse cumulative impacts to Air Quality are anticipated under this alternative, primarily as discussed under Alternative I. This alternative will include the excavation of 14 new borrow pits and the expansion of 36 existing borrow pits, resulting in approximately 150 acres of ground disturbance, as well as the 55 acres on FSGA and 20 acres on HAAF discussed under Alternative I. However, this is still not statistically significant when considering the overall forested

acreage in the ROI and the carbon sequestration in the ROI. No cumulative impacts are anticipated to PSD and CAA Permitting, as no direct impacts are anticipated. Overall, this indicates that this alternative results in minor adverse cumulative impacts to Air Quality.

3.4.2 CLIMATE CHANGE AND EXTREME WEATHER

3.4.2.1 AFFECTED ENVIRONMENT

Climate is defined as the long-term (30-year) average seasonal weather conditions typical of a given location, while *weather* refers to the day-to-day conditions at that location. Climate may additionally define the average and extreme weather conditions a person might reasonably expect to occur at a given location (Pinson et al, 2020). As discussed under Air Quality, Section 3.4.1, studies indicate that the Earth's climate has warmed over the past century due to increased emissions of GHGs, and that human activities are likely an important contributing factor to that warming trend. When energy from the sun reaches the Earth, the planet absorbs some of this energy and radiates the rest back to space as heat; the Earth's surface temperature depends on this balance between incoming and outgoing energy.

Changes in climate are measured by the amount of warming or cooling they can produce, which is called "radiative forcing", and this is influenced by the amount of GHGs in the atmosphere (Figure 10). Changes that have a warming effect are called "positive" forcing, while changes that have a cooling effect are called "negative" forcing. Conditions tend to remain stable, or balanced, unless the Earth experiences a force that shifts the energy balance, causing the Earth's average temperature to become warmer or cooler, and leading to correlating changes in the lower atmosphere, on land, and in the oceans. An increase in temperature of as little as 1.6° Fahrenheit (F) results in the atmosphere being able to hold 7% more moisture, which has been shown to allow for the development of more extreme storms (Pinson et al, 2020).

This change in the climate can impact the environment in a variety of ways. It can impact the integrity of a structure by exposing it to a greater risk of floods, storm surges, or higher temperatures; it can also increase the vulnerability of a specific resource (such as wetlands) and result in impacts that are more damaging to that resource than it has experienced before. For example, rising temperatures may result in associated increases in temperatures in a stream sufficient to kill species who live in that stream, also adversely impacting species who depend on those aquatic species as a food source. The majority of these climate hazards are not new, but climate change alters the frequency, intensity, and location of the hazards, contributing to vulnerability and compounding risks. Additionally, when climate change intersects with other forms of environmental degradation, such as deforestation and erosion, the impact can be magnified.

Army installations have suffered billions of dollars in damage due to extreme weather events, including back-to-back hurricanes at FSGA/HAAF in 2016 and 2017. In the past 20 years, the eight southeastern coastal and Gulf Coast states experienced 28 named hurricanes, 16 of which were Category 2 or higher in strength (SMN, 2022). These extreme weather events can impact installation infrastructure, training, and readiness. Accordingly, climate change and extreme weather (CC/EW) have been identified by the Army and DoD as a critical national security threat and threat multiplier (Pinson et al, 2020). In accordance with Army Directive 2020-08, *U.S. Army Policy to Address Threats Caused by Changing Climate and Extreme Weather* (2020), DoD Directive 4715.21, *Climate Change Adaptation and Resilience* (2016). Army installations account for CC/EW in all future facility and infrastructure-related plans, policies, and procedures, including the master planning and facilities engineering processes, Integrated Natural Resources

Management Plans (INRMPs), Integrated Cultural Resources Management Plans (ICRMPs), Installation Energy and Water Plans (IEWPs), emergency management plans, and others, as applicable. Climate change and adaptation were also identified as requirements in the 2017 update of DoD UFC 1-200-02, *High Performance and Sustainable Building Requirements* (2020).

The U.S. Army published the Army Climate Resilience Handbook (ACRH) to aid installation planners in assessing climate resilience (Pinson et al, 2020). An integral part of the process is the on-line DoD Climate Assessment Tool (DCAT), which contains information on individual installations that planners can use to determine current extreme weather and climate change effects, infrastructure, and assets that are vulnerable to these effects, and adaptation measures that can be used to increase an installation's climate resilience. Utilization of the DCAT will help identify the future vulnerability of installations from climate change, based on authoritative national data sets on the following: heat impacts, drought, wildfire, energy demand for heating and cooling, land degradation (soil loss, permafrost thaw, coastal erosion), riverine flooding, coastal flooding, historic extremes. Installation planners and resource area specialists can use these tools and their associated data as a screening tool to analyze their installation's vulnerability to each risk.

Weather observation in the Savannah area began in the early 1700s, including local resident Johann Bolzius, who kept a weather diary in the region from 1734-1756 (NWS, 2022). In the 1800s, the Smithsonian Institution recruited upwards of 600 local weather observers across the country to provide local and regional weather data, including several in Savannah, the records of which are contained in the Smithsonian's archives. These efforts were interrupted by the outbreak of the Civil War but resumed following the installation of a weather observing site in a commercial building at the corner of Bay and Drayton Streets in Savannah by the U.S. Army Signal Corps in December of 1870. The U.S. Congress transferred the meteorological duties of the Signal Corps to the newly created U.S. Weather Bureau in 1890; however, weather tracking and record-keeping activities continued at the location in Savannah. These actions would shift to various locations over the next several decades, including facilities at the Savannah Post Office, HAAF, and the Savannah International Airfield. On April 1, 1996, an Automated Surface Observing System (ASOS) was commissioned at the Savannah International Airport, with instruments to report temperature, dew point, sky condition, visibility, present weather, wind speed and direction, pressure, and precipitation accumulation. Due to Modernization and Associated Restructuring, the Weather Service Office associated with the ASOS in Savannah was closed in April 1996 and the Weather Forecast Office (WFO) in Charleston, SC took over warning and forecast responsibilities for Savannah and the surrounding area; however, the ASOS remains functional and provides valuable data to the National Weather Service – Climate Prediction Center (NWS-CPC) in Charleston, SC., located 90 miles to the north of HAAF and 117 miles to the north of FSGA (NWS, 2022). This NWS-CPC assesses past and current weather trends to aid in future impacts identification and the development of minimization measures for the region.

The FSGA/HAAF historically has a mild, subtropical climate, typified by warm, humid summers and short, mild winters. Yearly rainfall averages 50 inches, half of which falls during the thunderstorm season of June through September. The wettest month is July (normal rainfall 7.6 inches), and the driest is November (1.7 inches). Wind speeds in the region rarely exceed five knots, except during hurricanes or tropical storms, which generally occur between September and November. Using the DCAT, FSGA/HAAF planners determined that FSGA/HAAF is at greatest risk for drought (and by association, wildfire), riverine flooding, and coastal flooding. See Appendix F for full discussion of these risk factors on FSGA/HAAF.

Operation and maintenance of the existing borrow pits and routine actions on the installation that rely on fill dirt from these resources are not anticipated to substantially contribute to CC/EW as

they occur over a relatively short timeframe (less than 30 years); however, a discussion is provided in this section and discussed in as much detail as possible.

3.4.2.2 ENVIRONMENTAL CONSEQUENCES

3.4.2.2.1 ALTERNATIVE I: NO ACTION

Drought. Under this alternative, operation, and maintenance of the existing borrow pits and routine operations that rely on fill dirt from these resources will continue, which are not anticipated to contribute to drought in the Study Area. Excavations associated with use of the borrow pits do not reach the depth of the Floridan aquifer, and the installation utilizes many water-saving minimization measures to conserve water resources, as discussed further in the Water Resources Section of this PEA. These actions reduce the demand on the Floridan aquifer and minimize potential impacts associated with drought. Overall, no impacts are anticipated under this alternative.

Wildfire. Operation and maintenance of the existing borrow pits and routine operations that rely on fill dirt from these resources have the potential to contribute to short-term, direct, negligible, adverse impacts to wildfires in the Study Area. Fire behavior on FSGA was evaluated by simulating 36,000 wildfires using FARSITE 5, the Fire Area Simulator, one of the primary programs used by the U.S. Forest Service, National Park Service, and other wildland fire fighting agencies to assess fire spread potential. Each of the 36,000 wildfires simulated was allowed to spread for 24 hours. The analysis determined that the high level of fuels management occurring under the prescribed burn program on FSGA, combined with relatively mild fire-weather conditions, is effectively mitigating much of the potential fire risk at FSGA, ensuring impacts remain negligible and short-term.

The simulation also showed that wildfires were unlikely to spread off post due to the relatively small size of many of the wildfires, unless they are ignited near the installation boundary. The highest expected number of fires crossing the boundary was 0.325 fires per year, or about three per decade. The probability of a fire burning onto the installation from an off post location was much less likely, due to the lack of ignitions off-installation relative to on-installation. The highest expected fire frequency for fires crossing onto Fort Stewart was 0.09, or roughly a fire once every ten years. The highest risks found in the assessment were related to range infrastructure, not surprising given the lack of fire spread elsewhere and the location of these resources within the highest fire likelihood locales, in the range and training lands. The targets and wooden buildings on these locations were at the highest risk, and the Ammunition Supply Points (ASPs) were of similar risk. However, many of these buildings are sited within or near gravel and mowed lawns, which will not carry fire and are highly unlikely to produce a fire that could be considered threatening.

The FSGA/HAAF Forestry Branch conducts more than 200 intentional burns per year, which treat fuels on one-third to one-half of the fuels on the installation annually. Minimization measures utilized by the installation, such as the current prescribed burn program, have been shown to successfully reduce the amount of fuel (i.e., debris) available to result in wildfires. In addition, the installation has a well-regulated system of firebreaks, which aid in minimizing the severity of wildfires, as they cannot easily jump from one location to the next, including minimizing the potential for wildfires to jump from FSGA to an off-Post location. The prescribed fire program also provides the additional benefit of reinforcing the extensive network of maintained roads and firebreaks on the installation, further reinforced by the natural compartmentalization on the installation that is provided by its on-Post wetlands and rivers.

Where high intensity wildfire was observed, most were in locations where prescribed fire is not applied at all or is applied infrequently, such as in the installation's cantonment areas. This essentially represents the effect of the prescribed burn program on fire intensity. In those areas that cannot be prescribed burned or are burned infrequently due to smoke impacts, such as the FSGA cantonment area, the Forestry Branch has developed the Cantonment Area Wildfire Protection Plan (CAWPP). The CAWPP uses various strategies such as timber thinning, mulching/mowing, harrowed firebreaks, and chemical treatments to maintain fuel (debris) at low levels which allows any potential wildfire to be quickly suppressed. These areas around the cantonment area are maintained on a three-year cycle similar to the traditional prescribed burning rotation, except these alternate techniques are used to keep fuel levels reduced. Some infrequent prescribed burning may occur in areas that historically were not prescribed burned once the fuel composition is changed where smoke would not negatively affect the cantonment area or the City of Hinesville.

Historical records from the WRA (2019) identified only one wildfire in the past 30 years that required full suppression efforts by the FSGA/HAAF Fire Department. This 3-acre wildfire fire occurred on HAAF in 2021 and was started by children playing in the woods. It was successfully extinguished, and the area affected regenerated quickly. Consequently, overall impacts associated with wildfires on FSGA and HAAF are anticipated to be likewise short-term and negligible, due to the fact that the wildfires (simulated and actual) burn out quickly and the forest regenerates rapidly following the burn.

The installation's existing borrow pits are incorporated into the existing prescribed fire regime and this ensures their current operations are well maintained and not adversely impacted by wildfires. In the HAAF area, no prescribed burns are occurring, but incidents of wildfires are reduced by maintaining a closed canopy hardwood forest. The closed canopy blocks sunlight from reaching the forest floor which allows the hardwood leaf litter to maintain a higher fuel moisture content. When this factor is combined with high RH values typically found in southeast Georgia and under closed canopy forests, the probability of a wildfire ignition on HAAF is substantially reduced. The installation subject matter experts also provide valuable training to others on and off the installation regarding how to prevent wildfires and this is vital to reducing this potential hazard in the environment. These proactive actions and minimization measures by installation personnel are consistently utilized, enabling mission requirements to be met and minimal contributions to drought in the Study Area. Overall, no more than short-term, direct, adverse impacts to wildfire potential in the Study Area are anticipated under this alternative.

Riverine and Coastal Flooding. Operation and maintenance of the existing borrow pits and routine operations that rely on fill dirt from these resources have the potential to contribute to long-term, direct, minor, adverse impacts to riverine and coastal flooding in the Study Area. Impacts are long-term and minor because the installation enacts minimization measures and proactive actions on a consistent basis; however, the installation has a substantial number of streams, wetlands, and floodplains and the potential for flooding and storm surges that are associated with those resources (Figures 11-14) remains.

Flooding can lead to power outages, and water systems are heavily dependent on power for the supply, distribution, and treatment of drinking water and for the pumping of wastewater, and this is of special importance for the installation's critical facilities (FSGA/HAAF, 2021). Loss of power during storms can result in mandatory building closures in two hours or less, sewer backups or overflows in buildings due to inoperable lift stations, and immediate mandatory building closures as a result of unsanitary and unsafe working conditions, often regardless of building criticality (FSGA/HAAF, 2021). Flooding also occurs within the ranges and training areas, which is a

specific issue of concern on unimproved trails that can become unusable when flooded. This restricts use of the ranges and training areas until the storms cease, trail surfaces dry, and any associated damage to the trails is fixed by components of the FSGA/HAAF Range Division. New construction is sited out of wetlands and floodplains, to the greatest extent possible, to avoid these issues proactively during the siting process. Due to the prevalence of these resources on the installation, total avoidance is not always possible. To minimize potential impacts, both to the sensitive resources and to minimize potential flooding concerns, all construction within these resources must meet federal Clean Water Act (CWA) requirements, as discussed under Section 3.4.5, Water Quality. This includes elevating construction above the floodplain, in accordance with EO 11988, *Floodplain Management* and EO 11990 *Protection of Wetlands* (see Section 3.4.5 for full discussion).

Impacts from storm events have the potential to result in an increased need for borrow pit materials to help facilitate repairs; however, the availability of these materials themselves may be hampered by damage to the transportation infrastructure, as well as to the borrow pits themselves if storm damage deposits trees and brushes into the pits sufficient to hamper their use. Borrow pit requirements for routine operations such as roads, grounds repair, and maintenance, are likewise to be hampered by interruption of these haul routes. Groundwater levels are naturally high on FSGA/HAAF, and pumping is a normal part of operations; however, flooding events at the existing borrow pits can exacerbate these conditions and require additional pumping requirements to continue use of these resources. Training is periodically impacted, as roads on the installation become flooded and impassable, limiting access to the requested ranges and training areas.

Planning is key when preparing for sea level rise Marine Extension and Georgia Sea Grant (MEGSG, 2022). This can help describe and establish potential situations to help organizations and communities recognize and adapt to changes over time. Through implementation of these plans, effects of sea level rise may be reduced as community members are better prepared to handle the impact of rising seas. Minimization measures include ensuring proper maintenance of stormwater drainage structures and retention/detention ponds, thus ensuring a structured flow of flood waters away from critical portions of the installation; incorporating permeable pavement where suitable to improve stormwater management; diverting new construction outside of wetlands and the 100-year floodplain; and others as identified in the FSGA/HAAF IEWP. The FSGA/HAAF has made identifying its Critical Facilities List a priority, ensuring they have adequate sources of power in the event of an emergency. As discussed under Drought, the FSGA/HAAF IEWP provides a roadmap for supporting increased energy resilience, readiness, and mission assurance and the 2021 FSGA/HAAF IEWP has identified many measures under consideration include designing future facilities to withstand CC/EW conditions. Overall, no more than long-term, direct, minor, adverse impacts to riverine and coastal flooding are anticipated in the Study Area.

3.4.2.2.2 ALTERNATIVE II: IMPLEMENT BPMP AND ID TEAM RECOMMENDATIONS

Drought. Under this alternative, no impacts are anticipated, as discussed under Alternative I.

Wildfire. Excavation of new borrow pits and the expansion of existing borrow pits is anticipated to contribute to short-term, direct, negligible, adverse impacts to wildfire in the Study Area. Excavation of the new borrow pits and expansion of the existing borrow pits will disrupt existing forested tracts of land, contributing to the compartmentalization of the areas in which this activity is planned, which helps minimize the potential for wildfire to jump from one compartment to another. Impacts are determined to be short-term due to the fact that the wildfires (simulated and

historically) burn out quickly and the forest regenerates rapidly following the burn. The prescribed burn program reduces fuel loads throughout much of the installation, which results in low probabilities of high intensity wildfire. Those locations where high intensity wildfires were observed is still mostly in locations where prescribed fire is not applied at all or is applied infrequently, such as the cantonment areas.

Minimization measures utilized by the installation, such as the current prescribed burn program, have been shown to successfully reduce the amount of fuel available to result in wildfires, and include a well-regulated system of firebreaks. As discussed under Alternative I, the FSGA cantonment area is managed via the CAWPP to ensure minimization of potential impacts to adjacent communities (such as Hinesville). No prescribed burning is conducted at HAAF, but its canopy composition ensures low probabilities for wildfires at that location, as discussed earlier. The installation subject matter experts also provide valuable training to others on and off the installation regarding how to prevent wildfires and this is vital to reducing this potential hazard in the Study Area.

Riverine and Coastal Flooding. Excavation of new borrow pits and the expansion of existing borrow pits is anticipated to contribute to long-term, direct, minor, adverse impacts to riverine and coastal flooding in the Study Area, as discussed under Alternative I. Excavation of the new borrow pits will occur outside of wetlands, as the soil types typically found within wetlands are not compactable and not suitable as borrow materials. However, some of the borrow pits proposed for expansion are located in the vicinity of wetlands and many of the existing and proposed new borrow pits are located in floodplains due to past siting decisions. Accordingly, the potential for flooding at these sites is possible, and long-term direct impacts are therefore possible. As discussed under Alternative I, impacts persist until flood waters recede and repairs to facilities, grounds, and roads, and utilities, as needed, proceed. Under this alternative, the installation will close one borrow pit on FSGA and one borrow pit on HAAF; however, this is not anticipated to contribute to flooding on the installation, as it will be allowed to naturally attenuate into a pond. Minimization measures include installing proper stormwater drainage structures and retention/detention ponds and ensuring existing systems are properly maintained, thus ensuring a structured flow of flood waters away from critical portions of the installation; incorporating permeable pavement where suitable to improve stormwater management; diverting new construction outside of wetlands and the 100-year floodplain, and others as identified in the FSGA/HAAF IEWP (as discussed under Alternative 1).

3.4.2.3 CUMULATIVE IMPACTS

The ROI is the Savannah Beaufort Air Quality Control Region, which contains both FSGA and HAAF. Past, present, and reasonably foreseeable future events with the potential to result in cumulative impacts to CC/EW are discussed in the analysis below. Army planners utilized current and projected climate impacts to weather events in 2050 and 2085 through the ACRH and DCAT, and data sources included National Oceanic and Atmospheric Administration (NOAA), National Integrated Drought Information System (NIDIS), Federal Emergency Management Agency (FEMA), U.S. Geological Survey (USGS), and the Fourth National Climate Assessment (NCA4). The climate change impacts were analyzed in context of four scenarios, defined by a high or low emissions pathway and the time period of indicator data. While drought was determined to be the dominant impact on FSGA/HAAF, all impacts are considered when considering planning for the future (Appendix F).

3.4.2.3.1 ALTERNATIVE I: NO ACTION

Past actions in the ROI consist of the historical development of the communities of Hinesville and FSGA, Savannah and HAAF, and the associated infrastructure and transportation network that supports them, all of which required substantial amounts of earth-moving and fill materials to be properly established. This included periodic iterations of timber harvest, site clearing/grading/stabilization, and construction, as well as the operations and activities that accompanied this development. Present actions in the ROI that rely on fill dirt from the on-Post borrow pits are commensurate with these past actions, as discussed under the assessment of direct and indirect impacts.

As discussed previously, RFFA in the ROI that will rely on fill material from on-Post borrow pits include potential implementation of the MDTF and/or the ERCA stationing action on FSGA (resulting in approximately 25 acres of site clearance, grading, site stabilization), construction of the CLFR and Scout/RECCE Range on FSGA (resulting in approximately 30 acres of site clearance, grading, and site stabilization), and construction of the 3/160th Complex on HAAF (resulting in approximately 20 acres of site clearance, grading, site stabilization). Fill materials from the on-Post borrow pits would be required to support these new constructions project, although exact amounts are not known prior to the design process. The 74 existing borrow pits on the installation are nearing the end of their useful life and if suitable types and quantities of fill are not available on-Post, they will be sought from off-Post locations within the ROI, at considerable cost and effort to the mission. If there are not enough housing units on the installation cantonment area to support the MDTF/ERCA and/or their Families, there may be a commensurate amount of construction in Hinesville to ensure their support, resulting in additional borrow pit requirements from existing sources in that portion of the ROI.

The ACRH and associated DCAT use two planning scenarios, described as “higher” or “lower” depending on the projected accumulation of GHGs in the atmosphere by 2050 and 2080. The higher scenario reflects a greater accumulation of GHGs in the atmosphere, due to higher emissions levels resulting in higher temperatures. The lower scenario assumes a lower net accumulation of GHGs in the atmosphere, due to lower emissions rates and a less dramatic rise in temperatures. The rate at which GHGs accumulate in the atmosphere is directly related to the rate at which temperatures increase in the atmosphere and drive changes in climate. Accordingly, the higher scenario is a faster, bigger change scenario and the lower scenario is a slower, smaller change scenario. As discussed in Section 3.4.1, Air Quality, FSGA/HAAF and the surroundings lands in the ROI contain substantial forested acreage, that act as a carbon sink for GHGs and absorb more CO_{2e} than is released into the atmosphere in the ROI. None of the reasonably foreseeable future actions under analysis in this PEA represent a substantial reduction in the forested acreage within the ROI. Accordingly, a lower net accumulation of GHGs in the atmosphere is anticipated and the lower emissions rate is more realistic for the determination of potential cumulative impacts associated with CC/EW in 2050 and 2080.

Utilization of the DCAT determined FSGA and HAAF are at the greatest risk of Wildfire, followed by Drought and Riverine Flooding. The greatest contributing factor to wildfire is identified as fuel abundance; however, as discussed previously in this PEA, the installation minimizes potential fuel abundance (or fuel loads) and reduces the risk of wildfire on installation lands through its substantial prescribed burning and CAWPP programs. This in turn minimizes the risk of wildfires jumping across the installation boundary and onto off-Post lands within the overall ROI. Accordingly, installation minimization measures, combined with a low potential GHG emissions

scenario, are anticipated to reduce potential impacts associated with wildfire to be minor at most within the ROI.

Drought is the secondary CC/EW risk in the ROI and is closely associated with wildfire, as drought conditions can result in drying of fuel sources on the ground, increasing the risk of wildfire ignition. The substantial installation prescribed fire program minimizes this potential and drought conditions in the ROI were seasonally moderate in 2021-2022 and are anticipated to remain so through the end of the calendar year and into early 2023 (NIDIS, 2022). Drought conditions can stress groundwater supplies and local communities in the ROI utilize water management measures to conserve water during times of drought. Drought can also increase energy demands, as utilities must work harder to cool facilities during lengthier periods of heat, and energy resilience measures are of utmost importance in the plans developed by the various Metropolitan Planning Organizations (MPOs) within the ROI. For example, the City of Savannah passed a resolution in 2020 to ensure all electricity consumed in the city is generated by safe, clean, renewable energy by the year 2035 (The Current, 2022). Accordingly, minimization measures and regional planning efforts are anticipated to reduce potential impacts associated with drought and wildfire to be less than significant and minor at most.

The ROI contains substantial acreage of wetlands, streams, and floodplains. Sea levels at Fort Pulaski, located just outside of the City of Savannah, have risen over nine inches since 1935 (MEGSG, 2022) and scientists expect coastal Georgia to experience at least six inches of sea level rise within the next 50 years as a result of the changing climate. Much of Georgia's shoreline lies just a few feet above sea level, putting barrier islands and coastal communities, such as Savannah and HAAF, at risk for more frequent flooding, intensified storm surges, and saltwater intrusion into low-lying areas. University of Georgia MEGSG are responding to this long-term hazard by working with coastal governments such as those in the ROI to assess their communities' vulnerabilities, assist long-term planning efforts and offer training based on the latest science. The FSGA/HAAF actively participates in the metropolitan planning organizations in the ROI and provides input into these planning efforts. Energy resilience is considered when planning and developing infrastructure projects. Accordingly, minimization measures and regional planning efforts are anticipated to reduce potential impacts associated with riverine and coastal flooding to be less than significant and minor at most.

3.4.2.3.2 ALTERNATIVE II: IMPLEMENT BPMP AND ID TEAM RECOMMENDATIONS

Past, present, and future actions in the ROI are as discussed under Alternative I, except this alternative will include implementation of the BPMP. This will result in approximately 150 acres of additional tree clearance and ground disturbance, but it is not anticipated to result in a substantial difference in cumulative impacts associated with CC/EW in the ROI, as this is not a significant reduction in a forest of 280,000 total acres, even combined with the reduction anticipated from actions anticipated in the overall ROI (75 acres), totaling less than 1% of vegetation reduction in the ROI.

The installation will continue to work toward implementing its proposed resilience measures as identified in the FSGA/HAAF IEWP. Measures under consideration include designing future facilities to withstand extreme weather conditions such as hurricanes or tornadoes; installing lightning protection systems to protect against surge or other damage at many locations on the installation; utilizing low impact development (LID) strategies for roadways and buildings to channel stormwater; installing electric vehicle charging stations to comply with DoD requirements; utilizing utility and cybersecurity redundancy in mission critical facilities (where possible) to mitigate for surges and losses in storm situations; enhancing natural gas regeneration and water

reuse systems to withstand utility outages; and protecting mission activities and wildlife by having a robust fence line. Through these measures, no more than minor cumulative adverse impacts to CC/EW under this alternative.

3.4.3 BIOLOGICAL RESOURCES

3.4.3.1 AFFECTED ENVIRONMENT

Biological resources include native and nonnative plants and animals and the habitats in which they occur. Habitat is defined as the area of environment where the resources and conditions are present that cause or allow a plant or animal to live there. Management of wildlife and wildlife habitat is conducted in accordance with the provisions of the FSGA/HAAF INRMP (FSGA, 2005; *update in progress*), providing a comprehensive overview of the status of biological resources throughout the installation. For purposes of this PEA, discussions of resources that would be affected by implementation of the proposed action at FSGA are provided below. Unless otherwise indicated, information in this section is taken from the FSGA/HAAF INRMP, Urban Tree Management Policy and Urban Tree Management Guide (FSGA/HAAF, 2018a, 2018b), and/or the FSGA/HAAF Integrated Pest Management Plan (IPMP). The ROI for Biological Resources lies within and immediately adjacent to the physical boundaries of FSGA and HAAF.

The U.S. Fish and Wildlife Service (USFWS), provides technical advice to the installation for the management of its natural resources, particularly endangered species, in accordance with Army Regulation (AR) 200-3 and the Sikes Act, and the USFWS is a signatory cooperator in the implementation of the FSGA/HAAF INRMP. The GA Department of Natural Resources (DNR)-Wildlife Resources Division is the primary support division within DNR for implementation of the FSGA INRMP.

3.4.3.1.1 PROTECTED SPECIES

Protected species include those that are federally listed, or proposed for listing, as threatened, or endangered under the Endangered Species Act (ESA, 16 USC Part 1531-1544) by the USFWS. Management and protection of listed species is given priority in natural resource management. In cases where endangered species management, in accordance with the appropriate guidance, would conflict with other mission activities, consultation with the USFWS will be initiated to avoid jeopardizing any listed species or its critical habitat. Formal consultation with the USFWS is coordinated between the FSGA Fish and Wildlife Branch (FWB) and the FSGA Staff Judge Advocate (SJA), as are all proposals to enter into formal consultation or seek an exemption.

There are ten (10) federally listed species known to historically occur in the Study Area of FSGA and HAAF (Table 4); the wood stork (*Mycteria americana*), red-cockaded woodpecker (RCW) (*Dryobates borealis*), eastern indigo snake (*Drymarchon couperi*), gopher tortoise, frosted flatwoods salamander (FFSGA) (*Ambystoma cingulatum*), shortnose sturgeon (*Acipenser brevirostrum*), atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), and smooth coneflower (*Echinacea laevigata*). The installation has prepared Endangered Species Management Plans (ESMPs) for these species, which are reviewed by the USFWS and the National Marine Fisheries Service (NMFS) and FSGA/HAAF consults for potential impacts to these species on the installation. See Appendix G for full discussion of these species.

Table 4: Protected Species on Fort Stewart, Georgia.

Species	Common Name	Federal Status	State (GA) Status
Birds			
Mycteria americana	Wood Stork	Threatened (T)	T
Dryobates borealis	Red-cockaded Woodpecker	Endangered (E)	E
Laterallus jamaicensis jamaicensis	Eastern Black Rail	T	E
Haliaeetus leucocephalus	Bald Eagle	Protected	P
Reptiles			
Drymarchon couperi	Eastern Indigo Snake	T	T
Gophers polyphemus	Gopher Tortoise	NA	T
Amphibian			
Ambystoma cingulatum	Frosted Flatwoods Salamander	T	R
Fish			
Acipenser brevirostrum	Shortnose Sturgeon	E	E
Acipenser oxyrinchus oxyrinchus	Atlantic Sturgeon	E	E
Plant			
Echinacea laevigata	Smooth Coneflower	T	T
Mammal			
Trichechus manatus	West Indian Manatee	T	T

3.4.3.1.2 WILDLIFE AND MIGRATORY BIRDS

The FSGA/HAAF supports at least 410 invertebrate, fish, and wildlife species. This includes white-tailed deer (*Odocoileus virginianus*), feral hog (*Sus scrofa*), fox (*Vulpes* and *Urocyon* spp.), bobcat

(*Lynx rufus*), rabbit (*Sylvilagus* spp.), squirrel (*Sciurus* spp.), and other small mammals, in addition to a diverse assemblage of game birds such as eastern wild turkey (*Meleagris gallopavo silvestris*) and northern bobwhite quail (*Colinus virginianus*). Hunting and fishing are permitted on the installation, in accordance with FSGA Regulation 420-4, *Hunting Fishing and Recreational Use*, and fishing is authorized all year round. There are also approximately 170 species of birds protected under the Migratory Bird Treaty Act (MBTA) (1918) that are known to occur on the installation, either seasonally or year-round, and the installation complies with the MBTA by implementing Army Policy Guidance (17 August 2001) and EO 13186 (2001), *Responsibilities of Federal Agencies to Protect Migratory Birds*. An area behind the Army Travel Camp at Holbrook Pond was developed as a Food and Nesting Area for songbirds, and plantings in this area include autumn olive (*Elaeagnus umbellata*), persimmon (*Diospyros virginiana*), crabapple (*Morus rubra*), dogwood (*Cornus florida*), hazelnut (*Corylus* spp.), Chinese chestnut (*Castenea mollissima*), sawtooth oak (*Quercus acutissima*), and fringetree (*Chionanthus virginicus*).

For wildlife species that cross the threshold into pest complaints, FSGA/HAAF has an IPMP in place to address these issues of concern (FSGA, 2019a). Most pest management activities involve areas in and around the cantonment area; however, pest management services are also provided to semi-improved and unimproved grounds on-Post, when requested, and in the case of nuisance species, such as wildlife, promotes the focus on surveillance, physical barriers, and more efficient operations to reduce reliance on conventional pesticides, reflecting current DOD/Army policies, procedures, and standards. These services do not occur on a regular basis and are generally unpredictable, depending upon mission activities at that location and changing conditions due to flooding, fire, insects, and other variables. These services, when required, are implemented in accordance with the FSGA/HAAF INRMP. The DNR-Coastal Resources Division (DNR-CRD) assist in the trapping and relocating of nuisance alligators, through a specified State-licensed trapper.

3.4.3.1.3 VEGETATION

The FSGA/HAAF is located in the Atlantic Coastal Plain of southeastern Georgia. Its topography is at nearly sea level in the eastern portion of the installation, rising to approximately 183 feet along its western border, with most of the land less than 33 feet above sea level and with slopes less than 3 percent. These relatively small changes in elevation have defined the vegetation on FSGA, with wetlands and hardwood bottoms in the lower areas and upland pines and scattered hardwoods at the higher elevations. Vegetation includes mixed upland forests with a canopy dominated by loblolly pine (*Pinus taeda*), slash pine (*Pinus elliottii*), water oak (*Quercus nigra*), pignut hickory (*Carya glabra*), sweet-gum (*Liquidambar styraciflua*), southern magnolia (*Magnolia grandiflora*), and black-gum (*Nyssa sylvatica*). These forests are characterized by a sub-canopy, scrub-shrub, and herbaceous layer of sand laurel oak (*Quercus hemisphaerica*), water oak, sweet-gum, southern magnolia, cabbage palmetto (*Sabal palmetto*), American holly (*Ilex opaca*), highbush blueberry (*Vaccinium corymbosum*), wax myrtle (*Myrica cerifera*), muscadine (*Vitis rotundifolia*), and bracken fern (*Pteridium aquilinum*). The FSGA contains about 270,000 acres of forested lands and approximately 9,100 acres of developed lands, including the cantonment area. HAAF contains approximately 3,000 acres of forested lands and 2,000 acres of developed lands, including the cantonment area.

The Forest Management Plan for FSGA/HAAF establishes policies, objectives, guidelines, responsibility, resources, and timelines for the scientific management of forest resources to both enhance military training opportunities and ensure its compatibility with conservation objectives. The plan also has as its general goal providing an Army training environment that is compatible

with conservation and utilization of standing timber. Forested areas are actively managed for timber production and forest management activities. Forest management activities consist primarily of timber thinning conducted in support of Army projects (including construction) or for control of southern pine beetle infestations/disease, the removal of which is coordinated through the IPMP.

Forests on-Post have issues with insects and diseases common to forests of the southeastern U.S. Annual losses to forest resources from insects and disease exceed those from wildfires. Brown spot needle blight (*Scirrhia acicola*) particularly affects longleaf pine seedlings, and fusiform rust (*Cronartium fusiforme*) affects slash and loblolly pines. Brown spot needle blight infects longleaf seedlings, with all or partial denuding of needles, which can kill seedlings or keep them in the grass stage for years. Fusiform rust causes stem swellings in which a canker forms with a sunken area of rotten wood surrounded by a callus. This increases the chances of damage due to winds. This latter disease is especially prevalent in pine plantations. Longleaf pine, in general, is less susceptible to diseases and pests than are loblolly or slash pine. Loblolly pine is more susceptible to southern pine beetle than are slash or longleaf. As the installation approaches its objectives with regard to conversion of its upland forest to longleaf pine, there should be few southern pine beetle problems. Also, fusiform rust disease should decrease as thinning occurs in the forest.

The majority of FSGA/HAAF is forested, undeveloped, and consists of range and training lands; however, the southcentral portion of FSGA and the central portion of HAAF is developed and unforested and comprises the cantonment area, including barracks, company operations facilities, installation support facilities, and the installation’s Army Family Housing Areas (AFHAs). There are also numerous recreation facilities and resources on post. All developed areas maintain a good deal of vegetation and ground cover, and the installation ensures trees are removed only as needed and as required due to either disease or project-specific requirements.

All lands actively utilized for training purposes are actively managed via cooperative efforts between the FSGA/HAAF Forestry Branch and the FSGA/HAAF Area Management ITAM program, an Army-wide program that provides quality training environments to support the Army's military mission. Land Rehabilitation and Management (LRAM), a component of ITAM, is intended to involve repair of damaged lands and use of land construction technology to avoid future damage to training lands. The LRAM uses technologies such as revegetation and erosion control techniques to prevent site degradation, soil erosion, and water/wetlands pollution. These efforts are specifically designed to maintain quality military training lands, minimize long-term costs associated with land rehabilitation or additional land purchase, ensure compliance with environmental laws and regulations, and reduce erosion associated with military training.

Timber Harvest. FSGA/HAAF supports one of the largest forest resources programs in the DoD. In accordance with AR 405-90, para 6-7(e), installation commanders are delegated the authority to sell timber with an estimated value under $1,000, with all remaining timber sales coordinated and conducted by the United States Army Corps of Engineers (USACE). The primary purpose of Fort Stewart’s Forest program is to support the Army’s training mission by sustaining the ecosystem through prescribed burning, timber thinning, and longleaf pine regeneration. Most timber harvesting consists of selective cutting (thinning), emphasizing retention of high-quality pines between 50 and 60 square feet of basal area per acre. Clear cutting is limited to clearing land for construction, wildland fire salvage operations, bark beetle salvage and suppression operations, or re-establishment of longleaf pine. The majority of timber harvested, is pine with hardwood, making up only a small and low-value component of timber sales. Pine timber products

produced include poles, saw timber, and pulpwood. Aboveground portions of trees can also be chipped for use at the installation' CEP (INRMP, 2005; *update in progress*). The BMPs are included within Corps of Engineers contracts for forest harvest on-Post and include recommendations for streamside management zones, stream crossings, access roads, timber harvest, site preparation, reforestation, prescribed burning, wildfire suppression, chemical treatments, and forested wetland management.

Vegetation management efforts on HAAF are conducted under the provisions of the FSGA/HAAF Urban Tree Management Policy (2018a) and FSGA/HAAF Urban Tree Management Guide (2018b), both of which serve as planning tools and guides on the installation and require that Forestry be consulted prior to any tree removal or tree planting effort on HAAF. This coordination is to ensure optimal planting success as well as to ensure correct species and spacing for trees planted on the installation. These plans also provide useful definitions and guidance related to tree maintenance/management on the installation as a whole. Vegetation management efforts are assisted through implementation of the installation's IPMP on both its improved and unimproved grounds, as well as on some lands considered semi-improved.

Improved grounds include acreage on which intensive maintenance activities are planned and performed annually as a fixed requirement, such as the cantonment area. These "management" activities include mowing, irrigation, dust and erosion control, maintenance of drainage systems, landscaping, and other intensive practices. Semi-improved grounds include areas on which periodic maintenance is performed, but to a lesser extent than on improved grounds, and include ammunition storage areas, airfields, and heliports. Unimproved grounds include all acreages not classified in the two previous categories, such as the range and training lands. As previously discussed, pest management activities on unimproved grounds are an irregular requirement, depending upon mission activities and changing conditions at a specific location, but can be provided upon request. Collectively, this multi-component environmental management approach ensures the biological resources on the installation are effectively and efficiently managed to sustain both the mission and the environment.

Prescribed Burns. Prescribed burning is critical to management of the forest ecosystem on FSGA for several reasons. First, it promotes the growth of longleaf pine, which is a "fire climax" species that requires burning. Burning also reduces fuel loads, which helps to prevent wildfires, and it also creates more ideal conditions for military training by opening the forest understory. Finally, fire is very important to the maintenance of quality wildlife habitat, especially habitat used by the RCW and other wildlife species. Management for the RCW requires the conversion of upland forest to a longleaf pine-wiregrass ecosystem that can be maintained. This requires regular burning during the March-September growing season, maintenance of a basal area in the 50-80 range, and control of hardwood understory. The FSGA uses a three-year growing season burn cycle, as per Army Guidelines. However, there are also needs for winter burns, specifically in areas where growing season burns would significantly damage quality timber and threaten RCW management. Such areas are winter burned until fuels have been reduced to a level where growing season burns will not excessively damage resources. Burns are accomplished using a helicopter and aerial ignition devices (ping-pong balls with chemical mixtures.) Some hand ignition is often required, and the process is one of close air-ground coordination. Care is exercised to prevent too much fire from being set too fast, to enable control and conditions which do not unduly harm young or mature pines. The installation does not conduct prescribed burns on ACUB lands.

As discussed earlier in this PEA, the FSGA Forestry Branch utilizes firebreaks, early detection, and fuel reduction to minimize wildfires. The firebreak system primarily parallels public roads and

encompasses ranges, where fires often start. Most firebreaks are 6-8 feet wide, but in some cases, they are double wide, particularly along installation boundaries. Firebreaks paralleling public roads are generally about 100 yards from roads and act to keep smoke from obscuring driver vision during prescribed burning operations. In many cases tank trails along highways act as firebreaks. Reported fires are responded to in various ways from immediate suppression to allowing fires to burn out. As discussed earlier, Soldiers often put out small fires without Forestry assistance and after reporting the fires to Range Division.

3.4.3.2 ENVIRONMENTAL CONSEQUENCES

3.4.3.2.1 ALTERNATIVE I: NO ACTION

Protected Species. Operation and maintenance of the existing borrow pits and routine actions on the installation that rely on fill dirt from these resources have the potential for long-term, direct, negligible, adverse impacts to Protected Species. Each of the identified species are managed in accordance with their species-specific ESMP, a component of the installation's INRMP. No changes are proposed to the ESMP for any of these species in the vicinity of the borrow pits as a result of the ongoing management and use of the existing borrow pits, as all actions are conducted in compliance with federal, state, and local laws and regulations and include adherence to the ESA, ensuring no more than negligible adverse impacts to protected species at those locations. Impacts are anticipated to be long-term, as these are recurring events in these locations. All actions are conducted by personnel who are familiar with these requirements to ensure compliance with all applicable guidance. The FSGA/HAAF biologists conduct routine surveys for these species in accordance with the installation INRMP and manage accordingly based on the results of those surveys and federal and state laws and regulations.

The Wood Stork (WS) is the only protected species to be sighted on HAAF, and only on an intermittent basis in the fresh or brackish wetlands located in the southwestern boundary of the installation, which is not in the vicinity of the existing borrow pits on HAAF. Sitings typically occur during wet periods of the year, when water levels are sufficient to sustain food for the birds to forage, and this species is not a resident on HAAF. No impacts are anticipated to any of the remaining protected species because they are not known to occur on HAAF lands, because HAAF does not contain suitable habitat to support these species, and/or the installation cannot manage its lands as required for these species.

Wildlife and Migratory Birds. Operation and maintenance of the existing borrow pits and routine actions on the installation that rely on fill dirt from these resources have the potential for short-term, indirect, negligible adverse impacts to wildlife and migratory birds. Impacts are anticipated to be negligible and short-term, as these species will naturally flush from an area where activities are occurring, such as the borrow pits, and then return once activities cease. These species may be in the vicinity of these resources at night during foraging; however, the borrow pits are not routinely used at that time, and they are unlikely to be more than indirectly adversely impacted.

Vegetation. No impacts are anticipated to vegetation as a result of the operation and maintenance of the existing borrow pits and routine actions on the installation that rely on fill dirt from these resources. No excavation, tree clearance, or other associated actions are required for these actions, all of which are conducted in accordance with installation policies, procedures, and plans, and in compliance with federal and state laws and regulations and is conducted by the DPW and/or their contractors. No substantial increase in impervious surfaces is anticipated due to these routine operations, or due to routine repairs and maintenance acidities on post.

Prescribed Burns. No impacts are anticipated to the prescribed burn program, which is well integrated into the routine operations regime on the installation.

Overall, this alternative is anticipated to result in long-term, direct, negligible, adverse impacts to Protected Species; short-term, indirect, negligible adverse impacts are anticipated to Wildlife and Migratory Birds; no impacts to Vegetation; and no impacts to the Prescribed Burn Program.

3.4.3.2.2 ALTERNATIVE II: IMPLEMENT BPMP AND ID TEAM RECOMMENDATIONS

Protected Species. Excavation of new borrow pits and the expansion of existing borrow pits is anticipated to contribute to long-term, direct, minor, adverse impacts to Protected Species. Each of the identified species are managed in accordance with their species-specific ESMP, a component of the installation's INRMP, and no changes to the ESMP for each species is proposed as a result of this alternative.

Red Cockaded Woodpecker (RCW). FSGA completed a Biological Assessment (BA) for this action and submitted it for review and approval to the USFWS, who issued a Biological Opinion (BO) for this action. Two of the proposed new borrow pits (D1.3, Landfill) did not require discussion in the BA, as they were not located within protected species habitat; accordingly, they were not identified and discussed in the BA. As part of this process, FSGA FWB personnel surveyed the proposed project action areas for RCWs and RCW cavity trees and none were found in the action areas; however, work to establish the new borrow pits and expand the existing borrow pits will impact 83.98 acres of existing RCW HMUs, 0.05 acres of lowland hardwood habitat, 6.72 acres of upland hardwood habitat, and 54.82 acres of non-forested area as in identified in the installation's INRMP. This is a small amount of acreage removed, relative to that remaining on the installation for this species, as there will be 132,467 acres of RCW HMU remaining following this tree removal. Therefore, the proposed action may affect, but is not likely to adversely affect, the RCW and the group, neighborhood, population, and recovery unit analyses are not warranted. The USFWS concurred with this determination in their BO for this PEA (Appendix H, BO/BA).

Eastern Indigo Snake (EIS). The proposed project will impact 44.81 acres of EIS HMU; however, no EIS have ever been detected in the project action areas and the nearest known occurrences of EIS to the action area locations range from 1.0-5.0 miles away. The EIS often use gopher tortoise burrows as winter refugia, and portions of the proposed project area do intersect with potential gopher tortoise habitat. The FSGA/HAAF FWB personnel surveyed the proposed project action areas for gopher tortoise burrows and found 12 active burrows in five of the proposed borrow pit sites that EIS use for laying their eggs. Because of the distances between the proposed action areas and documented EIS sightings, the small number of affected burrows, and the widely scattered locations of the proposed borrow pits, it is determined that the proposed project may affect, but is not likely to adversely affect, the EIS (Appendix H, BO/BA).

Forested Flatwoods Salamander (FFS). Portions of the proposed project areas lie within the FFS HMU. Construction activities will impact 2.88 acres of secondary buffer for a potential breeding site, as well as 14.22 acres of FFS HMU that is not located within pond buffers. The project design will incorporate delineation of wetland areas and protection measures as required by the CWA and the Georgia Erosion and Sedimentation Control Act (ESCA), to ensure appropriate wetland avoidance and protection. Due to the small amount of pond buffer impacted and the identified protective measures, it is determined that the proposed project may affect, but is not likely to adversely affect, the FFS (Appendix H, BO/BA).

Other. No WS were observed, nor have they ever been observed, foraging in the proposed project action areas, and the nearest known occurrences of this species to the proposed project action areas range from 1.0-12.0 miles away. Because of the action area distances from confirmed WS sightings and the implementation of erosion and sedimentation control measures, it is determined that the proposed project will not affect the WS. No eastern blank rail (EBR) has ever been observed in the proposed project area, nor have they ever been observed on the installation. It is possible that the EBR may migrate through FSGA/HAAF, but the nearest confirmed sighting of EBR was in Greene County, Georgia, approximately 150 miles northwest of the installation. Due to unsuitable habitat in the project action areas and the distance between the proposed project areas and documented EBR sightings, it is determined that this project will not affect the EBR (Appendix H, BO/BA).

Telemetry and capture data, collected as part of FSGA's shortnose sturgeon monitoring program (1991-2000), indicate that these fish do not travel more than two miles up the Canoochee River or 20 miles up the Ogeechee River from the Canoochee/Ogeechee River confluence. The Canoochee River flows diagonally through the installation while the Ogeechee River forms much of the installation's eastern boundary. Critical habitat was designated for the Atlantic sturgeon on the Ogeechee River along Fort Stewarts eastern boundary. The proposed project action areas range from 0.5-30 miles from the Atlantic sturgeon critical habitat and shortnose sturgeon occurrence on the Canoochee River. Due to unsuitable habitat in the project action areas and the distance between the proposed action areas and documented sturgeon sightings, it is determined that this project will not affect Atlantic and/or shortnose sturgeons. No smooth coneflowers (SC) were observed in the proposed project areas and the nearest known population of the SC is located 1.0- 2.0 miles away. Because of the action area distances from the confirmed SC population and the `unsuitable environmental conditions in the project action areas, the proposed project will not affect the SC (Appendix H, BO/BA). The Army has incorporated into the critical habitat effects analysis the conservation of species principals found in the statutory provisions of the ESA. No impacts are anticipated as a result of the closure of two borrow pits, as this is an administrative process only.

Wildlife and Migratory Birds. Excavation of new borrow pits and the expansion of existing borrow pits is anticipated to contribute to long-term, indirect, negligible, adverse impacts to Wildlife and Migratory Birds. Impacts are primarily anticipated to be short term and indirect, as these species typically flush away from a disturbance at its initial phase, are rarely directly impacted by the machinery and equipment utilized in these activities and return to their place of original once activities cease. However, some long-term and direct impacts may also occur due to timber removal to facilitate construction, as that vegetation will not be replanted and available to these species once activity on-site stops. This will displace the wildlife and migratory birds, but sufficient habitat remains on FSGA and HAAF to ensure this remains at a minor adverse level and does not rise to a level of significance. No impacts to wildlife and migratory birds are anticipated due to ongoing, routine operations, maintenance, and repairs, as these typically occur in previously disturbed/established open areas, where these species are not typically present, or, if present, are there on a temporary basis. In addition, these actions are conducted in accordance with installation policies, procedures, and plans (to include the INRMP and IPMP) and in compliance with federal and state laws and regulations that minimize potential impacts to these species. No impacts are anticipated as a result of the closure of two borrow pits, as this is an administrative process only.

Vegetation. Excavation of new borrow pits and the expansion of existing borrow pits is anticipated to contribute to long-term, direct, negligible, adverse impacts to vegetation. Impacts are

anticipated to be long-term, as they require the total removal of approximately 150 acres of trees to establish the 14 new borrow pits and expand the 36 existing borrow pits, but negligible as this is a minor amount subtracted from the 180,000 acres of forested acreage remaining on the installation. All tree removal will be conducted by the FSGA/HAAF Forestry Branch, if there is sufficient acreage for a merchantable timber harvest, and all work will be conducted in accordance with Timber Harvest BMPs, the ESCA, and other applicable laws and regulations (see Section 3.4.5, Water Quality, for full process). No impacts are anticipated for the closure of the two borrow pits on FSGA and HAAF, as they will be allowed to naturally fill with water for ponds, and not be refilled and grassed. No impacts are anticipated as a result of the closure of two borrow pits, as this is an administrative process only.

Prescribed Burns. Excavation of new borrow pits and the expansion of existing borrow pits is anticipated to contribute to long-term, direct, minor beneficial impacts to the prescribed burn program on the installation. The new and expanded borrow pits will be integrated into the prescribed burn program, and their new footprints will aid in the compartmentalization of the areas in which they are located, creating additional firebreaks over which wildfires have difficulty crossing, and resulting in overall long-term beneficial impacts for the burn program. No impacts are anticipated from closing the two existing borrow pits on FSGA and HAAF as those are existing cleared footprints and already a part of the existing regime. There are no anticipated impacts to this program as a result of standard daily operations, as discussed under Alternative I. No impacts are anticipated as a result of the closure of two borrow pits, as this is an administrative process only.

Overall, this alternative is anticipated to result in s long-term, direct, minor, adverse impacts to Protected Species; Long-term, indirect, negligible, adverse impacts are anticipated to Wildlife and Migratory Birds; long-term, direct, negligible adverse impacts to Vegetation; and long-term, direct, minor, beneficial impacts to the Prescribed Burn Program.

3.4.3.3 CUMULTATIVE IMPACTS

The ROI for Biological Resources lies within and immediately adjacent to the physical boundaries of FSGA and HAAF. Protected species, wildlife, and especially migratory birds can cross over the installation boundary and onto non-installation lands, and vegetation is not limited by the installation boundary either. However, the installation only manages these resources within the installation boundaries and impacts within and immediately adjacent to the boundary are therefore analyzed for cumulative impacts. Past, present, and reasonably foreseeable future actions with the potential to result in cumulative impacts to Biological Resources are discussed in the section below.

3.4.3.3.1 ALTERNATIVE I: NO ACTION

Past actions in the ROI consist of the historical development of the communities of Hinesville and FSGA, Savannah and HAAF, and the associated infrastructure and transportation network that supports them, all of which required substantial amounts of earth-moving and fill materials to be properly established. Over time, less and less land remained for these protected species, wildlife, and migratory birds to utilize as habitat, and more vegetated land was transformed into development. Interruptions in the natural cycle of fire also occurred, all of which resulted in minor adverse cumulative impacts to Biological Resources in the ROI. Site stabilization measures, to include grass and tree planting, were implemented as part of the development process, minimizing some of the potential adverse impacts. Present actions in the ROI that rely on fill dirt from the on-Post borrow pits are commensurate with these past actions, as discussed under the

assessment of direct and indirect impacts. Present actions on FSGA/HAAF implement minimization measures, to include BMPs and prescribed burns, to ensure protected species, wildlife, migratory birds, and vegetation are impacted to as little a degree as possible, as previously discussed.

As discussed previously, reasonably foreseeable future actions in the ROI that will rely on fill material from on-Post borrow pits include potential implementation of the MDTF and/or the ERCA stationing action on FSGA (resulting in approximately 25 acres of site clearance, grading, site stabilization), construction of the CLFR and Scout/RECCE Range on FSGA (resulting in approximately 30 acres of site clearance, grading, and site stabilization), and construction of the 3/160th Complex on HAAF (resulting in approximately 20 acres of site clearance, grading, site stabilization). Fill materials from the on-Post borrow pits would be required to support these new construction projects, although exact amounts are not known prior to the design process. Impacts are also anticipated to protected species, wildlife, and migratory birds at these locations and impacts may be minimized via adherence to the same measures, as well as those in the species-specific ESMPS and the INRMP. Use of prescribed burns to maintain the ecosystem is also a vital tool. The 74 existing borrow pits on the installation are nearing the end of their useful life and if suitable types and quantities of fill are not available on-Post, they will be sought from off-Post locations within the ROI, at considerable cost and effort to the mission. If there are not enough housing units on the installation cantonment area to support the MDTF/ERCA and/or their Families, there may be a commensurate amount of construction in Hinesville to ensure their support, resulting in additional borrow pit requirements from existing sources in that portion of the ROI, as well as tree removal and potential disturbance to protected species, wildlife, and migratory birds. However, as previously discussed in this PEA, personnel who work on the installation, and in the adjacent communities, are familiar with installation policies and procedures, ensuring minimization measures and BMPs are employed. Overall minor adverse cumulative impacts are anticipated to Biological Resources.

3.4.3.3.2 ALTERNATIVE II: IMPLEMENT BPMP AND ID TEAM RECOMMENDATIONS

Past, present, and future actions in the ROI are as discussed under Alternative I; however, under this alternative approximately 150 acres of additional tree clearance and ground disturbance is anticipated to account for the new and expanded borrow pits. This is not anticipated to result in a substantial difference in cumulative impacts, as an additional 150 acres is not a significant reduction in a forest of 280,000 total acres, totaling less than 1% of vegetation reduction and associated impacts to biological resources in the ROI. As previously discussed, personnel who work on the installation, and in the adjacent communities, are familiar with minimization measures and BMPs. Overall minor adverse cumulative impacts are anticipated to Biological Resources.

3.4.4 CULTURAL RESOURCES MANAGEMENT

3.4.4.1 AFFECTED ENVIRONMENT

Note: unless otherwise indicated, information in this section is taken from the FSGA/HAAF Integrated Cultural Resources Management Plan (ICRMP) (FSGA/HAAF, 2014).

Cultural resources consist of prehistoric and historic districts, sites, structures, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. Cultural resources are divided into three major categories: archaeological resources (prehistoric and historic), architectural resources, and areas of Tribal interest. Historic districts may fall within all three of the categories,

depending upon what they contain. *Note: due to site sensitivity, minimal figures are provided in this section of the PEA.*

The FSGA/HAAF ICRMP incorporates federal and Army cultural resources laws and regulations into an internal document outlining how Fort Stewart manages its cultural resources. Utilizing this guidance, the installation, and the GA State Historic Preservation Office (SHPO) has utilized a Programmatic Agreement (PA) that provides the installation with a flexible tool to manage its cultural resources, meeting the requirements of cultural resource review of undertakings with no effect or no adverse effect without waiting for the standard 30-day response from the SHPO on each installation action. In short, the PA is the Cultural Resource program's regulatory backbone, guiding and streamlining the program's compliance with the NHPA, while providing a timely, effective method of managing the installation's cultural resources. Currently, the installation is revising its PA and operating under the standard Section 106 NHPA review process.

Under the NHPA, as amended, only historic properties warrant consideration of impacts from a proposed action and any associated proposed mitigation, and are defined by the NHPA as any districts, sites, buildings, structures, or objects included on or eligible for inclusion on the NRHP. Historic properties include traditional cultural properties and are associated with important national events or are "exceptionally significant" in another way. To be considered significant, archaeological or architectural resources must meet one or more specific NHPA criteria, which include: association with events that have made a significant contribution to the broad patterns of history; association with the lives of persons significant to our past; embody a distinctive characteristic of a type, period, or method of construction; or that have yielded or may be likely to yield information important to history or prehistory.

In addition to consideration of impacts to historic properties in accordance with the NHPA, other cultural resource considerations are also taken into account and discussed in this PEA. These include, but are not limited to: impacts to Sacred Sites (i.e. properties or landscapes deemed sacred to the expression of religion by Native American Tribes); impacts to Native American burials and associated cultural items in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA, 25 USC Part 3001et seq.); impacts to archaeological resources that are at least 100 years old and are of archaeological interest in accordance with the Archaeological Resources Protection Act (ARPA); and historical, scientific, or paleontological resources in accordance with the Archaeological and Historic Preservation Act (AHPA) and Archaeological Data Preservation Act. There are three known Native American burial mounds on the installation, and these are considered Sacred Sites, as well as historic properties.

Approximately 99% of the range and training lands have either been inventoried for archaeological resources or are exempt from inventory due to safety concerns such as the potential to encounter unexploded ordnance (UXO). Generally, inventories within areas containing known UXO have concluded there are none-to-minimal cultural resource concerns, as continued weapons-firing (and associated UXO deposition) has rendered these areas too dangerous to conduct archaeological investigations and are generally considered ineligible for the NRHP due to the lack of the site's potential to provide data in a safe manner. The buildings and structures on the cantonment areas have likewise been extensively surveyed for their eligibility for the NRHP and all buildings and structures are re-inventoried as they approach 50 years of age. There are 62 known cemeteries on FSGA and HAAF and the Army proactively manages these historic sites on its lands. This includes prohibiting any ground disturbance within 200 feet of known/marked cemeteries. Over the course of each fiscal year, Cultural Resources Management (CRM) personnel establish a program for monitoring at least 20 randomly chosen cemeteries to inspect for vandalism, or general disturbance, in addition to conducting sign and paint maintenance at these sites. By doing so, all cemeteries on the installation are typically

inspected on a five-year cycle. Currently, borrow pits A2.2BP1, A14.1BP1, B19.2BP1, C9.3BP1, and D1.3BP1 are within 50 meters or less from existing cemeteries.

As part of the ICRMP, CRM manages its day-to-day operations and long-term planning through the development of individual Cultural Resource Action Plans. These plans are revised and updated on a five-year cycle in a manner consistent with the installation's ICRMP and INRMP. Each plan outlines the current survey status, location and nature of cultural resources, and the activities that remain to be carried out by CRM staff within each area assessed. An action is subject to CRM review if it has the potential to impact historic properties, and this review of undertakings on the installation is accomplished in accordance with the installation's NEPA project review process.

3.4.4.2 ENVIRONMENTAL CONSEQUENCES

3.4.4.2.1 ALTERNATIVE I: NO ACTION

Operation and maintenance of the existing borrow pits and routine actions on the installation that rely on fill dirt from these resources have the potential for long-term, direct, negligible-to-minor, adverse impacts to Cultural Resources. Impacts are anticipated to be negligible-to-minor because the Environmental Division's internal analysis, monitoring, and inspections process for these routine actions has proven historically effective in minimizing potential adverse impacts from current activities associated with the existing borrow pits. Impacts are anticipated to be long term and direct, as it is not a simple process to remedy an impact to a historic property once it has occurred if it can be remedied at all. In some instances, ground disturbance within the cantonment area qualifies as an exclusion for archaeological inventory, as the cantonment is viewed as a previously disturbed area. Accordingly, with the exception of an accidental/inadvertent archaeological discovery, no impacts to archaeological resources that are eligible for listing on the NRHP are anticipated within the cantonment areas. However, all archaeological sites, regardless of their location, are protected from *unauthorized* disturbance, in accordance with ARPA.

In support of ARPA, CRM implements a monitoring program with emphasis on its eligible/potentially eligible archaeological sites. Reports of site damage are submitted to the installation's Law Enforcement Division, DPW Environmental Division, and the GA SHPO. A report of the monitoring program is submitted to the GA SHPO and Tribes, as appropriate. When an archaeological site or historic property protected under NHPA, ARPA, NAGPRA or other applicable federal or state regulations has been disturbed or damaged as a result of noncompliance with the installation environmental review process, CRM follows procedures outlined in the ICRMP. For example, if potential historic properties/resources are encountered during projects on FSGA or HAAF, all work stops and the installation CRM POC is contacted to ensure these resources are protected while decisions are made regarding next necessary steps, to include consultation and coordination requirements with the regulatory community. If protection cannot be afforded because of mission essential requirements, such as those associated with training on range and training lands, then other treatments are devised to mitigate potential adverse impacts.

Depending on the frequency of an area's use, physical barriers may be installed around a resource, such as fencing around cemeteries and painting physical boundaries on trees forming the boundary of protected sites, as is currently done at the cemeteries in the vicinity of the existing borrow pits on FSGA/HAAF. Not all sites are marked due to the potential for intentional looting, and installation personnel determine where high risk exists based upon installation activities

and/or other mission requirements. The CRM coordinates with other on-Post Divisions and Directorates in protecting eligible sites through reviewing installation plans and work orders, reviewing installation training activities, and instructing unit ECOs on identifying and avoiding these sites.

The FSGA/HAAF ITAM/LRAM office also conducts routine inspections of range and training lands. Archaeological sites that have been determined eligible or potentially eligible for inclusion in the NRHP and that are located in an area with a high risk of unintentional damage caused by training or construction are marked minimally by the use of teal-colored boundary paint. When appropriate, additional markings are utilized such as orange reflective tape, Seibert stakes, and signage. The CRM works to ensure these sites are undisturbed and that no remedial activities or follow up work is required. Collectively, these measures ensure there are no more than negligible-to-minor adverse impacts to cultural resources on the installation.

3.4.4.2.2 ALTERNATIVE II: IMPLEMENT BPMP AND ID TEAM RECOMMENDATIONS

Excavation of new borrow pits and the expansion of existing borrow pits is anticipated to result in long-term, direct, minor-to-moderate, adverse impacts to cultural resources. New borrow or expansions of existing borrow pits may be located in vicinity of cemeteries, historic properties and/or located within areas not previously inventoried for cultural resources. New borrow pits are not sited within a 200-foot buffer and existing borrow pits proposed for expansion are not authorized prior to taking additional measures, such as additional survey, monitoring, etc. The FSGA/HAAF Cultural Resources Program will consult with the GA SHPO and Federally Recognized Indian Tribes to ensure all NHPA/other requirements are complete and the results of all consultation are considered during the development of the proposed action and its implementation, to include minimization and mitigation measures. The CRM will coordinate with the BPMP POC (if the new borrow pits are near cemeteries or historic properties), ensuring potential impacts are anticipated early and ensuring there is ample time to conduct required actions, to include additional surveys, consultation, and, if required, mitigation. No impacts are anticipated as a result of the closure of two borrow pits, as this is an administrative process only. Through this process, CRM will ensure eligible and potentially eligible cultural resources are not damaged or demolished prior to implementation of the proper NHPA Section 106 procedures, minimizing the potential for adverse impacts beyond minor-to-moderate impacts.

3.4.4.3 CUMULATIVE IMPACTS

The ROI for Cultural Resources lies within the boundaries of FSGA and HAAF, as no actions on/within the City of Hinesville, City of Savannah, or the surrounding communities were deemed sufficiently proximate in time or location to the proposed action to result in potential cumulative impacts to cultural resources. Past, present, and reasonably foreseeable future events with the potential to result in cumulative impacts are considered in the analysis below.

3.4.4.3.1 ALTERNATIVE I: NO ACTION

Past actions in the ROI consist of the historical development of the communities of Hinesville and FSGA, Savannah and HAAF, and the associated infrastructure and transportation network that supports them, all of which required substantial amounts of earth-moving and fill materials to be properly established, and a great deal of which occurred prior to the institution of cultural resources laws and regulations. Accordingly, it is possible that cultural resources were lost, damaged, and/or destroyed during this time, resulting in potential adverse cumulative impacts to

cultural resources. Present actions within the ROI are reviewed by installation CRM personnel prior to implementation, and this will continue for those actions proposed under Alternative I, thereby minimizing the potential for adverse impacts, which are anticipated to dissipate once consultation is complete, all required mitigation is complete, and all actions agreed upon by all parties involved in the mitigation. Present actions in the ROI that rely on fill dirt from the on-Post borrow pits are commensurate with these past actions, as discussed under the assessment of direct and indirect impacts.

As discussed previously, future actions in the ROI that will rely on fill material from on-Post borrow pits include potential implementation of the MDTF and/or the ERCA stationing action on FSGA (resulting in approximately 25 acres of site clearance, grading, site stabilization), construction of the CLFR and Scout/RECCE Range on FSGA (resulting in approximately 30 acres of site clearance, grading, and site stabilization), and construction of the 3/160th Complex on HAAF (resulting in approximately 20 acres of site clearance, grading, site stabilization). Fill materials from the on-Post borrow pits would be required to support these new construction projects, although exact amounts are not known prior to the design process. Preliminary review of these actions has determined there is no potential to adversely affect cultural resources; however, due to the adjacency of these actions to known historic resources on the airfield proper, CRM will continue to monitor during the completion of work. If impacts occur, consultation, mitigation, and monitoring, if required, will be implemented, and continue until agreed upon by all parties involved. The installation will use its siting process to avoid historic properties to the best of its ability, minimizing potential impacts to these resources, and the ranges proposed for construction are currently sited atop existing ranges, further minimizing potential adverse impacts to all environmental resources on the installation. For all actions the CRM will conduct a Section 106 Review to ensure all NHPA/other requirements are complete. Overall, these efforts should ensure that no more than minor adverse cumulative impacts to cultural resources occur.

3.4.4.3.2 ALTERNATIVE II: IMPLEMENT BPMP AND ID TEAM RECOMMENDATIONS

Under this alternative, past, present, and reasonably foreseeable future actions within the ROI are as discussed under Alternative I. However, under this alternative, excavation of the new borrow pits and expansion of existing borrow pits will also occur, resulting in approximately 150 acres of tree removal. As discussed previously, CRM will review all projects as they are submitted and, if impacts are anticipated, will initiate the consultation, mitigation, and monitoring, process as required, which continue until agreed upon by all parties involved, to ensure all NHPA/other requirements are complete. Overall, these efforts should ensure that no more than moderate adverse cumulative impacts to cultural resources occur.

3.4.5 WATER QUALITY AND RESOURCES

3.4.5.1 AFFECTED ENVIRONMENT

Water resources on FSGA and HAAF include natural systems such as groundwater, streams, rivers, lakes, estuaries, wetlands, and the 100-year floodplain, in addition to the man-made stormwater drainage system. Water resources management requirements are typically derived from the (CWA, 33 U.S.C Part 1251), Safe Drinking Water Act, and water rights laws that vary from state to state. The ROI for water quality consists of the local watershed within and immediately adjacent to the physical boundaries of FSGA and HAAF.

Coastal Zone Management. The Coastal Zone Management Act (CZMA) was passed in 1972 and provides a formal structure to address the challenges of continued growth in coastal areas.

The Georgia Coastal Management Program is authorized by the CZMA and administered by NOAA, GA DNR-CRD, and a network of other state agencies. There are lands on HAAF that meet the requirements for coastal zone areas. To ensure compliance with all applicable laws, the Stormwater/E&S/Floodplains POC for the installation reviews all ESPC Plans for actions implemented on HAAF and ensures they are in compliance with the CWA, Georgia Water Quality Act (GWQA), and GA ESCA, and periodically monitors all active construction sites on HAAF to ensure sensitive resources in and near the action area are avoided. The Army requires the correction of all deficiencies immediately and consults with the GA DNR-CRD as part of the NEPA process. Section 438 of the Energy Independence and Security Act (EISA) is also implemented, the goal of which is to replicate pre-development hydrology to protect and preserve both the water resources onsite and those downstream.

The Army complies with EISA Section 438 by designing facilities based on the goal of maintaining pre-development hydrology on a site-specific basis and an objective methodology with which to determine appropriate practices to protect the receiving environment. Coupled with EISA Section 438, HAAF also specifies the requirement for site designers to utilize Georgia's Coastal Stormwater Supplement (CSS). The purpose of the CSS is to protect Georgia's existing water quality standards, particularly those of the State's coastal waters. By utilizing the CSS, post-construction stormwater runoff rates and volumes are reduced through the use of LID practices to help maintain pre-development site hydrology, help prevent downstream water quality degradation, and to help prevent downstream flooding and erosion. These measures ensure the installation maintains compliance with the CZMA, as well as preventing the pollutant loading of sensitive surface water sources, floodplains, and wetlands. There are 20 acres of CZMA on HAAF; however, there are no CZMAs on FSGA and CZMA requirements are not included in projects on that part of the installation.

Groundwater. The groundwater resources of coastal Georgia are recognized as some of the most productive in North America. The Floridan is the principal artesian aquifer in the region and provides most of the fresh water for cities and communities throughout southeastern Georgia, to include FSGA and HAAF. There are three distinct aquifer systems in the Fort Stewart region. The principal artesian aquifer, the Floridan aquifer, is a deep sequence of limestone of Eocene to Oligocene age, the primary source of large groundwater withdrawals in the coastal area. This aquifer is generally 300 to 500 feet below the surface and is composed of two distinct layers. The upper layer is derived from the Oligocene Series of sandy, phosphatic limestone and is not generally used as a water source. It is underlain by the Ocala Limestone of Eocene age, which is the primary water supply source for much of the coastal plain.

The principal artesian aquifer is overlain by two shallow aquifer systems. A 394 to 492-foot-thick series of Miocene clays, sandy clays, and gravel lies directly above the principal artesian aquifer. Several industries in the coastal area have wells with yields greater than 200 gallons per minute from this aquifer. It is recharged largely by percolation from the surface aquifer, as well as some discharge from the principal artesian aquifer. The surface aquifer is composed of a relatively thin layer of sands, gravels, and clays extending to a depth of 82 feet near the coast. The surface aquifer is recharged directly from rainfall percolating through sediments. During dry months the base flow of streams and rivers of the coastal area is maintained by discharge from the surface aquifer. Water quality varies from very low total dissolved solids to slightly alkaline, moderately hard water.

The FSGA's potable water supply is provided from eight wells that tap into the Floridan aquifer and have a combined maximum rated capacity of 8.4 million gallons per day (mgd). Its annual

permitted drinking water capacity is 4.99mgd and its current use is 1.47mgd, leaving an approximate available capacity for additional use at FSGA of 3.52mgd. Four of the wells that serve the main cantonment have backup generators. If at least two of the wells remain operational, all critical mission needs can be supplied without curtailing installation usage.

The FSGA cantonment area also has a series of elevated water storage tanks utilized for potable water storage, which range from a capacity of 250,000 gallons to 500,000 gallons. Currently, there are 1,974,130 gallons of storage on FSGA. There are also elevated water tanks located outside of the cantonment area, including one at Evans Army Airfield (EAAF), which has a capacity of 150,000 gallons, and two at the Unmanned Aerial Surveillance Complex at Wright Army Airfield (WAAF), each with a capacity of 200,000 gallons. Unlike the water tanks within the cantonment area, these tanks are utilized for fire suppression and not for potable water storage. Water service is also provided to its outlying lands, including the range and training areas, by 11 wells.

The HAAF withdraws groundwater from five community wells and three non-community system wells that tap into the Floridan aquifer. This groundwater is treated with chlorine at the well head prior to being utilized. The HAAF operates under a Water Management Plan, and groundwater withdrawals are permitted by the GA EPD, for a combined monthly average withdrawal of 0.35mgd, and a yearly average withdrawal of 0.30mgd from these eight wells. The approximate available capacity for additional use at HAAF is roughly 419,000mgd.

All wells are tested monthly and potable water on FSGA and HAAF consistently meets all GA EPD standards. As a condition of its permit, FSGA/HAAF samples for various contaminants in its drinking water and reports those findings to the GA EPD. It also provides residents with a Consumer Confidence Report, compiled, and provided to residents on an annual (calendar year) basis, no later than July 1st of each year. FSGA/HAAF is implementing water conservation measures to reduce water withdrawals; however, this is being done strictly as a conservation measure and not because of dwindling permitted withdrawal capacity. If at least two of the four wells on FSGA are operational, all critical mission needs can be supplied without curtailing installation usage; if at least one of the four wells on HAAF is operational, all critical mission needs can be supplied without curtailing installation usage. This backup system aids in energy resilience measures on the installation. If a drought is designated, water use can be prioritized to critical mission facilities and/or activities, and water restrictions (such as not watering lawns at all until the region has moved beyond the period of drought) are employed. The installation has made identifying its Critical Facilities List a priority, ensuring they have an adequate source of power in the event of an emergency. The FSGA/HAAF IEWP provides a roadmap for supporting increased energy resilience, readiness, and mission assurance. This document is driven by Army energy and water security goals, as outlined in Army Directive 2020-03, *Installation Energy and Water Resilience Policy*, as well as other federal, DoD, and Army policies and regulations, to include CC/EW.

Surface Water Resources (Figures 11 and 12). In the proposed action's natural, undisturbed environment, rainfall is quickly absorbed by trees, other vegetation, and the ground. Most rainfall that is not intercepted by leaves infiltrates into the ground or is returned to the atmosphere by the process of evapotranspiration. Very little rainfall becomes stormwater runoff in permeable soil, and runoff generally only occurs with larger precipitation events, all of which is currently well handled by the installation's natural surface water and man-made stormwater drainage networks.

Fort Stewart contains 265 miles of freshwater rivers and streams and 277 miles of brackish water rivers. The majority of these surface water systems are part of the Ogeechee River drainage

system, which forms part of the eastern boundary of the installation (Figure 12). The Canoochee River is the main tributary of the Ogeechee and bisects FSGA, merging with the Ogeechee about 35 miles inland from Ossabaw Sound. Although most of the post is drained by the Canoochee, part of the northeast quadrant drains directly into the Ogeechee, and the southwestern quadrant is drained by the Altamaha River. While the Ogeechee generally carries a high silt load, the Canoochee does not. Consequently, the Canoochee has not developed large natural levees. The floodplain, however, is generally narrow, with little lateral migration of the stream channel. Organic matter content is generally high, derived from the Blackwater River and Swamp system. Fort Stewart also contains 14 man-made ponds totaling 101 acres and 10 impoundments (natural ponds) totaling 1,354 acres. This includes several old mill ponds that were present at the time of the Army's purchase of Fort Stewart, including Glisson's Mill Pond, Strickland's Mill Pond, Pineview Lake (Pond #1), as well as mill ponds that are now designated as Pond #3, Pond #17, and Pond #28.

The Little Ogeechee River forms the southwestern boundary of HAAF and drains most of the installation (Figure 11). Tides exert a great influence on the river and salt water is carried upstream for some distance. Fresh to brackish tidal marshes have developed along much of the shore and the river is not a significant source of drinking water. Due to the large area of impervious surface associated with the airfield and cantonment area, large volumes of runoff are directed to the Little Ogeechee salt marsh/river system to the south. Drainage from these areas flows west through a stormwater drain system including a series of ditches to the Lamar Canal, flowing southwest to the Little Ogeechee River. Surface water resources at HAAF include 12 miles of brackish water streams and several small impoundments ranging in size from 4.3 to 9.7 acres.

The FSGA/HAAF manages streams that are identified as impaired under the CWA Section 303(d). This includes the application of BMPs in accordance with GA DNR guidance throughout the installation to limit sedimentation into waterways. These practices include:

- Implementing an Erosion Sedimentation Pollution Control Plan (ESPCP) for land disturbing activities to meet the requirements of the Georgia ESCA,
- Using Georgia Forestry Commission BMPs for timber harvests,
- Adopting Natural Resources Conservation Service (NRCS) conservation practices,
- Adopting unpaved road maintenance practices, and
- Repairing and preventing stream bank erosion due to increased stream flow velocities caused by urban runoff.

In all areas where vegetation has been wrested by normal stream flow, a 25-foot vegetative stream buffer must be maintained, to include surrounding surface water sources, wetlands, and natural or man-made stormwater drainage systems. Construction is generally not allowed within the buffer area; however, if construction requires intrusion into the buffer, a stream buffer variance (SBV) is required from GA DNR. At this time, there are no streams identified as impaired in the areas comprising the Study Area.

The FSGA/HAAF has a stormwater drainage system comprised of stormwater pipes, catch basins and inlets, concrete culverts, and grassed drainage ditches/swales. Stormwater is routed to drainage ditches and installation and concrete culverts that eventually discharge to maintained grass drainage ditches/swales and trapezoidal-shaped drainage channels. These structural features are primarily found in areas with impervious surfaces and development. In the less-developed areas on-Post, such as the outlying ranges and training lands, stormwater drainage is primarily overland flow following the topography of the land. The extensive stormwater drainage system allows for infiltration and some treatment in retention and/or detention basins to meet

regulatory requirements for post-construction runoff. Many projects related to military training (e.g., firing ranges) do not feature impervious surfaces to the same degree as many Civilian and private projects and will not experience human activity and traffic of the same frequency and intensity of impacts to the stormwater conveyance systems, existing and/or planned in associated with programmed range projects.

The Fort Stewart/HAAF only utilizes sedimentation ponds and/or basins during the construction phase of a project. The existing retention ponds and detention basins on the installation are post construction measures (structural BMPs), meant to ensure National Pollutant Discharge Elimination System (NPDES) permitting for runoff reduction, water quality, and total suspended solids removal of 80% are being met, as required. In 2008, the installation conducted stormwater modeling for the Mill Creek, Taylors Creek, and Peacock Creek Basins on FSGA, implementing recommendations for pipe size increases and required maintenance for existing pipes/culverts to allow and maintain proper flow. These recommendations were implemented by the installation.

The installation also adheres to the requirements of the Municipal Separate Storm Sewer System NPDES Permit requirements, the GA Stormwater Management Manual/Coastal Stormwater Supplement, the EISA-Section 438, the DPW Policy on Stormwater Management and Dry Detention/Extended Detention Basins, and all applicable EOs for all projects within the cantonment or range areas. In addition, Fort Stewart recommends the utilization of the U.F.C. "Design: LID Manual", and the USACEs Public Works Technical Bulletin "LID for Sustainable installations: Stormwater Design Planning Guidance for Development within Army Training Areas." The FSGA/HAAF has installed numerous LID solutions to minimize impairment to receiving water bodies, to include vegetating ditches with various native species (to provide shade, filter the water, and enhance habitat) and the installation of riprap and weirs (to increase dissolved oxygen and improve biological production within the water body). The FSGA operates industrial activities subject to the requirements of the USEPA and State of Georgia industrial NPDES regulations under the CWA. These regulations involve regulating stormwater discharges from industrial activities that have the greatest potential to contaminate runoff. The applicable installation industrial sectors include roads, motorpools, hangars, wastewater treatment facilities, and others.

Installation sources of industrial stormwater pollution have been identified on the Stormwater Pollution Prevention Plan (SWPPP) at FSGA. The SWPPP is reviewed annually and updated as required per the installation's Georgia NPDES General Permit, depending upon the frequency of operational or equipment changes, or whenever there is a major change in design, construction, operation, and/or maintenance of defined industrial activities that may impact the potential discharge of stormwater pollutants. The SWPPP prescribes BMPs that shall be implemented to reduce the potential for stormwater pollution, to include good housekeeping measures, material storage and management procedures, and preventive maintenance of equipment and facilities, to include underground storage tanks/aboveground storage tanks.

Wetlands (Figures 11 and 12). Wetlands are defined, per 33 CFR Part 328.3(b) of the CWA, as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Section 404 of the CWA regulates the discharge of dredge or fill material into waters of the United States, and the USACE holds the primary federal authority for regulation of these discharges.

A Nationwide Permit is required for activities resulting in minimal individual and cumulative potential environmental impacts, and an Individual Permit is required for activities that do not qualify for the Nationwide Permit program. Section 401 of the CWA requires that the state in which the activity occurs issue a Water Quality Certification for any activity requiring a Federal permit that may result in a discharge to state waters. This certification states that applicable effluent limits and water quality standards will not be violated. EO 11990, *Protection of Wetlands,* requires federal agencies to avoid new construction in wetlands unless it finds that there is no practicable alternative to such construction, and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. Given their prevalence on the installation, FSGA has made avoidance and minimization of wetlands impacts a top priority and wetlands are one of the primary factors to be considered when planning a new project. Avoidance is stressed during the siting process for projects on the installation, to the greatest degree possible, utilizing GIS mapping, the National Wetlands Inventory (NWI) and FSGA/HAAF subject matter expertise.

The NWI, a nationwide inventory of wetlands and deep-water habitats across the United States, was established by the USFWS for the purposes of management, research, and planning purposes, and serves as a tool for the Army when planning its projects. Wetland vegetative species on FSGA/HAAF include vegetative species such as pond cypress (Taxodium ascendens), bald cypress (T. distichum), black tupelo (Nyssa sylvatica), swamp tupelo (N. aquatica), sweetgum (Liquidambar styraciflua), pond pine (Pinus serotina), water oak (Quercus nigra), redbay (Persea borbonia), and fetterbush lyonia (Lyonia lucida). According to the GIS data, FSGA contains 85,785 acres of wetlands (Figure 12), and HAAF contains 1,639 acres of wetlands (Figure 11).

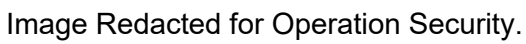


Figure 11: Surface Waters and Wetlands on HAAF, GA.

Image Redacted for Operation Security.

Figure 12: Surface Waters and Wetlands on FSGA

In accordance with the CWA and EO 11990, Fort Stewart implements measures to avoid, minimize and compensate for wetland impacts. Installation environmental and master planning team members avoid wetland impacts during the design process and, where wetlands cannot be completely avoided, the impacts to these sensitive resources are minimized and the impacts remaining are mitigated. All vegetation within the wetland areas and their buffers are flagged prior to the start of any work to ensure the contractor(s) clearly understands the physical demarcation limits and utilizes appropriate equipment and techniques for felling and removing vegetation. The grubbing, grading, and discharge of dredged or fill material into streams and wetlands requires prior coordination with/permitting through the USACE-Regulatory Branch (Wetlands). Wetland impact minimization efforts are documented during the proposed action design phase to assist with completion of the Individual Permit application.

Floodplains (Figures 13 and 14). Floodplains typically are described as areas likely to be inundated by a particular flood. Floodplains on Fort Stewart, as in much of the south Atlantic Coastal Plain, are linked to adjacent streams and rivers and serve watersheds through water storage and conveyance, filtration of nutrients and other pollutants, erosion control, groundwater recharge, fish and wildlife habitat, and recreation.

EO 11988, *Floodplain Management* (1977), and thereby DoD Instruction 4715.03 (DoD 2011), require Federal agencies to avoid construction or management practices that will adversely affect floodplains unless (1) there is no practicable alternative and/or (2) the proposed action is designed to minimize harm to or within the floodplain. Where impacts to floodplains are unavoidable or not practicable, the Army documents all steps taken to avoid adverse impacts, designs and/or modifies the actions it takes to minimize adverse impacts and explains why no practicable alternative to impacting the floodplain exists. Floodplains are of great value due to their ability to link adjacent streams and rivers and they serve a multitude of functions, including water storage and conveyance, filtration of nutrients and other pollutants from runoff, erosion control, and groundwater recharge, as well as a valuable habitat for fish and wildlife. Areas regulated under this EO include those lands subject to a 1% or greater chance of flooding in any given year, referred to as the 100-year floodplain.

The FEMA is responsible for mapping flood-prone areas. Floodplains are a link to adjacent streams and rivers, and serve various functions, including water storage and conveyance, filtration of nutrients and other pollutants from runoff, erosion control, groundwater recharge, fish and wildlife habitat, and recreation. To the greatest extent possible, FSGA avoids construction and other activities within these sensitive resources; however, in some cases, total avoidance is neither possible nor feasible, due to the predominance of wet conditions and/or low elevations found on FSGA.

The Georgia Stormwater Management Manual/CSS requires: (a) the review of all construction projects within a floodplain and (b) compliance with the Energy Independence Security Act-Section 438. Floodway encroachment, including structures, fill placement, etc. is generally prohibited unless certification with supporting technical data is provided by a registered professional engineer demonstrating the encroachment will not result in any increase in flood elevations upstream or downstream. When constructing within a floodplain, construction contractors must review the USEPA Technical Guidance for Implementation of EISA-Section 438 (USEPA 2009) and select from a series of floodplain-specific BMPs contained within the document.

Image Redacted for Operation Security.

Figure 13a: Floodplains on FSGA.

Image Redacted for Operation Security.

Figure 13b: Floodplains on FSGA Cantonment Area.

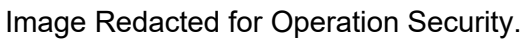


Figure 14: Floodplains on HAAF, GA.

The BMPs chosen must be tailored to a specific project and its unique site characteristics, to best address runoff reduction and flood protection measures and help minimize potential flooding and stormwater concerns in the future. The contractor must also adhere to the standard BMPs provided in the NPDES and other required permits for the site, as well as the Federal and State of Georgia guidelines for the floodplain. A State of Georgia certified Professional Engineer must document all hydrological analyses when preparing the ESPCP and incorporate the selected BMPs, ensuring State and Federal requirements are met for floodplain encroachments and flood controls, including runoff reduction and water quality requirements. In addition, State of Georgia requirements must be met, such as elevating the structures a minimum of 1-3 feet above the base flood elevation of the floodplain. The USGS has mapped flood-prone areas on FSGA/HAAF and lands lying within the floodplain, indicating there are 176,420 acres lying within the floodplain on FSGA (Figure 13) and 1,413 acres lying within the floodplain on HAAF (Figure 14).

3.4.5.2 ENVIRONMENTAL CONSEQUENCES

3.4.5.2.1 ALTERNATIVE I: NO ACTION

CZMA. No impacts to CZMA are anticipated as a result of operations and maintenance of the existing borrow pits and routine actions on the installation that rely on fill dirt from these resources, as none of the borrow pits on HAAF are located within the CZMA. No construction is proposed and there are no permitting or coordination requirements with the GA DNR, who manages CZMA activities. There are no CZMA sites on FSGA and no impacts are anticipated at that location.

Groundwater. Operation and maintenance of the existing borrow pits and routine actions on the installation that rely on fill dirt from these resources have the potential for short-term, indirect, negligible adverse impacts to groundwater. None of the routine actions on the installation include excavation deep enough to directly impact/reach the Floridan aquifer; however, there is a potential for runoff carrying sediments and chemicals to trickle down and into groundwater resources, thereby resulting in indirect effects to this resource. All proposed impacts are anticipated to be short-term, however, and negligible in scope. Adherence to installation BMPs, federal, state, and local laws and regulations, and standard operating protocols should minimize potential impacts and ensure they remain no more than negligible. The FSGA currently has an approximate 3.52mgd of potable water withdrawal capacity and implementation of the proposed action will not impact this status, as the borrow pits are not tied into the potable water system and contain no buildings or other facilities which will require that service in the future Current military and Civilian personnel usage on the installation do not result in adverse impacts on potable water use or storage requirements.

Surface Waters. Operation and maintenance of the existing borrow pits and routine actions on the installation that rely on fill dirt from these resources have the potential for short-term, direct, and indirect, negligible adverse impacts to surface waters. Some borrow pits are in the vicinity of streams and wetlands, due to their prevalence on the installation, and this enables sediments and/or contaminants to enter the surface water sources. All impacts are anticipated to be short-term and no more than negligible in scope as they are iterative, stopping at the end of the event (borrow pit usage). Impacts are minimized via implementation of the installation's E&S BMPs and any associated permits, which have historically resulted in none to negligible adverse impacts to this resource.

Floodplains. Operation and maintenance of the existing borrow pits and routine actions on the installation that rely on fill dirt from these resources have the potential for long-term, direct, and indirect, minor, adverse impacts to floodplains. The installation has recently developed a

Programmatic FONPA to account for these actions (routing for final signatures), which include actions as routine as overland flow from repairs and maintenance into a stream (indirect), repairs to existing culverts (direct) into a stormwater drainageway, and implementation of installation plans and programs such as the BPMP (direct and indirect). Impacts associated with these routine actions are short-term, iterative, and minimized via implementation of the installation's E&S BMPs and adherence to applicable permits. Due to the prevalence of floodplains on-Post and the fact that soil types desired for use in installation actions are located within floodplains, some of the existing borrow pits on FSGA are located within floodplains. No borrow pits on HAAF are located within floodplains.

In accordance with EO 11988, all new construction is designed upfront to reduce the risk of flood loss and to minimize the impact of floods on human safety, health, and welfare. Actions occurring at installation borrow pits do not fall within the categories of classic construction, however, and work at these sites cannot be elevated up and out of the floodplain. Therefore, work at these locations emphasizes drainage and stormwater management practices to minimize impacts to floodplains. The project POC for each action is responsible for the technical support documentation for each Notice of Intent (NOI) utilized at installation borrow pits, and documentation is coordinated through the installation Borrow Pit and Floodplains POCs. Potential impacts to floodplains are due to reducing the floodplain's capacity and can include the increased risk of flood damage to the surrounding landscape, such as nearby wetlands or human-occupied areas. Increasing disruption to the floodplain, such as decreasing floodplain space, may increase flood heights elsewhere, but this can be mitigated through landscape features that deal with larger stormwater events, such as placing dry detention basins, bio-retention cells and/or grassed channels near natural outfalls. Such features are designed to detain stormwater and gradually release it to reduce potential of downstream flooding and erosion. These measures are implemented for all borrow pits in floodplains and have been proven historically to result in no more than short-term and negligible adverse impacts.

Wetlands. Operation and maintenance of the existing borrow pits and routine actions on the installation that rely on fill dirt from these resources have the potential for long-term, direct, minor, adverse impacts to wetlands. There are four borrow pits located within wetlands on the installation, resulting in direct impacts to these resources. As discussed earlier, however, all impacts are permitted, monitored, and as discussed under floodplains, impacts have historically shown to be minimized via implementation of the installation's E&S BMPs, the ITAM/LRAM process, and adherence to applicable permits.

Overall, this alternative is anticipated to result in no impacts to CZMA, short-term, direct, and indirect, negligible adverse impacts to Groundwater and Surface Water; long-term, direct, and indirect, minor, adverse impacts to Floodplains; and long-term, direct, minor adverse impacts to Wetlands.

3.4.5.2.2 ALTERNATIVE II: IMPLEMENT BPMP AND ID TEAM RECOMMENDATIONS

CZMA. Excavation of new borrow pits and the expansion of existing borrow pits is anticipated to result in no impacts to CZMA on HAAF and FSGA, as discussed under Alternative I.

Groundwater. Excavation of new borrow pits and the expansion of existing borrow pits is anticipated to result in short-term, indirect, minor, adverse impacts to groundwater are anticipated on FSGA due to ground disturbance, which will result in approximately 150 acres of timber harvest, site clearing, and other actions required to establish 14 new borrow pits and expand 36 existing borrow pits. Excavation will not occur at depths sufficient to directly impact the aquifer

system; however, there is a potential for waterborne pollutants (e.g., sediment) resulting from excavation-related activities to be transported into the groundwater system via runoff from these sites. Following protocols outlined in the installation's SWPPP, installation spill prevention plan, and the specific NOI for each borrow pit, will help minimize these potential effects to no more than minor, and ensure they remain short-term and not persistent. The FSGA currently has an approximate 3.52mgd of potable water withdrawal capacity and implementation of the proposed action will not impact this status, as the new, expanded, and existing borrow pits are not tied into the potable water system and contain no buildings or other facilities which will require that service in the future No impacts associated with Groundwater resources and the BPMP implementation are anticipated on HAAF, as no excavation activities are proposed at that location. Short-term, indirect, negligible, adverse impacts are still anticipated on FSGA and HAAF due to routine actions that support the installation's mission.

Surface Waters. Excavation of new borrow pits and the expansion of existing borrow pits is anticipated to result in long-term, direct, minor, adverse impacts are anticipated to surface waters on FSGA under this alternative. Approximately 150 acres of vegetated/forested lands will be converted into cleared areas (borrow pits) as a result of timber harvest and borrow pit operations, creating the potential for direct impacts to surface waters via overland runoff. Impacts may be minimized via adherence to site-specific E&S permits, their requirements therein, and federal, state, and local laws and regulations. Impacts are anticipated to be long-term and direct, as the removal of trees and establishment of the borrow pits will permanently alter the environment at each location and associated future runoff from the site may likewise continue over the long term into surface water systems at each location. Permitting and the establishment of site-specific erosion control BMPs will be implemented prior to land disturbance, including timber harvest BMPs, and must be in accordance with the GWQA and GA ESCA. The BMPs will be identified in advance on an ESPCP developed by the contractor or other responsible entity for the proposed action. These BMPs must be utilized at all times and will be inspected by the Army periodically for adequacy. All deficiencies require correction. The ESPCP will also include requirements identified in the *Manual for Erosion and Sedimentation Control for the State of Georgia*, the CSS, EISA Section 438, and local stormwater control requirements, and will be coordinated through the installation DPW Environmental Division Stormwater POC.

Permitting also requires fees in the amount of $80.00/disturbed acre and must be paid to the GA EPD. The project's executing agency (U.S. Army), or contractor will provide a copy of the fee submission to the installation Environmental Office along with a prepared and initialed NOI for coverage under the State's NPDES Permit. Land disturbance may not commence until 14 days from the date of certified mailing of the NOI packet to GA EPD. Excavation activities are primarily maintained a minimum of 25 feet from all surface water sources, to include wetlands; however, if site clearing or other construction-related activities require intrusion into the buffer area, the installation will apply for a SBV, and this helps ensure that runoff rates post-construction will be commensurate with those identified pre-construction.

During excavation activities, the State of Georgia requires an E&S certified individual be on the site during any land disturbance activity. The contractor is expected to comply with this requirement. In order for the Army to accept the project as complete, the site must be stabilized to prevent silts and sediments from leaving the construction site. The installation must agree that the project site meets necessary site stabilization parameters as required by the State of Georgia prior to project acceptance by the Army. Implementation of permitting requirements may also be involved in renovation and demolition projects on post, as well as the proposed road improvements projects. All projects that propose soil disturbance and are in the vicinity of surface

water sources must adhere to these requirements for the protection of water resources and the avoidance of adverse impacts. No impacts to surface waters on HAAF are anticipated, as no borrow pit excavation or expansion is proposed at that location.

Floodplains. Excavation of new borrow pits and the expansion of existing borrow pits is anticipated to result in long-term, direct, minor, adverse impacts to floodplains under this alternative. As discussed under Alternative I, establishment of a borrow pit and expansion of an existing borrow pit, does not fall within the category of classic construction, and impacts are primarily anticipated from timber harvest of approximately 150 acres of land and excavation to establish the new or expanded borrow pits. Excavation of new borrow pits will impact approximately 34 acres of floodplains and expansion of existing borrow pits will impact approximately 30 acres of floodplains, for a total of approximately 64 acres of floodplains impacted; collectively, this is not a substantial impact when compared to the 176,420 total acres of floodplains on FSGA, as well as the historically effective measures employed by the installation to minimize floodplain impacts.

The installation stakeholders conducted site surveys to locate potential borrow pits in non-floodplain areas; however, site surveys did not identify enough non-wetland and non-floodplain sites that were the right size and soil type sufficient to meet the needs of the installation. The locations identified will generate around 65,340 cy during their useful life and all existing borrow pits proposed for expansion will generate an additional 9,680 cy of fill during their useful life; site surveys confirm they contain the required fill materials. Non-floodplain forested lands on post are also primarily reserved for training on the installation and not available for development, which further restricts siting options. All identified locations are adjacent to the existing transportation network, and all were determined to have no significant adverse impacts to protected species, wetlands, or cultural resources, as verified by the FSGA/HAAF Environmental Division subject matter experts. Accordingly, it was determined that the there is no practicable alternative to siting the new borrow pits and expanding the existing borrow pits within the floodplain on FSGA.

Fort Stewart shall minimize flooding, erosion and/or sedimentation on adjacent upstream or downstream properties. As discussed under Alternative I, this is not classic construction, and work at these sites cannot be elevated up and out of the floodplain. Instead, work will emphasize drainage and stormwater management practices that minimize impacts to floodplains, and each borrow pit user will prepare and adhere to required BMPs in the NOI prepared for and associated with their individual project, all of which is coordinated through the installation Borrow Pit and Floodplains POCs. These measures will minimize potential adverse impacts at these locations. No new borrow pit excavation or expansion of existing borrow pits is proposed on HAAF and there are no impacts to floodplains anticipated at that location.

Wetlands. Excavation of new borrow pits and the expansion of existing borrow pits is anticipated to result in long-term, direct, minor, adverse impacts to wetlands. No new borrow pits are sited in wetlands; however, FSGA proposes to expand four existing borrow pits that are already located with wetlands. Excavation at those locations, if approved, is anticipated to impact approximately 30 acres of wetlands; collectively, this is not a substantial impact when compared to the 85,785 acres of wetlands located on FSGA, as well as the historically effective measures employed by the installation to minimize floodplain impacts. As discussed under Floodplains, the locations identified will generate the needed amount of fill and site surveys confirm they contain the required fill materials. As discussed under floodplain, the locations identified will generate the required additional amounts of fill during their useful life and site surveys confirm they contain the required fill materials. Non-floodplain forested lands on post are primarily reserved for training on the

installation and not available for development, which further restricts siting options. All identified locations are adjacent to the existing transportation network, and all were determined to have no significant adverse impacts to protected species, wetlands, or cultural resources, as verified by the FSGA/HAAF Environmental Division subject matter experts. Accordingly, it was determined that there is no practicable alternative to expanding the existing borrow pits within the wetlands on FSGA.

As discussed under Alternative I, implementation of BMPs and other measures that are routinely employed at installation borrow pits been proven historically to result in no more than short-term and negligible adverse impacts. Once the expanded borrow pits are up and running, it is anticipated that implementation of these measures will have the same results in the operational phases of these locations. Adherence to E&S BMPs, as previously discussed, minimizes and/or prevents potential impacts to adjacent wetlands from runoff. Indirect beneficial impacts may occur as a result of the closure of two borrow pits (one on FSGA and one on HAAF), as they typically attenuate naturally into ponds over time and become used as recreational resources on the installation. No new or expanded borrow pits are planned at HAAF and no impacts are anticipated at that location.

Overall, this alternative is anticipated to result in no impacts to CZMA; short-term, indirect, minor, adverse impacts to Groundwater; long-term, direct, minor, adverse impacts are anticipated to Surface Water; long-term, direct, minor, adverse impacts to Floodplains; and long-term, direct, minor, adverse impacts to Wetlands.

3.4.5.3 CUMULATIVE IMPACTS

The ROI for Water Quality and Resources lies within and directly adjacent to the boundaries of FSGA and HAAF. Past, present, and reasonably foreseeable future actions with the potential to result in cumulative impacts to Water Quality and Resources are discussed in the section below.

3.4.5.3.1 ALTERNATIVE I: NO ACTION

Past actions in the ROI consist of the historical development of the communities of Hinesville and FSGA, Savannah and HAAF, and the associated infrastructure and transportation network that supports them, all of which required substantial amounts of earth-moving and fill materials to be properly established. These past actions impacted the topography and hydrology of the region over time, but efforts have been implemented to maintain the vital functions these systems serve for flood control and maintaining water quality standards, thereby minimizing adverse cumulative impacts to surface waters and floodplains. Site stabilization measures, to include grass and tree planting, were implemented as part of the development process, minimizing some of the potential adverse impacts. Present actions in the ROI that rely on fill dirt from the on-Post borrow pits are commensurate with these past actions, as discussed under the assessment of direct and indirect impacts.

As discussed previously, reasonably foreseeable future actions in the ROI that will rely on fill material from on-Post borrow pits include potential implementation of the MDTF and/or the ERCA stationing action on FSGA (resulting in approximately 25 acres of site clearance, grading, site stabilization), construction of the CLFR and Scout/RECCE Range on FSGA (resulting in approximately 30 acres of site clearance, grading, and site stabilization), and construction of the 3/160th Complex on HAAF (resulting in approximately 20 acres of site clearance, grading, site stabilization). Fill materials from the on-Post borrow pits would be required to support these new

constructions project, although exact amounts are not known prior to the design process. The installation will use its siting process to avoid surface waters, wetlands, and floodplains to the best of its ability, minimizing potential impacts to these resources. The 74 existing borrow pits on the installation are nearing the end of their useful life and if suitable types and quantities of fill are not available on-Post, they will be sought from off-Post locations within the ROI, at considerable cost and effort to the mission. If there are not enough housing units on the installation cantonment area to support the MDTF/ERCA and/or their Families, there may be a commensurate amount of construction in Hinesville to ensure their support, resulting in additional borrow pit requirements from existing sources in that portion of the ROI. However, as previously discussed in this PEA, personnel who work on the installation, and in the adjacent communities, are familiar with installation policies and procedures, ensuring minimization measures and BMPs are employed. The installation has an existing water quality testing regime in place and will continue to monitor the project's established website associated to determine what steps to take should turbidity become an issue of concern at this portion of the installation. Overall, these actions are anticipated to result in no more than minor adverse cumulative impacts to Water Quality and Resources.

3.4.5.3.2 ALTERNATIVE II: IMPLEMENT BPMP AND ID TEAM RECOMMENDATIONS

Past, present, and future actions in the ROI are as discussed under Alternative I; however, under this alternative approximately 65 acres of floodplains and 30 acres of wetlands associated with additional tree clearance and ground disturbance is anticipated to account for the new and expanded borrow pits. This is not anticipated to result in a substantial difference in cumulative impacts, as an additional 150 acres is not a significant reduction in a forest of 280,000 total acres, totaling less than 1% of vegetation reduction and associated impacts to water resources in the ROI. As previously discussed, personnel who work on the installation, and in the adjacent communities, are familiar with minimization measures and BMPs and will adhere to all requirements established in the E&S plans, permits, and, on installation lands, with the applicable FONPA. Overall, these actions are anticipated to result in moderate adverse cumulative impacts to Water Quality and Resources.

3.4.6 LAND USE

Land use generally refers to human modification of land for a specific use but may also refer to the specific or primary use that a community has set aside for a parcel of land. Land use is guided by management plans, policies, ordinances, and/or regulations that determine the types of activities that are allowed on that specific parcel of land, as well as established guidelines for implementing said activities and the process through which new activities may be added over time. The Army Real Property Master Planning process determines the types of activities that are allowed on specific portions of Army land and the installation utilizes the master planning process to efficiently and appropriately manage land uses and development decisions across the installation (FSGA 2009).

Compatibility of land use adjacent to military installations is encouraged at the federal, state, and local levels, and several encroachment prevention efforts may be used, including conservation partnerships, regional and county comprehensive plans, zoning codes, state or federal legislation, and financial assistance. The ROI for Land Use is the lands immediately within the boundary of FSGA and HAAF. *Note: analysis determined no potential impacts to Army Compatible Use Buffer/Joint Land Use Study, Visual Resources, Solid Waste/Landfills, and Recycling, and they are accordingly discussed in Appendix D: Resources Eliminated. Components of Land Use on the installation with the potential to be impacted by the proposed action are discussed below.*

3.4.6.1 AFFECTED ENVIRONMENT

Training. The FSGA, in conjunction with HAAF (a subordinate installation), provides a full spectrum of individual and collective training for combat, combat service, and combat service support personnel. Fort Stewart is home to the 3rd ID, a Combined Arms and Infantry Division, and direct subordinate unit of the XVII Airborne Corps. Fort Stewart has over 270,000 acres of training, maneuver, range, and dudded/non-dudded impact area (IAs), which support training from individual weapons qualification up to large scale force-on-force maneuvers and situational training exercises. Live-fire training at Fort Stewart can include basic marksmanship, direct-fire gunnery (tracked and wheeled vehicles) and indirect fire (artillery and mortar), collective fire, and aerial gunnery. Training for qualification on demolition, live hand grenades, and claymores also occurs on several special live-fire ranges.

The Fort has 121 separate training areas (TA), with wheeled and dismounted light maneuvers occurring in 64 areas and heavy tracked and wheeled maneuvers in 54 areas. Non-live-fire collective training occurs at multiple Urban Operations Sites (UOS) located throughout the Fort. Primary airfield support is provided by HAAF, however the former WAAF, now the Midcoast Reginal Airport, is used as a joint military-Civilian facility. The airport is located east of the cantonment area along Fort Stewart's southern boundary. The airport is managed by a Joint Management Board consisting of the City of Hinesville, Liberty County, and the U.S. Army. Military operations at the airport include both rotary-and fixed-wing aircraft.

Aviation units can train at all echelons on Fort Stewart from individual through battalion/squadron. There are ten rotary-wing tactical airstrips on Fort Stewart including Camp Oliver, Fero, Bastogne, Taylors Creek, Burton, Taro, Remagen, Jaeck, Canoochee, and Cartwright (Fort Stewart, 2012a). Fixed-wing aircraft also conduct training missions within the airspace using Drop Zones and impact areas on the installation for weapon delivery practice. Unmanned Aerial System (UAS) aircraft operate within the restricted areas in dedicated operating zones.

All training is conducted in compliance with the provisions of AR 385-63, DA Pam 385-63, AR 350-19, weapons system Technical Manuals (TMs), the FSGA/HAAF Aviation Procedures Guide (2015), and the Post Range Guide (FSGA/HAAF, 2019b) and is managed via Range Facility Management Support System (RFMSS), an integrated data management system utilized by the FSGA/HAAF Range Division to track and manage the use of the installation's ranges and training lands. The Army Range Requirements Model (ARRM) is the official source of doctrinal requirements for range and training land assets in accordance with AR 350-19, *The Army Sustainable Range Program*. To help ensure the Army has the lands and ranges it needs to meet future training requirements, the Army has implemented a "Sustainable Range Program (SRP)." Army Training Circular (TC) 25-8, "Training Ranges," describes the standard designs and requirements of the Army's SRP for training Army units to doctrinal standards. Due to operational and safety constraints, no training is allowed at, within, or adjacent to any borrow pits on the installation.

Recreation. Recreational resources consist of the activities, both indoor and outdoor, that are available to a population in a certain area, and potential impacts to this resource are evaluated by the effect of a proposed action to the facilities or natural resources that support these activities. Recreational opportunities are managed and maintained by the Directorate of Family, Morale, Welfare, and Recreation (DFMWR) and there are several sources of recreation on-Post and include the Golf Courses, swimming pools, and several playgrounds throughout the cantonment area and AFHAs. The FSGA has a local, regional, and even national reputation for quality hunting

and fishing, and four of the top 20 largemouth bass on record for Georgia have been caught from Fort Stewart ponds. The game program is equally impressive, especially for deer, feral hog, and turkey. Both FSGA/HAAF put a considerable effort into increasing the level of awareness of opportunities to hunt, fish, and otherwise enjoy the out-of-doors on the installations. These programs are often a joint effort by the FSGA/HAAF Environmental Division Fish and Wildlife Branch and DFMWR Outdoor Recreation.

Any person may hunt or fish on the installation provided he or she is authorized to do so by the installation Commander and possesses the necessary Sikes Act Permit, access pass, and State licenses. In accordance with Title 16, U.S. Code 670b, the possession of a special State Sikes Act Permit will not relieve the Permittee of requirements of other Federal laws (i.e., Endangered Species Act, Migratory Bird Treaty, Lacey Act), nor of requirements pertaining to State laws as set forth in Title 16, U.S. Code 670. Fort Stewart/Hunter AAF policies toward public access are within both the spirit and letter of Army and Defense policies. The FSGA/HAAF has over 2,500 hunting permit holders, who take 40,000-50,000 trips to the field annually, and 3,000-4,000 fishing permit holders, who make over 30,000 fishing trips annually, which add about $4,000,000 annually to local economies. All of these resources are managed and maintained by the Environmental Division Fish & Wildlife Branch through the iSportsman program. Borrow pits are not located in the vicinity of the recreational resources on the installation; however, closed borrow pits naturally attenuate into ponds due to the high-water table on FSGA/HAAF, which are then used for fishing and other recreational activities on the installation.

3.4.6.2 ENVIRONMENTAL CONSEQUENCES

3.4.6.2.1 ALTERNATIVE I: NO ACTION

No impact to Land Use on the installation is anticipated as a result of this alternative. Existing recreational resources are not located in the vicinity of existing operational borrow pits and they are accordingly not impacted by their operations. No impact to the training program is anticipated, as no training is allowed in the vicinity of the existing borrow pits, thus ensuring operational and safety measures are securely implemented. Ongoing, routine activities on FSGA/HAAF will continue, to include routine operations, repair, maintenance, and training activities, all of which have no impacts to Land Use on the installation.

3.4.6.2.2 ALTERNATIVE II: IMPLEMENT BPMP AND ID RECOMMENDATIONS

No impacts are anticipated to recreational resources as a result of the excavation of new borrow pits, the expansion of existing borrow pits, or the management of the existing borrow pits, as recreational resources are not located in the vicinity of these sites, and they will not directly or directly impact these resources. However, the BPMP proposes to close one borrow pit each at FSGA and HAAF, and once closed, borrow pits naturally attenuate over time into ponds, and it is therefore possible that these ponds may be stocked and utilized as recreational and/or fishing ponds in the future, representing a long-term, direct, beneficial impact for recreational resources on the installation. The resulting ponds will be added to the list of recreational resources for the installation and available for schedule in RFMSS. There will be no change to their land use category as a result of converting from a borrow pit to a pond, as they still fall within the range and training lands and are scheduled via Range Division's RFMSS system.

The FSGA/HAAF Range Division identified Firing Points FP-7 and FP-78 as locations for use as new borrow pits, as these locations are no longer used for training purposes and the loss of this 8.47 acres and 3.75 acres, respectively, will not adversely impact the training program on FSGA.

Once converted to borrow pits, this change in use will not require a change in their land use category or result in any other adverse impact to land use, as they still fall within the range and training lands; they will merely go from management by the Range Division to management by the Environmental Division. As discussed under Alternative I, no training is allowed in the vicinity of borrow pits, and this will be the same for all new, expanded, and existing borrow pits, thus ensuring operational and safety measures are securely implemented. Ongoing, routine activities on FSGA/HAAF will continue, to include routine operations, repair, maintenance, and training activities, all of which have no impacts to Land Use on the installation. Overall, long-term, direct, beneficial impacts to Land Use are anticipated as a result of this alternative.

3.4.6.3 CUMULATIVE IMPACTS

The ROI for Land Use lies within the boundaries of FSGA and HAAF.

3.4.6.3.1 ALTERNATIVE I: NO ACTION

There are no cumulative impacts anticipated to Land Use under this alternative, as there are no direct or indirect impacts.

3.4.6.3.2 ALTERNATIVE I: IMPLEMENT BPMP AND ID RECOMMENDATIONS

Past actions in the ROI consist of the historical development of the communities of Hinesville and FSGA, Savannah and HAAF, and the associated infrastructure and transportation network that supports them, all of which required substantial amounts of earth-moving and fill materials to be properly established. These past actions reduced the amount of forested acreage within the ROI available for recreational use; however, efforts have been implemented over time to maintain the natural environment and provide hunting, fishing, and other recreational opportunities to those living and working in the ROI. Past and present actions in the ROI that rely on fill dirt from the on-Post borrow pits have not greatly impacted these resources, as discussed under the assessment of direct and indirect impacts. Reasonably foreseeable future actions in the ROI that will rely on fill material from on-Post borrow pits, such as the MDTF and/or the ERCA stationing action on FSGA, construction of the CLFR and Scout/RECCE Range on FSGA, and construction of the 3/160th Complex on HAAF will not occur proximate to existing or future recreational resources on the installation and are not anticipated to result in cumulative impacts.

3.4.7 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

3.4.7.1 AFFECTED ENVIRONMENT

In 2021, FSGA/HAAF commissioned an EICA through the CBAER, a component of the Business Innovation Group at Georgia Southern University. The study is a comprehensive analysis of the economic contribution the installation makes to the Savannah-Hinesville-SHSCSA, which includes Bulloch, Bryan, Effingham, Chatham, Liberty, Long and Wayne Counties and includes the entirety of FSGA and HAAF. Although part of FSGA's northwestern boundary lies within Tattnall County, it was not included in this specific economic analysis and no explanation was provided for it not being included in the 2021 EICA; however, economic impacts are anticipated to be similar to those in the other counties discussed in this EICA.

As discussed earlier in this document, the EICA did not analyze indices associated with Environmental Justice (EJ); accordingly, the installation utilized the EPA's EJ Screen to identify existing conditions associated with EJ in the local, regional, state, and national environment. The

EJ Screening Tool utilized data from Chatham, Bryan, Liberty, Evans, and Long Counties (EJ ROI), which account for all of HAAF and all but a small portion of the northwestern corner of FSGA (Tattnall). For the purposes of this analysis, it captures all of the required data, as no EJ communities are identified in that northwestern portion of the ROI, as shown on the EJ Screen figures (Appendix G). Other documents utilized in this section include the Compressive Plan 2040 for Chatham County-Savannah, Hinesville Area Metropolitan Planning Organization 2045 Plan, FSGA/HAAF Consolidated Strength Report, and U.S. Census Data. For the purposes of this analysis, the Study Area for Socioeconomics is the SHSCSA and the Study Area for EJ is the counties from which data was analyzed in the EJ Screening tool, or the EJ ROI. See appendix G for description of the affected environment.

3.4.7.2 ENVIRONMENTAL CONSEQUENCES

Impacts to Socioeconomic and EJ Resources anticipated as a result of implementing the proposed action are discussed in this section. For the purposes of this analysis, the ROI for Socioeconomics is the SHSCSA and the ROI for EJ is the counties from which data was analyzed in the EJ Screening tool, or the EJ ROI.

3.4.7.2.1 ALTERNATIVE I: NO ACTION

Operation and maintenance of the existing borrow pits and routine actions on the installation that rely on fill dirt from these resources have the potential for long-term, direct, minor, beneficial, impacts to Socioeconomics. Population growth in the Study Area has been consistent over the past 20 years and is anticipated to continue under this alternative. This is due in part to the presence of a healthy local and regional economy in which there are numerous job opportunities. Both FSGA/HAAF contributed approximately 14.9 percent of the total employment opportunities in the region in 2021, consisting of $1.27 billion in military salaries, $210 million in Civilian service salaries, and $164 million in retiree's pensions (CBAER, 2021). These funds provide support to the businesses in the region that support the military, their dependents, Civilian service workers, and the retiree community in the region, and this in turn provides a stable source of employment in the region. In 2021, the unemployment rate of the SHSCSA was 2.4 percent, less than that of the state of Georgia at 3.1 percent for the same period, and this is anticipated to continue under this alternative.

As indicated in Appendix G, Figure G-9, the percentage of persons living under poverty had been decreasing steadily within the Study Area over a three-year period. No discussion is provided for the cause of this decrease; however, this region has a strong economy and diverse employment opportunities that may have contributed to the decreasing trend in poverty. No updated, post-2019, statistics from the overall Study Area were available; however, 2020 statistics from the individual counties indicate persons living in poverty had risen from 15.1 % to 15.6% in Chatham County but decreased from 15.9% to 14.7% in Liberty County and decreased overall in the State of Georgia from 15.1% to 14.0% (UGA, 2022). Again, this relatively consistent decrease in overall poverty levels could be due to the strong economy in the Study Area and the contribution of the military to the overall economy in the region and the state. Although there is a 0.5% increase in poverty in Chatham County, this is not a substantially high increase and could be due to the difficulties experienced nation-wide due to COVID and/or other factors.

Routine ongoing activities under this alternative are not anticipated to impact the elderly, the handicapped, and those without transportation in the SHSCSA, as these populations are not known to be present in the vicinity of the existing borrow pits on the installation and because

existing services in the region will not be impacted by these routine ongoing activities. The Coastal Area Agency on Aging serves the nine counties along the Georgia coast, including Bryan, Bulloch, Camden, Chatham, Effingham, Glynn, Liberty, Long and McIntosh, ensuring all seniors, persons with disabilities, and Family caregivers are able to access information and services that promote health, mental well-being, and options for their daily lives within the Study Area. Public transportation services are available to assist the elderly and the handicapped and ensure they have consistent access to services needed for their support, including medical care, shopping, and others. Handicapped access is required in all facilities and all city/county transportation services, including on FSGA and HAAF, unless a valid exception is needed and granted (such as on installation ranges). There are numerous reliable public transportation services in the Study Area, some of which also travel on post, to assist persons without transportation of their own.

Routine, ongoing activities are not anticipated to impact children and the homeless in the Study Area, as these populations are not known to be present in the vicinity of the existing borrow pits on the installation and because existing services in the region will not be impacted by these routine ongoing activities. There are numerous schools, Child Development Centers, pre-school, after-school, tutoring, and other child-focused resources in the Study Area for parents to access. Child welfare services for children in need of assistance are also numerous throughout the multi-county area. There are services within the Study Area to assist those struggling with homelessness, including on FSGA and HAAF. All facilities proposed for demolition on the installation must first be analyzed to see if they qualify for housing for the homeless, per HUD protocols. Residents in this region on fixed incomes are eligible for assistance via Social Security, retirement, public assistance, and food stamps, and this also aids vulnerable members of the Study Area. Overall, long-term, direct, minor, beneficial, impacts are anticipated to Socioeconomics under this alternative.

No impacts are anticipated to EJ-MGM communities under this alternative. There are no EJ-MGM communities located within the boundaries of FSGA, although EJ-MGM communities do lie several miles to its southeast (Appendix G, Figure G-6). None of the routine, ongoing activities on FSGA are anticipated to impact this community or disrupt existing services that are provided to it or on which it is dependent in the Study Area. This includes services for the elderly, children, unemployed, and those living in poverty, all of whom will continue to be served by the existing services within the community, as discussed under Socioeconomics. All other activities that could potentially impact this community, such as noise from training, occur too far within the interior of the installation to leave its boundaries and adversely impact this community. Accordingly, no impacts are anticipated.

There are no EJ-MGM communities located within the boundaries of HAAF, although EJ-MGM communities lies adjacent to HAAF (Appendix G, Figure G-7). None of the routine, ongoing activities on HAAF are anticipated to directly impact this community or disrupt existing services that are provided to it or on which it is dependent in the Study Area. This includes services for the elderly, children, unemployed, and those living in poverty, all of whom will continue to be served by the existing services within the community, as discussed under Socioeconomics. All other activities that could potentially impact this community, such as noise from training, occur too far within the interior of the installation to leave its boundaries and adversely impact these communities. The HAAF is a smaller installation than FSGA, however, if a unique training activity is planned, where higher than normal noise levels or new noise levels are anticipated, FSGA/HAAF ensures prior notice is provided to neighboring communities via the installation Public Affairs Office, to minimize potential impacts to HAAF and adjacent off-post communities. Accordingly, activities on the installation are not having a disproportionally high and adverse effect

on an EJ-MGM community and no impacts are anticipated. Overall, long-term, direct, minor, beneficial, impacts are anticipated to Socioeconomics and no impacts are anticipated to EJ under this alternative.

3.4.7.2.2 ALTERNATIVE II: IMPLEMENT BPMP AND ID RECCOMENDATIONS

This alternative has the potential for long-term, direct, moderate, beneficial impacts to Socioeconomics, as it will include the additional economic benefits associated with excavation of 14 new borrow pits and the expansion of 36 existing borrow pits. Funds generated from these activities are anticipated to be moderate and iterative as actions are implemented at each location (new borrow pit or expanded existing borrow pit). As this is not major construction, it is anticipated that the work will be completed by companies already in the Study Area and using an existing work force. An influx of new personnel and their associated Family members is not anticipated, nor is their associated increase in population, and population levels are anticipated to remain steady, as discussed under Alternative I. All other potential impacts are as discussed under Alternative I. No impacts are anticipated to EJ-MGM communities under this alternative. No impacts are anticipated as a result of the closure of two borrow pits, as this is an administrative process only.

Overall, long-term, direct, moderate, beneficial, impacts are anticipated to Socioeconomics and no impacts are anticipated to Environmental Justice under this alternative.

3.4.7.3 CUMULATIVE IMPACTS

The ROI for Socioeconomics is the SHSCSA and the ROI for EJ is the EJ ROI. Past, present, and reasonably foreseeable future events with the potential to result in cumulative impacts are considered in the analysis below.

3.4.7.3.1 ALTERNATIVE I: NO ACTION

Overall, minor beneficial cumulative impacts are anticipated under this alternative. The population in the ROI has grown steadily over the past 20 years and this trend is anticipated to continue for the reasonably foreseeable future, or next 20 years (Appendix G, Figure G-2). Data collected by the U.S. Census Bureau and CRC indicates the greatest anticipated future growth in Effingham County and the least anticipated growth is in Liberty County. The lack of growth in Liberty County may be due to persons working in the Liberty County/FSGA area but residing in outlying, adjacent counties. Growth within Chatham County, which contains HAAF, is anticipated to remain consistently positive over the long term, although not to the same degree as anticipated in Effingham County. This growth may be complemented by reasonably foreseeable future actions in the ROI, such as potentially receiving personnel and dependents associated with the MDTF and/or the ERCA on FSGA. The realignment of one or both of these units may increase the population in the ROI by as much as 500 Soldiers per action (plus their Family), although no decisions have been made at this time.

The military presence contributes substantially economically to the ROI and was identified as a $27.8 billion component of a $616 billion state economy (GA) in 2021 and this is anticipated to remain constant in the ROI in the future. There are no known plans to close FSGA or HAAF (such as Base Realignment and Closure actions) and the installation has continual realignments to and from its roster of active units on post that contribute positively to the economic base of the ROI. Military personnel, their dependents, Civilian services workforce, and retirees will continue to

contribute to the economic base. If the MDTF and/or the ERCA are assigned to FSGA, they will contribute to the local economy in a beneficial manner as this incoming population will eat at local restaurants, buy local gas, and shop at local stores, and these impacts will ripple out into the overall ROI.

Support of an increasing population may require construction of new housing and schools within the ROI, and it is anticipated there are sufficient workers and resources within the ROI to accomplish these tasks. Housing and schools will continue to be developed to support these persons, as needed. No impacts are anticipated to EJ communities, as no direct impacts were anticipated. Overall, minor beneficial cumulative impacts are anticipated under this alternative.

3.4.7.3.2 ALTERNATIVE II: IMPLEMENT BPMP AND ID TEAM RECOMMENDATIONS

Impacts resulting from implementation of this alternative are primarily as discussed under Alternative I; however, under this alternative the installation will also implement the BPMP, which will result in the excavation of 14 new borrow pits, the expansion of 36 borrow pits, and the closure of two borrow pits. These projects, when combined with the other future actions discussed under Alternative I, all have the potential for minor beneficial cumulative impacts to Socioeconomics in the ROI. As discussed under Alternative I, it is not anticipated that these job opportunities will bring in a substantial population from outside of the ROI; however, it will be a beneficial stimulus to the local economy and moderate beneficial cumulative impacts are anticipated. No impacts to EJ communities are anticipated under this alternative, as none were identified under the direct and indirect analysis.

3.4.8 HAZARDOUS MATERIALS/WASTE MANAGEMENT AND REMEDIATION

The FSGA/HAAF Environmental Division oversees the management of hazardous materials and wastes on behalf of the military units and activities on the installation, in accordance with 32 CFR 650, *Environmental Protection and Enhancement*, and other applicable Federal, state, DoD, and local laws and regulations. The primary hazardous wastes generated are those associated with vehicle and aircraft maintenance, and the waste stream includes used lubricating oil, hydraulic fluid, degreasing solvent, scrap metal, wire, and waste asbestos. Other wastes generated on the installation includes waste acid, lead-based paint, waste paint, paint sludge, polychlorinated biphenyls (PCBs) in transformer oil, plastics, pesticides, herbicides, sanitary wastes, and construction debris. All hazardous wastes generated by Army activities are taken to the DPW Environmental Division's 90-day Treatment, Storage, and Disposal Facility for disposal. Construction wastes are not disposed of on FSGA or HAAF but are instead taken to off-Post sites approved for construction waste disposal.

Analysis determined there will be no impacts to buildings and/or facilities with the potential to contain asbestos containing materials (ACM), lead based paint (LBP), and/or PCBs; accordingly, no impacts associated with these materials are anticipated as a result of the proposed action. None of the borrow pits currently existing and/or proposed in the future are located in the vicinity of aboveground or underground storage tanks (ASTs/USTs) and no new tanks are required for the use or management of the borrow pits; accordingly, no impacts are associated with these resources. Accordingly, ACM, LBP, PCB, ASTs, and USTs, are not discussed further in this section; however, they are discussed briefly in Appendix D.

The Installation Restoration Program for FSGA/HAAF is outlined in the Installation Action Plan (IAP), which identifies environmental cleanup requirements at each site, or area of concern, and proposes a comprehensive approach to conduct investigations and necessary remedial actions.

Contaminants of concern on HAAF include volatile organic compounds, semi-volatile organic compounds, total petroleum hydrocarbons, pesticides, and PCBs. Media of concern include soil, groundwater, surface water, and sediment. Fort Stewart filed a Resource Conservation Recovery Act (RCRA) notification form with the EPA for FSGA and HAAF in July 1980, and a RCRA Part A permit application for interim status as a generator and storage facility was filed in November 1980. Subsequently, HAAF obtained a Part A permit and was under interim status as a hazardous waste generation and storage facility. In 1983, the EPA directed HAAF to file a RCRA Part B permit application and conducted a compliance inspection of HAAF. Following the compliance inspection, the EPA ruled that HAAF did not require a Part A or B permit because hazardous wastes generated at HAAF are transferred to the Defense Reutilization Marketing Office storage yard at FSGA and managed at that location. The Part B permit for FSGA was subsequently revised to include quantities of wastes generated at HAAF. Currently, HAAF does not have a RCRA permit from the State of Georgia, so sites "from which hazardous constituents might migrate" are not known as solid waste management units, but instead as areas of concern.

On September 4, 2018, the Army issued guidance for addressing releases of per- and polyfluoroalkyl substances (PFAs) on Army lands (DA, 2018) that applied to Active Army Installations, Base Realignment and Closure installations, Army National Guard facilities, and Army Reserve facilities. Currently, the Army is performing preliminary assessments (PAs) and site inspections (SIs) on the current or potential historical use of PFAS with a focus on perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS), at Army installations (installations) nationwide. These PAs identify areas of potential interest (AOPIs) where PFAS-containing materials were used, stored, and/or disposed, or areas where known or suspected releases to the environment occurred. Each SI includes multi-media sampling at AOPIs to determine whether or not a release has occurred, and may conclude further investigation is warranted, a removal action is required to address immediate threats, or no further action is required. All PAs/SIs are completed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), National Oil and Hazardous Substances Pollution Contingency Plans, and Army/DoD policy and guidance (see Appendix G for Executive Summary of the PAs completed for FSGA and HAAF).

The Fort Stewart PA identified 13 AOPIs for investigation during the SI phase and the HAAF PA identified 13 AOPIs during the SI PA, the results of which were compared to risk-based screening levels calculated by the Office of the Secretary of Defense (OSD). The results on FSGA indicated the presence of PFOS, PFOA, and/or PFBS in soil and/or groundwater at 12 AOPIs, and that 9 of the 13 AOPIs had these contaminants present at concentrations greater than the risk-based screening levels. The results on HAAF also indicated that PFOS, PFOA, and/or PFBS were present in soil, groundwater, surface water and/or sediment at 13 AOPIs, and that 12 of the 13 AOPIs had PFOS, PFOA, and/or PFBS present at concentrations greater than the risk-based screening levels. Accordingly, it was determined that there is a need for further study in a CERCLA remedial investigation, the exact timing, and details for which are currently pending. The full sampling results and recommendations are identified in Table G-1 (Appendix G). The installation does not routinely site borrow pits in the vicinity of remediation sites; however, it may be permitted based on the type of remediation activities occurring at that site. There are two remediation sites adjacent to proposed new borrow pits with the potential to result in adverse impacts to Hazardous Materials/Wastes Management and Remediation.

3.4.8.1 ENVIRONMENTAL CONSEQUENCES

3.4.8.1.2 ALTERNATIVE I: NO ACTION

Under this alternative, no impacts are anticipated in association with the routine operations, repair, and maintenance on post, as they are typically minimally intrusive. This includes routine operations at the existing borrow pits on the installation, actions which are confined to the boundaries of the existing borrow pit and which do not extend into any known Solid Waste Management Unit (SWMU), MMRP or identified AOPIs. Should contamination be inadvertently encountered during routine operations on post, the contaminated materials are handled in accordance with federal, state, and local laws and regulations, by trained and certified personnel, and sent to an approved disposal facility off the installation. In addition, installation Remediation POCs are notified and included in these inadvertent discovery operations. No impacts are anticipated from training, as all brass and ammunition resulting from training operations on post are appropriately collected and managed in accordance with Army, Installation, state, and federal regulations, SOPs, and laws.

3.4.8.1.2 ALTERNATIVE II: IMPLEMENT BPMP AND ID TEAM RECOMMENDATIONS

Long-term, indirect, minor, adverse impacts to Hazardous Materials/Waste Management and Remediation sites on post are anticipated as a result of excavating one new borrow pit in the vicinity of SWMU 11, a former Explosive Ordnance Division munitions site on WAAF; it is also in the vicinity of PFAS AOPI 33R Approach at WAAF (Figures 15-17). This site is currently stable, with no erosion, and groundwater contamination is not anticipated to leave this site as a result of a rainfall event. Based on the terrain (surface contours), surface water and groundwater at this location appear to flow in a southerly direction around the airfield and not towards the location proposed for the borrow pit.

The FSGA Remediation Section concurred with the development of the borrow pit at this location, as long as all work remains at least 100 feet away from the SWMU's existing fence, to preclude damage to the fence. The proposed borrow pit location is north and east of the SWMU and AOPI, which will prevent the borrow pit being impacted by these contaminants, as well as preventing the SWMU or AOPI from being impacted by the operations at the borrow pit, based on their locations and the direction of groundwater flow. Overall, this should result in no more than indirect, minor, adverse impacts to Hazardous Materials/Waste Management and Remediation, although the impacts will be long-term as the borrow pit will be in constant use once it is established. There are no other program management concerns or land use controls required to implement this proposed action; however, if suspect materials are encountered during the excavation of the borrow pit at this location, the contract personnel conducting the work shall contact the Borrow Pit POC, who shall then contact the Remediation POC for guidance.

One new borrow pit was previously proposed in the wooded area adjacent to MMRP Site FSTW-010-R-01 (Figure 18). This site is currently under active surface area removal actions for UXO and is located within the range fan of a former active firing range. The GA EPD agreed to the surface removal and land use controls currently in place for this area; however, this did not include excavation of a borrow pit in its vicinity. Accordingly, installation stakeholders removed this site from the list of proposed new borrow pits on the installation, this development will not occur, and this site is now x-ed out on Figure 18.

None of the other borrow pits proposed for excavation or expansion are in the vicinity of known SWMUs, MMRP sites, or identified AOPIs. Should contamination be inadvertently encountered

during routine operations on post, the contaminated materials are handled in accordance with federal, state, and local laws and regulations, by trained and certified personnel, and sent to an approved disposal facility off the installation. In addition, installation Remediation POCs are notified and included in these inadvertent discovery operations. No impacts are anticipated from training, as all brass and ammunition resulting from training operations on post are appropriately collected and managed in accordance with Army, installation, state, and federal regulations, SOPs, and laws.
There are no program management concerns with the remaining new borrow pits or expanded borrow pits proposed on FSGA, and there are no program management concerns with the closure of any of the borrow pits on FSGA or HAAF. No new borrow pits are proposed on HAAF and there are no program management concerns at that portion of the installation. Accordingly, long-term, indirect, minor, adverse impacts to Hazardous Materials/Waste Management and Remediation are anticipated on FSGA and no impacts are anticipated at HAAF.

3.4.8.2 CUMULATIVE IMPACTS

The ROI for Hazardous Materials/Waste Management and Remediation lies within the installation boundaries, as none of the actions proposed have the potential to impact off-Post locations. Past, present, and reasonably foreseeable future events with the potential to result in cumulative impacts are considered in the analysis below.

3.4.8.2.1 ALTERNATIVE I: NO ACTION/STATUS QUO

No cumulative impacts are anticipated to Hazardous Materials/Waste Management and Remediation under this alternative, as no direct or indirect impacts are anticipated.

3.4.8.2.2 ALTERNATIVE II: IMPLEMENT BPMP AND ID TEAM RECOMMENDATIONS

Past and present actions in the ROI consist of the historical development of FSGA/HAAF and the associated infrastructure and transportation network. Development would have consisted of periodic iterations of timber harvest, site clearing/grading/stabilization, and construction/demolition in the ROI. This would have included the use of hazardous materials and their collection, the generation of hazardous wastes and their disposal, and the creation of contaminated sites within the ROI. Periods of development were followed by iterations of routine operations, repairs and maintenance, and military training, which did not significantly add to adverse impacts in the ROI. Over time, cleaner materials were developed and utilized on post, as well as improved methods of collecting and disposing of hazardous materials/wastes, minimizing some of these potential adverse impacts. Methods were also developed to remediate sites where contamination had occurred, resulting in beneficial impacts within the ROI. Present actions in the ROI consist of routine operations, repair and maintenance, and military training on FSGA/HAAF, which may also contribute to cumulative impacts in the ROI.

Future actions in the ROI include the continuation of routine operations, repair and maintenance, and training on HAAF. Projects identified on Table 3, Future Projects in the ROI, have the potential for minor adverse cumulative impacts, most notably any construction on the cantonment area to support realignments associated with the weapons modernization actions, for which exact facility siting is not currently known. However, program involvement in project siting, implementation of known contaminant avoidance measures, early sampling and contaminant removal, and early integration of known minimization measures and BMPs will minimize adverse impacts to a less than significant level. Overall, minor adverse cumulative impacts are anticipated to Hazardous Materials/Waste Management and Remediation in the ROI.

Image Redacted for Operation Security.

Figure 15: SWMUs and MMRP Sites on FSGA in Proximity to Borrow Pits.

Image Redacted for Operation Security.

Figure 16: SWMU-11 Adjacency to Proposed New Borrow Pit on FSGA.

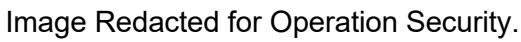


Figure 17: AOPI Sites on FSGA.

Figure 18: MMRP Site Adjacent to Proposed New Borrow Pit on FSGA.

4.0 CONCLUSIONS

This PEA considered the potential environmental impacts of implementing a BPMP on FSGA and HAAF, the purpose of which is to ensure borrow pits and (the fill materials they contain) on the installation are managed in a programmatic nature, in accordance with defined standards and guidelines established by installation experts and stakeholders, and in accordance with local, state, and federal laws. This action will also help ensure land management actions on FSGA and HAAF are implemented in a manner that ensures compliance with applicable laws and regulations, maintains access for training, testing, and mission requirements, and helps mitigate emerging threats such as climate change by safeguarding forests and other beneficial environments that are essential to carbon sequestration efforts.

The analysis of the proposed action was completed via a programmatic approach to allow for early planning, coordination, and flexibility in program management for this valuable resource on the installation, and to allow for an early identification of potential environmental impacts. This also provides the decision maker for the proposed action with the appropriate information required to make a through and informed decision. This programmatic analysis will also serve as the basis for future, tiered, NEPA analysis as details associated with implementation of the new and expanded borrow pits analyzed herein are developed.

Analysis in this PEA determined that a FONSI is warranted, and an Environmental Impact Statement was not required. This analysis also supports the development of a FONPA for potential impacts to floodplains and wetlands on FSGA and HAAF. A summary of the potential environmental impacts is presented in Table 5 and was utilized by the decision maker to assist in the development of the findings for this action.

Table 5: Summary of Environmental Impacts

Type of Impact	Alternative I: No Action	Alternative II: Implement BPMP and ID Team Recommendations
Air Quality		
Direct / Indirect	PSD – No Impact Permitting – No Impact NAAQs - Long-Term, Direct, Negligible Adverse	PSD – No Impact Permitting – No Impact NAAQs - Short-Term, Direct, Minor Adverse Impacts
Cumulative	Minor Adverse	Minor Adverse
Climate Change/Extreme Weather		
Direct / Indirect	Drought – No Impact Wildfire – Short-term, Direct, Negligible Adverse Coastal & Riverine Flooding – Long-Term, Direct, Minor Adverse	Drought – No Impact Wildfire – Short-term, Direct, Negligible Adverse Coastal & Riverine Flooding – Long-Term, Direct, Minor Adverse
Cumulative	Minor Adverse	Minor Adverse
Biological Resources		
Direct / Indirect	Protected Species: Long-Term, Direct, Negligible Adverse Wildlife / Migratory Birds: Short-Term, Indirect, Negligible, Adverse Vegetation: No Impact Prescribed Burns – No Impact	Protected Species: Long-Term, Direct, Minor Adverse Wildlife, Migratory Birds: Long-Term, Indirect, Negligible, Adverse Vegetation: Long-Term, Direct, Minor, Adverse Prescribed Burns – Long-Term, Direct, Minor Beneficial
Cumulative	Minor Adverse	Minor Adverse

Type of Impact	Alternative I: No Action	Alternative II: Implement BPMP and ID Team Recommendations
Cultural Resources		
Direct / Indirect	Long-Term, Direct, Negligible-to-Minor Adverse	Long-Term, Direct, Minor-to-Moderate Adverse
Cumulative	Minor Adverse	Moderate Adverse
Water Quality and Resources		
Direct / Indirect	CZMA: No Impact Groundwater: Short-Term, Indirect, Negligible Surface: Short-Term, Direct/Indirect, Negligible, Adverse Floodplains: Short-Term, Direct/Indirect, Negligible, Adverse Wetlands: Short-Term, Direct/Indirect, Negligible, Adverse	CZMA: No Impact Groundwater: Short-Term, Indirect, Minor, Adverse Surface: Long-Term, Direct, Minor, Adverse Floodplains: Long-Term, Direct, Minor, Adverse Wetlands: Long-Term, Direct, Minor Adverse
Cumulative	Minor Adverse	Moderate Adverse
Land Use		
Direct / Indirect	No Impact	Long-Term, Direct, Beneficial Impact
Cumulative	No Impact	Negligible Beneficial Impact
Socioeconomics and Environmental Justice		

Type of Impact	Alternative I: No Action	Alternative II: Implement BPMP and ID Team Recommendations
Direct / Indirect	Socioeconomics: Long-Term, Direct, Minor Beneficial Environmental Justice: No Impact	Socioeconomics: Long-Term, Direct, Moderate, Beneficial Environmental Justice: No Impact
Cumulative	Minor Beneficial	Minor Beneficial
Hazardous Materials/Wastes/Remediation		
Direct / Indirect	No Impact	Long-Term, Indirect, Minor, Adverse
Cumulative	No Impact	Minor Adverse

5.0 ABBREVIATIONS and ACRONYMS

ACUB..... Army Compatible Use Buffer
ADA ..... Americans with Disabilities Act
ARRM ..... Army Range Requirements Model
AQR..... Air Quality Control Region
AR ..... Army Regulation
BMP..... Best Management Practice
BPMP ..... Borrow Pit Management Program
BN. ..... Battalion
BDE ..... Brigade
CAA …….Clean Air Act
CAWPP ……Cantonment Area Wildlife Protection Plan
CC-S..... Chatham County-Savannah
CC/EW …….Climate Change/Extreme Weather
CFR ..... Code of Federal Regulation
CO_{2e} ..... Carbon Dioxide Equivalent
CRD ..... Coastal Resources Division (of GA DNR)
CSR ..... Consolidated Strength Report
CSS ..... Coastal Stormwater Supplement
CWA ..... Clean Water Act
CZMA ..... Coastal Zone Management Act
DA ..... Department of the Army
DOD..... Department of Defense
DNR …… (GA) Department of Natural Resources
DPW ..... Director of Public Works; *or*
DPW ..... Directorate of Public Works
EA ..... Environmental Assessment
EJ ..... Environmental Justice
EO ..... Executive Order
EPA ..... (U.S.) Environmental Protection Agency
EPD ..... (GA) Environmental Protection Division
ERCA..... Extended Range Cannon Artillery System
ESA ..... Endangered Species Act
ESCA……Erosion and Sedimentation Control Act
ESMP ..... Endangered Species Management Plan
FAA..... Federal Aviation Administration
FEMA ..... Federal Emergency Management Agency
FONSI..... Finding of No Significant Impact
FONPA ..... Finding of No Practicable Alternative
FY ..... Fiscal Year
GC ..... Garrison Commander
GIS ..... Geographic Information System
GHG ..... Greenhouse Gas
GWQA …….Georgia Water Quality Act
HAMPO … Hinesville Area Metropolitan Planning Organization
HAP ..... .Hazardous Air Pollutant
HQDA ..... Headquarters, Department of the Army
ICRMP ..... Integrated Cultural Resource Management Plan
ID Team ..... Interdisciplinary Team

IEWP ……Installation Energy and Water Plan
IMCOM ……(U.S. Army) Installation Management Command
INRMP …….Integrated Natural Resources Management Plan
IPMP…….Integrated Pest Management
ITAM ..... Integrated Training Area Management
LID Low Impact Development
LRAM ..... Land Rehabilitation and Management
MBTA..... Migratory Bird Treaty Act
MDTF..... Multi-Domain Task Force
MGA ……Meaningfully Greater Analysis
MPO …… Metropolitan Planning Organization
NAAQS ..... National Ambient Air Quality Standards
NAGPRA..... Native American Graves Protection and Repatriation Act
NEPA..... National Environmental Policy Act
NHPA..... National Historic Preservation Act
NMFS ..... National Marine Fisheries Service
NOA..... Notice of Availability
NOAA ..... National Oceanic and Atmospheric Administration
NOI Notice of Intent
NOT …… Notice of Termination
NPDES ..... National Pollutant Discharge Elimination System
NRHP ..... National Register of Historic Places
NWI ..... National Wetland Inventory
NWS-CPC ... National Weather Service – Climate Prediction Center
OSJA ..... Office of the Staff Judge Advocate
PA ..... Programmatic Agreement
PAO..... Public Affairs Office
PCN..... Preconstruction Notification
PEA ..... Programmatic EA
PSD ..... Prevention of Significant Deterioration
RCI ..... Residential Communities Initiative
REC..... Record of Environmental Consideration
RFFMS……..Range Facility Management Support System
ROI ..... Region of Influence
SHPO ..... State Historic Preservation Office
SJA ..... Staff Judge Advocate
SME..... Subject Matter Expert
SOP..... Standard Operating Procedure
UFC ..... Unified Facilities Criteria
U.S.C. ..... United States (U.S.) Code
USACE ..... U.S. Army Corps of Engineers
USAEC ..... U.S. Army Environmental Command
USAG ..... U.S. Army Garrison
USFWS..... U.S. Fish and Wildlife Services
USGS ……. U.S. Geological Service
UXO ……...Unexploded Ordnance

6.0 GLOSSARY

Affected Environment / Area of Potential Effect (APE): The area potentially impacted by the proposed action that is under analysis. This includes both the physical environment (wetlands, wildlife, etc.) and the human or built environment (cultural resources, Socioeconomics, utilities, etc.). This also includes adherence to all applicable laws, regulations, permits, and policies associated with potential impacts to the environment from that proposed action.

Army Compatible Use Buffer (ACUB): In recent years, Army installations have been experiencing increasing encroachment from a variety of sources, including population growth, urban land use, and environmental requirements. The ACUB program is a proactive tool that enables the Army to proactively address encroachment and contribute funds to the purchase of easements and properties with willing landowners. These partnerships preserve high-value habitat and limit incompatible land use near military installations.

Best Management Practices (BMPs): Structural, nonstructural, and management techniques that are the most effective and practical means to control and/or minimize the entry of pollutants into the resource under discussion. The BMPs can include maintenance procedures; treatment requirements; operating procedures; and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Buffer Zone: An area adjacent to a sensitive resource that is left undisturbed. For example, 25-foot buffer zones are required adjacent to many wetlands to ensure ground disturbance near these resources does not result in soils entering these sensitive areas and causing adverse impacts.

Council on Environmental Quality (CEQ): Established by Congress within the Executive Office of the President, the CEQ coordinates federal environmental efforts and works closely with agencies and other White House offices in the development of environmental policies and initiatives. The Council's Chair, who is appointed by the President with the advice and consent of the Senate, serves as the principal environmental policy adviser to the President. The CEQ reports annually to the President on the state of the environment, oversees federal agency implementation of the environmental impact assessment process, and acts as a referee when agencies disagree over the adequacy of such assessments.

Criteria Pollutant: An air pollutant that is regulated by National Ambient Air Quality Standards. The Environmental Protection Agency must describe the characteristics and potential health and welfare effects that form the basis for setting, or revising, the standard for each regulated pollutant. Criteria pollutants include sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and two size classes of particulate matter (PM), PM10 and PM2.5 New pollutants may be added to, or removed from, the list of criteria pollutants as more information becomes available.

Critical Habitat: The specific areas within a geographical area occupied by a species on which are found those physical or biological features essential to the conservation of that species and which may require special management considerations or protection.

Cultural Resources: Historic properties as defined by the National Historic Preservation Act, cultural items as defined by the Native American Graves Protection and Repatriation Act, archaeological resources as defined by the Archaeological Resources Protection Act, sacred sites as defined in EO 13007 to which access is afforded under the American Indian Religious Freedom

Act, and collections and associated records as defined in 36 CFR 79, Curation of Federally Owned and Administered Archaeological Collections.

Cumulative Effects / Impacts: The impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Direct Effects / Impacts: The effects of an action which are caused by that action and occur at the same time and place.

Effects and *Impacts:* As used in NEPA, these are synonymous, and include the natural, human, and social environment, and must be accounted for whether they are direct, indirect, or cumulative. See also Environmental Consequences.

Endangered species: Plants or animals that are in danger of extinction through all or a significant portion of their identified range and that have been listed as endangered by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service following the procedures outlined in the Endangered Species Act and its implementing regulations.

Environmental Consequences: Environmental effects of project alternatives, including the proposed action, any adverse environmental effects which cannot be avoided, the relationship between short-term uses of the human environment, and any irreversible or irretrievable commitments of resources which would be involved if the proposal should be implemented.

Erosion: The process in which a material is worn away by a stream of liquid (water) or air.

Executive Order (EO): Official proclamation issued by the President that may set forth policy or direction or establish specific duties in connection with the execution of federal laws and programs.

Floodplain: The lowlands and relatively flat areas adjoining inland and coastal waters and the flood-prone areas of offshore islands. Floodplains include, at a minimum, that area with at least a 1.0 percent chance of being inundated by a flood in any given year. The *base floodplain* is defined as the area, which has a 1.0 percent or greater chance of being flooded in any given year. Such a flood is known as a 100-year flood. The *critical action floodplain* is defined as the area, which has at least a 0.2 percent chance of being flooded in any given year. Such a flood is known as a 500-year flood. EO 11988, the lowland and relatively flat areas adjoining inland and coastal waters including flood-prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year.

Geographic Information System (GIS): A system of computer hardware, software, and geographic data designed to capture, store, update, manipulate, analyze, and display geographically referenced data.

Groundwater: Water below the ground surface in a zone of saturation. This water is all water that exists in the interstices of soil, rocks, and sediment below the land surface, including soil moisture, capillary fringe water, and groundwater. That part of subsurface water in interstices completely saturated with water is called groundwater.

Habitat: The place where a population (e.g., human, animal, plant, microorganism) lives and its surroundings, both living and non-living.

Hard Look: In NEPA, the lead agency has the requirement of a substantial, good faith effort at studying, analyzing, and expressing the environmental issues in the NEPA document and decision-making process, and recognizing that a rule of reason must prevail. Legally, the courts determine if the lead agency has taken a “hard look” by checking the NEPA document for completeness of information and detail, soundness of analysis, thorough discussion of alternatives, and disclosure of sources. Conclusions are supported in a manner in a manner capable of judicial understanding. “More than a scintilla, less than a preponderance of evidence.”

Hazardous Air Pollutants (HAPs): Air pollutants not covered by ambient air quality standards, but which may present a threat of adverse human health effects or adverse environmental effects. Those specifically listed in 40 CFR 61.01 are asbestos, benzene, beryllium, coke oven emissions, inorganic arsenic, mercury, radionuclides, and vinyl chloride. More broadly, HAPs are any of the 189 pollutants listed in or pursuant to section 112(b) of the Clean Air Act. Very generally, HAPs are any air pollutants that may realistically be expected to pose a threat to human health or welfare.

Historic Property: Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.

Human Environment: "Human environment" shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment, also referred to as the Built Environment.

Indirect Effect/Impact: Indirect impacts are caused by the action and are later in time or farther removed in action or distance but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. See also effect.

Integrated Cultural Resource Management Plan (ICRMP): A 5-year plan developed and implemented by an installation commander to provide for the management of cultural resources in a way that maximizes beneficial effects on such resources and minimizes adverse effects and impacts without impeding the mission.

Integrated Natural Resource Management Plan (INRMP): The Installation Commander’s plan for the management of natural resources, including fish, wildlife, and plants; allow multipurpose uses of resources; and provide public access where appropriate for those uses, without any net loss in the capability of an installation to support its military mission. The INRMP is required under provisions of the Sikes Act (as Amended, 1997) and DoDD 4700.4.

Joint Land Use Study (JLUS): Analytical planning study of Civilian development patterns and land use activities in the vicinity of a military installation that result in recommendations for instituting

compatible Civilian land use activities and development patterns that protect and preserve the utility and the operational effectiveness of military installations.

Land Disturbance: Exposed soil due to clearing, grading, or excavation activities. This is also commonly referred to as ground disturbing activities.

Land Use: General term used to describe how land is or may be utilized or developed, whether for industrial, commercial, residential, training, or other purposes. *Land Use Plan*: A plan which establishes strategies for the use of land to meet identified needs.

Mitigation: Planning actions taken to avoid an impact altogether, to minimize the degree or magnitude of the impact, reduce the impact over time, rectify the impact, or compensate for the impact.

National Ambient Air Quality Standards (NAAQS): Standards defining the highest allowable levels of certain pollutants in the ambient air (i.e., the outdoor air to which the public has access). Because the Environmental Protection Agency must establish the criteria for setting these standards, the regulated pollutants are called criteria pollutants. Criteria pollutants include sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and two size classes of particulate matter, less than 10 micrometers (0.0004 inch) in diameter, and less than 2.5 micrometers (0.0001 inch) in diameter. Primary standards are established to protect public health; secondary standards are established to protect public welfare (e.g., visibility, crops, animals, buildings).

National Emissions Standards for Hazardous Air Pollutants (NESHAPs): Emissions standards set by the Environmental Protection Agency for air pollutants which are not covered by National Ambient Air Quality Standards (NAAQS), and which may, at sufficiently high levels, cause increased fatalities, irreversible health effects, or incapacitating illness. These standards are given in 40 CFR §61 & §63. The NESHAPs are given for many specific categories of sources (e.g., equipment leaks, industrial process cooling towers, dry cleaning facilities, petroleum refineries).

National Pollutant Discharge Elimination System (NPDES): A provision of the Clean Water Act which prohibits discharge of pollutants into waters of the United States unless a special permit is issued by the Environmental Protection Agency, a state, or, where delegated, a tribal government on an Indian reservation.

National Register of Historic Places: The nation's inventory of known historic properties that have been formally listed by the National Park Service. The National Register of Historic Places is administered by the National Park Service on the behalf of the Secretary of the Interior. National Register listings include districts, landscapes, sites, buildings, structures, and objects that meet the set of criteria found in 36 CFR 60.4.

Native American: Of, or relating to, a tribe, people, or culture that is indigenous to the United States. [Title 25 U.S.C 3001(9)] of, or relating to, a tribe, people, or culture indigenous to the United States, including Alaska and Hawaii.

Natural Resources: The viable and/or renewable products of nature and their environments of soil, air, and water. Included are the plants and animals occurring on grasslands, rangelands, croplands, forests, lakes, and streams.

No-Action Alternative: The alternative where current conditions and trends are projected into the future without another proposed action.

Particulate Matter (PM): Any finely divided solid or liquid material, other than uncombined (i.e., pure) water. A subscript denotes the upper limit of the diameter of particles included. Thus, PM10 includes only those particles equal to or less than 10 micrometers (0.0004 inch) in diameter; PM2.5 includes only those particles equal to or less than 2.5 micrometers (0.0001 inch) in diameter.

Preferred Action: In a NEPA document, this is typically the action that has been selected for implementation after consideration of purpose and need, project and cumulative impacts, and public comments.

Programmatic Agreement: A document that records the terms and conditions agreed upon to resolve the potential adverse effects of a Federal agency program, complex undertaking, or other situations in accordance with 36 CFR §800.14(b).

Proposed Action: A plan that contains sufficient details about the intended actions to be taken, or that will result, to allow alternatives to be developed and its environmental impacts analyzed. In a NEPA document, this is the primary action being considered. Its impacts are analyzed together with the impacts from alternative ways to achieve the same objective and the required no action alternative, which means continuing with the status quo.

Purpose and Need: Explanation of why the federal agency and project proponent are undertaking the proposed action and what objectives they intend to achieve. Basis may include capacity and transportation demand, safety, legislative directive, economic development/planned growth, modal interrelationships, and system linkage and roadway deficiencies. The statement of purpose and need provides the basis for developing a range of reasonable alternatives and, ultimately, the identification of the preferred alternative.

Record of Environmental Consideration (REC): A signed statement submitted with project documentation that briefly documents that an Army action has received environmental review. RECs are prepared for CXs that require them, and for actions covered by existing or previous NEPA documentation. A REC briefly describes the proposed action and timeframe, identifies the proponent and approving official(s), and clearly shows how an action qualifies for a CX, or is already covered in an existing EA or EIS.

Region of Influence or Interest: Often defined in NEPA documents to prescribe the geographic extent that is being evaluated for a particular resource. It may vary among resources. Thus, the region of influence for air emissions, which may be widely dispersed, or for wildlife, which are mobile, may be larger than the region of influence for plants, which are sedentary. This term is often used in association with the consideration of project or cumulative impacts.

Sensitive Species: A species identified by a State, federal, local agency; the state heritage program, or other organization, that is recognized to be in need of conservation management in order to maintain existing limited populations, distributions, or declining populations.

State Historic Preservation Officer (SHPO): Reflects the interests of the State and its citizens in the preservation of their cultural heritage. the SHPO advises and assists Federal agencies in carrying out their Section 106 responsibilities and cooperates with such agencies, local

governments and organizations and individuals to ensure that historic properties are taking into consideration at all levels of planning and development. See also Tribal Historic Preservation Officer.

Surface Water: All bodies of water on the surface of the earth and open to the atmosphere, such as rivers, lakes, reservoirs, ponds, seas, and estuaries.

Tribal Historic Preservation Officer: Section 101(d)(2) of the National Historic Preservation Act authorizes the Federally recognized tribes the responsibilities of the State Historic Preservation Officer (SHPO) for purposes of Section 106 compliance on their tribal lands. They have designated Tribal Historic Preservation Officers (THPOs) whom Federal agencies consult in lieu of the SHPO for undertakings occurring on, or affecting historic properties on, tribal lands.

Watershed: The land area that drains water to a particular stream, river, or lake. It is a land feature that can be identified by tracing a line along the highest elevations between two areas on a map, often a ridge. Large watersheds, like the Mississippi River basin contain thousands of smaller watersheds.

Wetlands: Those areas that are inundated by surface water or groundwater with a frequency sufficient to support, and under normal circumstances do or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas (e.g., sloughs, potholes, wet meadows, river overflow areas, mudflats, natural ponds). *Jurisdictional wetlands* are those wetlands protected by the Clean Water Act. They must have a minimum of one positive wetland indicator from each parameter (i.e., vegetation, soil, and hydrology). The USACE requires a permit to fill or dredge jurisdictional wetlands.

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8.0 PERSONS AND AGENCIES CONSULTED

Carlile, Larry. 2022. Acting Chief, Fish and Wildlife Branch, Environmental Division, Directorate of Public Works (DPW). Fort Stewart, Hunter Army Airfield, Georgia (FSGA/HAAF).

Christopher, Craig. 2022. Toxic Substances Control Act/Spill Program Manager, Environmental Division, DPW. FSGA/HAAF.

Crumbley, Craig. 2022. Pest Management Coordinator, Environmental Division, DPW. FSGA/HAAF.

Davis, Johnny. 2022. Solid Waste/Recycling Program Manager, Environmental Division, DPW. FSGA/HAAF.

Frazier, Veronica. 2022. Infrastructure Section Leader, Environmental Division, DPW. FSGA/HAAF.

Fry, Thomas. 2022. Chief, Environmental Division, DPW. FSGA/HAAF.

Greer, Brian. 2022. Cultural Resources Program Manager, Environmental Division, DPW. FSGA/HAAF.

Harris, George. 2022. Wetlands Program Manager, Environmental Division, DPW. FSGA/HAAF.

Kendrick, Melissa. 2022. NEPA Project/Integrator, Environmental Division, DPW. FSGA/HAAF.

King, Ronald. 2022. AST/UST and Sustainability Management System Program Manager, Environmental Division, DPW. FSGA/HAAF.

Lavender, David. 2022. Supervisory Wildlife Biologist. Environmental Division, DPW. FSGA/HAAF.

McCormick, Amber. 2022. Planner, Planning and Engineering Division, DPW. FSGA/HAAF.

Montano, Christian. 2022. Stormwater/Erosion and Sedimentation Program Manager, Environmental Division, DPW. FSGA/HAAF.

Montano, David. 2022. Air Quality Program Manager, Environmental Division, DPW. FSGA/HAAF.

Montano, Kevin. 2022. Wastewater Program Manager, Environmental Division, DPW. FSGA/HAAF.

Rutland Tressa. 2022. Chief, Prevention and Compliance Branch, Environmental Division, DPW. FSGA/HAAF.

Thomas, Stanley. 2022. Water Quality Program Manager, Environmental Division, DPW. FSGA/HAAF.

Wemett, Kyle. 2022. Chief, Planning and Engineering Division, DPW. FSGA/HAAF.

APPENDIX A

Public and Regulatory Review

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

David B. Dove, Interim Director

Land Protection Branch
2 Martin Luther King, Jr. Drive
Suite 1054, East Tower
Atlanta, Georgia 30334
404-657-8600

MEMORANDUM

TO: Kim Hembree

FROM: Mo Ghazi

DATE: July 21, 2023

RE: Review of the Draft Programmatic Environmental Assessment for Implementation of a Borrow Pit Management Program for Fort Stewart/Hunter Army Airfield, Georgia.

This Programmatic Environmental Assessment (PEA) has been prepared to analyze the potential impacts of implementing a Borrow Pit Management Program (BPMP) on the natural, cultural, and socioeconomic environment at Fort Stewart and Hunter Army Airfield. The purpose of the proposed action is to ensure borrow pits and the fill materials they contain are managed in a programmatic nature, in accordance with defined standards and guidelines established by installation experts and stakeholders, and in accordance with local, state, and federal laws. This PEA was submitted to the Georgia Environmental Protection Division (EPD) to review and comment on potential impacts of implementing a BPMP.

Of the two proposed alternative actions in the subject document, *Alternative II: Implement BPP and Team Recommendations* is the chosen alternative. Under this alternative, the U.S. Army will implement a BPMP on Fort Stewart and Hunter Army Airfield (HAAF) and the recommendations of the Interdisciplinary Team. Alternative II will include excavation of 14 new borrow pits on Fort Stewart, expansion of 36 existing borrow pits on Fort Stewart, the closure of one borrow pit on Fort Stewart, and the closure of one borrow pit on HAAF.

EPD has reviewed the PEA and determined there are several active Solid Waste Management Units (SWMUs) and Military Munitions Response Program (MMRP) sites at Fort Stewart and Hunter Army Airfield. In the PEA there is no mention of any of the SWMUs and MMRP sites or their proximity to the proposed Borrow Pit activities. Since EPD's Department of Defense Facilities Unit is responsible for overseeing the environmental corrective action measures at Fort Stewart and HAAF, I recommend adding a section in the PEA to demonstrate that there is no impact on active remedial activities or land use controls at these SWMU and MMRP sites. In addition, since two sections of this PEA deals with erosion and air quality, I recommend that the PEA also be reviewed by appropriate programs within EPD.

From:	Mckain, Dina M CIV USARMY USAG (USA)
To:	Mckain, Dina M CIV USARMY USAG (USA)
Subject:	MARNE MESSAGE June 20, 2023: Gate 7 closure; Housing Town Hall; Sports Physicals; G3/DPTMS Training Resource Conference; FMWR events and programs; more
Date:	Tuesday, June 20, 2023 12:04:11 PM

PLEASE DISTRIBUTE TO YOUR WORKFORCE, AND SOLDIERS THROUGHOUT YOUR COMMAND. THE MARNE MESSAGE IS ALSO AVAILABLE ON THE TEAM STEWART WEBSITE, home.army.mil/stewart

GATE CLOSURE

Attention motorists, Fort Stewart's Lionel C. McGarr Gate (Gate 7, located off 15th Street) will remain closed to all outbound traffic until further notice due to the ongoing concrete construction and a water line repair. Inbound traffic will still be allowed. Please plan accordingly and use alternate routes if possible.

(JUNE 21) HOUSING TOWN HALL

Come join us Wednesday at the Liberty Woods Community Center. The festivities begin at 3 p.m. with a DJ, bounce house, food truck, face painting and more. The Town Hall begins at 4:30 p.m. with the Garrison Command Team to answer questions you may have about housing.

EXPIRED DOD CREDENTIAL CONFISCATION IN EFFECT

In accordance with regulations and policies that were in place prior to COVID-19, Fort Stewart-Hunter Army Airfield Access Control Guards will begin confiscating Department of Defense identification cards that are 30 days or more past the expired date. The cardholder will be provided a confiscation ID receipt in return that can be used for 72 hours until a new identification card is issued by the ID card section. Individuals who need to renew their ID Cards can schedule an appointment online up to 30 days in advance of expiration at https://home.army.mil/stewart/about/Garrison/DHR/MPD/id-cards-deers.

(JUNE 22, Aug. 5) TUTTLE AHC SCHOOL/SPORTS PHYSICALS

Tuttle Army Health Clinic will offer school and sports physicals June 22 from 4- 6 p.m. and Aug. 5 from 8 a.m. to Noon. The physicals will support school and CYS athletic participation exams; Georgia Public School Health Screening (required for ALL students NEW to Georgia or entering Pre-K/Kindergarten); Routine Vaccinations *If your child needs medication refills, action plans, or referrals, please schedule a regular appointment with PCM. To schedule a screening, call (912) 435-6633.

(JUNE 23) SUMMER SOLSTICE BBQ – FS

Welcome in the official start of summertime with us at Club Stewart's Side Yard on Friday, June 23, from 6 p.m. to 8 p.m. for our Summer Solstice BBQ! There will be music, yard games, cold beverages, and delicious barbecue for purchase. For more information, please call Club Stewart at (912) 767-4717, or visit https://stewarthunter.armymwr.com/calendar/event/summer-solstice-bbq/5976825/79245.

(JUNE 23) LATE NIGHT FRIDAYS AT THE YOUTH CENTER – FS & HAAF

The Fort Stewart and Hunter Army Airfield Youth Centers will be open on Friday, June 23, from 2 p.m. to 10 p.m., for Late Night Fridays at the Youth Center. This is the perfect opportunity for youths, grades 6-12, to have fun with their friends throughout the night playing 3-on-3 basketball, watching movies, doing scavenger hunts, and more. Youths attending must be registered with CYS. For more information, please call Parent Central Services at (912) 767-2312 (FS) or (912) 315-5425 (HAAF), or visit https://stewarthunter.armymwr.com/calendar/event/late-night-fridays-youth-center/6034829/76136.

(JUNE 23) EAP CIVILIAN WORKFORCE TRAINING

Workplace Dynamics June 23, 1:30 to 3 p.m. All classes are presented virtually via Microsoft Teams 365. Preregistration is required for access. Classes are open to all DA civilians, family members, and retirees. Call 912-767-5672 Cell 912-631-5140 or email Saundra.k.poole.civ@army.mil for more information.

(JUNE 27) G3/DPTMS TRAINING RESOURCE CONFERENCE

The G3 Training Division will resource ranges and training areas for Dec. 2023, Tuesday, June 27, from 09:30 to 11:00 a.m. at Moon Theater on Fort Stewart. Conference Representatives will be: G3 Training, Training Support Center, Ammunition, Reserve Component Support, Range Branch and Mission Training Command Branch. Unit S3s, S3 SGMs and MGs are encouraged to attend in person. For more information, call (912) 435-7639 or email sylvester.curry4.civ@army.mil.

(JUNE 29) ATTENTION: MONTHLY GIANT VOICE SIREN TESTING

Fort Stewart-Hunter Army Airfield test the outdoor warning sirens, also known as the installation Giant Voice, on the on the last Thursday of every month. These monthly tests ensure that the sirens are working properly, and the public is aware of the sound of the sirens in the event of an emergency. The sirens will sound for up to 3 minutes. If you hear the sirens, please do not be alarmed.

ID CARD REQUIREMENTS FOR MINORS:

In accordance with regulations and policies that were in place prior to COVID-19, Department of Defense affiliated minors over 10 years of age will be required to have a DOD Dependent ID card beginning Aug. 1. To schedule an ID card appointment, visit https://home.army.mil/stewart/about/Garrison/DHR/MPD/id-cards-deers.

ONLINE VISITOR PASS REGISTRATION NOW AVAILABLE

Fort Stewart and Hunter Army Airfield visitors are now eligible to pre-register for visitors passes online through the Army's AIE secure web portal. Simply visit https://pass.aie.army.mil/steps/branch_selection and follow the steps to submit your information for verification. If all checks return clear, the visitor will receive a custom text message with pass approval notification as well as pass start and end dates. The visitor can then visit the visitor control center during the pass approval dates print their pass from one of the self-service kiosks or use his/her driver license for access.

100 DAYS OF SUMMER H.E.A.T.

The 100 Days of Summer H.E.A.T. (Highway Enforcement of Aggressive Traffic) campaign is a multi-jurisdictional highway safety program designed to reduce fatal crash counts during Georgia's deadly holiday driving period from Memorial Day through Labor Day. This combination means Military Police, police officers, sheriff's deputies and state troopers work together to get some of Georgia's most dangerous offenders off the road. We all play a role in ensuring Georgia roadways are safe. Do your part by maintaining the proper speed limit, securing your seatbelt and enlisting the help of a designated driver when needed.

(JULY 3-4) G-8 CLOSURE FOR UPCOMING JULY FEDERAL AND TRAINING HOLIDAY

The G-8, Defense Travel Systems and the Government Travel Credit Card Offices will be closed Monday, July 3 and Tuesday, July 4. G8 offices will resume normal working hours Wednesday, July 5 at 9 a.m. Clearing hours for the Defense Travel System and the Government Travel Card are 9 to 11:30 a.m., bldg. 622, room 234, Monday through Thursday. Room 214 on Friday's unless otherwise posted.

(JULY 7 AND JULY 21) EAP CIVILIAN WORKFORCE TRAINING

Investing/TSP, July 7, 1:30 to 3 p.m. and Improving Your Assertiveness Skills July 21, 1:30 to 3 p.m. All classes are presented virtually via Microsoft Teams 365. Preregistration is required for access. Classes are open to all DA civilians, family members, and retirees. Call 912-767-5672 Cell 912-631-5140 or email Saundra.k.poole.civ@army.mil for more information.

(JULY 10-11) YOUTH NFL EXPERIENCE PRO CAMP HEADS TO FORT STEWART

The Fort Stewart Exchange and Commissary will host a youth NFL Experience Pro Camp sponsored by P&G, July 10-11 on Fort Stewart. The event will include a youth football camp and autograph session with NFL pro linebacker Devin Lloyd. Stay tuned for details!

(JULY 10- AUG 11) BASIC SKILLS EDUCATION PROGRAM (BSEP)

Need to raise your GT score? Registration opens June 9 for the upcoming Basic Skills Education Program class that will run from July 10- Aug. 11. The classes will take place at the Fort Stewart and Hunter Army Airfield Education Centers and will also be held virtually. For more information, email usarmy.stewart.usag.list.dhr-education-counselor-FS@army.mil or usarmy.stewart.usag.list.dhr-education-counselor-HAAF@army.mil.

FMWR EVENTS AND PROGRAMS:

(Ongoing) Family Child Care (FCC) – FS & HAAF
We are always looking for Family Child Care (FCC) Providers on Fort Stewart and Hunter Army Airfield! FCC Providers can own a home-based business that can transfer from one installation to another, work flexible hours, receive oversight and support as well as continuous paid professional development opportunities. Remember: Per Army policy, anyone providing childcare on a regular basis for more than 10 hours per week *must* be certified through Child & Youth Services (CYS) as a FCC Provider. For more information, please call (912) 767-7326, or visit https://stewarthunter.armymwr.com/programs/family-child-care.

(Ongoing) Abandoned Vehicle Notice
Fort Stewart and Hunter Army Airfield Directorate of Emergency Services (DES) have tagged multiple vehicles as abandoned. These abandoned vehicles will be sold or disposed of on or about November 2023. A request for the return of the property shall be honored if received before November. Request for the return of the property shall be honored after the specified time *only if* disposition has not been made. If vehicle is not claimed and recovered, it will be disposed of at a Public Sale Auction held by DFMWR. To view the full list of vehicles, visit https://stewarthunter.armymwr.com/happenings/abandoned-vehicle-notice-2023. For more information, please contact Libby Auto Skills at (912) 767-3521 or (912) 767-3527.

(JUNE 23) Summer Solstice BBQ – FS
Welcome in the official start of summertime with us at Club Stewart's Side Yard on Friday, June 23, from 6 p.m. to 8 p.m. for our Summer Solstice BBQ! There will be music, yard games, cold beverages, and delicious barbecue for purchase. For more information, please call Club Stewart at (912) 767-4717, or visit https://stewarthunter.armymwr.com/calendar/event/summer-solstice-bbq/5976825/79245.

(JUNE 23) Late Night Fridays at the Youth Center – FS & HAAF
The Fort Stewart and Hunter Army Airfield Youth Centers will be open on Friday, June 23, from 2 p.m. to 10 p.m., for Late Night Fridays at the Youth Center. This is the perfect opportunity for youths, grades 6-12, to have fun with their friends throughout the night playing 3-on-3 basketball, watching movies, doing scavenger hunts, and more. Youths attending must be registered with CYS. For more information, please call Parent Central Services at (912) 767-2312 (FS) or (912) 315-5425 (HAAF), or visit https://stewarthunter.armymwr.com/calendar/event/late-night-fridays-youth-center/6034829/76136.

(JULY 1) Independence Day Celebration – FS – Save the Date
Come out to Fort Stewart's Donovan Field on Saturday, July 1, starting at 3:30 p.m. for our Independence Day Celebration! This year, Chris Cagle and Dru Hill will perform live for the Fort Stewart-Hunter Army Airfield community and beyond. There will be food vendors, plenty of ice-cold beverages, and spectacular fireworks display at the end of the evening. This event is *free* and *open* to the public! For more information, please visit the Marne Independence Day Concert page at https://stewarthunter.armymwr.com/happenings/independence-day-celebration-2023.

(JULY 3) Marne Independence Day – HAAF – Save the Date
Join us at Family Day Field on Hunter Army Airfield on Monday, July 3, from 7 p.m. to 10 p.m. to celebrate Independence Day! Entertainment will be provided by the 3rd ID Rock Band. There will be yard games, food trucks, and spectacular fireworks display around 9:30 p.m. Cost is free. Bring blankets and chairs. For more information, please visit https://stewarthunter.armymwr.com/calendar/event/marne-independence-day-haaf/5959836/78811.

(SEP 9 – Registration Ongoing) Patriot Day 5K Run – Save the Date
Join us for this year's Patriot Day Run on Saturday, September 9, starting at 8 a.m. This 5K memorial run will be held in honor of first responders and military members. The run will take place at Forsyth Park in downtown Savannah. Cost is free for Active Duty and First Responders; $25 for DoD ID Cardholders; and $35 for all others. Registration includes a custom medal, bib, and shirt. Packet Pick-Up will take place on Friday, September 8, from 6 p.m. to 8 p.m. where runners can pick up their run packets and enjoy live music, food trucks, vendors, and more. For more information, please visit https://stewarthunter.armymwr.com/happenings/patriot-day-run.

NOTICE OF AVAILABILITY
The U.S. Army seeks public comments on the Draft Programmatic Environmental Assessment, Draft Finding of No Significant Impact, and Draft Finding of No Practicable Alternative for Implementation of a Borrow Pit Management Program (BPMP) on Fort Stewart-Hunter Army Airfield (FSGA-HAAF). Implementation of the BPMP will ensure all existing and future borrow pits on the installation (and the fill materials they contain) are managed programmatically, in accordance with standards and guidelines established by installation experts and stakeholders, and in accordance with local, state, and federal laws. It will also ensure sufficient amounts and types of borrow materials are available for current and proposed actions on the installation, as many of its existing borrow pits are nearing the end of their useful life. A copy of these documents can be accessed via the FSGA-HAAF NEPA webpage at: https://home.army.mil/stewart/index.php/about/Garrison/DPW/environmental/prevention-and-compliance/nepa. CD copies of the document are available by contacting Melissa B. Kendrick, FSGA-HAAF NEPA/Project Integrator, at Melissa.B.Kendrick.civ@army.mil. Please submit comments during the public comment period [June 22-July 21, 2023] to the email address identified or by calling 912-767-2010.

ONGOING MESSAGES:

CONTROLLED BURN SEASON ONGOING
The Fort Stewart-Hunter Army Airfield Forestry Branch has begun conducting controlled burns at various locations on the installation each week. Motorists and pedestrians are advised to use extra caution when traveling through areas that may be affected by smoke. For more information, call 767-2010.

SO MANY WAYS TO GET YOUR NEWS

Stay connected to the news on Fort Stewart and Hunter Army Airfield by visiting the Team Stewart website at home.army.mil/stewart or the Fort Stewart-Hunter Army Airfield news page at army.mil/StewartHunter. News can also be found through the "News" tab on the Digital Garrison App or on our Fort Stewart-Hunter Army Airfield social media platforms:

Facebook: @FortStewartHunterArmyAirfield / @HunterArmyAirfield / @3rdInfantry.Division
Instagram: @Fort_Stewart_HAAF
Twitter: @USAGStewartHAAF
Youtube: @FortStewart-Hunter Army Airfield

DOWNLOAD THE DIGITAL GARRISON APP

Stay connected to Fort Stewart-Hunter Army Airfield through the Digital Garrison mobile app. This free app has everything you need to help you stay in the know about your military community. From online shopping, facility and gate hours, upcoming events, push notifications, weather and more, Digital Garrison has a little something for everyone. Download for free through the App Store or Google Play and set your location to Fort Stewart-Hunter Army Airfield.

SUBSCRIBE TO FORT STEWART-HUNTER ARMY AIRFIELD YOUTUBE

Subscribe to the Fort Stewart-Hunter Army Airfield YouTube. As we add to this platform throughout the year, users will have access to installation tours, news updates and plenty of motivating videos featuring 3ID Soldiers and more. Check it out at youtube.com/c/FortStewartHunterArmyAirfield

REDUCE YOUR PHARMACY WAIT TIME WITH Q-ANYWHERE

Fort Stewart-Hunter Army Airfield MEDDAC offers a way to reduce wait times for new medications at the installation's pharmacies and Richmond Hill Medical Home. You reduce pharmacy wait times by using Q-Anywhere. Check-In to activate your new prescriptions by texting "GET IN LINE" to 1-833-457-2014. You will then get a text to input your DoD Identification number and pharmacy location. The pharmacy will text you, after your prescriptions are ready for pick-up. Text "I Am Here" when you arrive at the lobby. You must be in the lobby. When you arrive, do not pull a new ticket. If you do, it will remove the Q-Anywhere ticket.

STATE CARRY ACT DOES NOT APPLY ON POST

The recently passed Georgia Constitutional Carry Act does not apply to Fort Stewart-Hunter Army Airfield or any Army installation in Georgia. Per Army Regulation 190-11, the carrying of privately owned weapons and ammunition is prohibited on post unless authorized by the Senior Commander. Also, the carrying of a concealed weapon on the installation is prohibited regardless of whether a state or county permit has been obtained. For questions about the regulation or how to register personally owned weapons on post, call the Directorate of Emergency Services at 767-2285.

DIAL 988 – NATIONAL SUICIDE & CRISIS LIFELINE

If you or someone you know needs crisis support - dial 988. This three-digit dialing code connects people to the existing National Suicide Prevention Lifeline, where compassionate, accessible care and support is available for anyone experiencing mental health-related distress-whether that is thoughts of suicide, mental health or substance use crisis, or any other kind of emotional distress.

MARNE RECEPTION COMPANY PT

The Marne Reception Company is extending the opportunity to conduct physical training with in-processing Soldiers. Any gaining unit personnel at the company, battalion, or brigade level interested in conducting PT with their newly arrived Soldiers please contact the MRC Front Desk, at 767-0015, NLT the day prior to ensure proper coordination. BPT provide the name of gaining unit, unit representative attending, and a by-name list of Soldiers requested to conduct PT with. For details, call 767-1743 or 767-5975.

COMMISSARY CLICK2GO

Grocery shopping got you down? Check out the Defense Commissary Agency's online ordering/curbside delivery service, Click2Go. Operating hours: 11 a.m. to 6 p.m. during normal business hours. Online payment only. Visa, Discover, American Express & MasterCard are accepted and the $4.95 service fee has been waived for all patrons. No minimum order size or dollar amount required, and customers can order 24/7up to six days in advance. First time customers will need to create an account. For more information, visit commissaries.com.

COASTAL HAPPENINGS:

Events listed are public community events and not intended to imply Army endorsement.

VISIT LIBERTYCOUNTY.ORG

For things to do and best places to eat in Hinesville and Liberty County by visiting the Liberty County Chamber website at libertycounty.org/. It's your one stop shop for anything happening here in 'The Gem of the Georgia Coast.'

KEEP LIBERTY BEAUTIFUL

Keep Liberty Beautiful is a community education and volunteer action program dedicated to community improvement. Follow their Facebook page at facebook.com/keeplibertycountybeautiful, to find out about opportunities for volunteers to help Keep Liberty Beautiful!

LIVE OAK PUBLIC LIBRARIES

Discover everything the Live Oak Public Libraries have to offer. Monthly reading programs for all ages, movie nights, anime-related activities and much more. Live Oak Public Libraries is a system of 16 library locations serving Liberty, Chatham, and Effingham counties in southeast Georgia. Visit liveoakpl.org/locations/libraries to find a library near you.

VISIT SAVANNAH

visitsavannah.com is your online destination to make your trip to Savannah just right. Explore the 'Hostess City' and the endless attractions where art, period architecture, trendy boutiques and ghost stories are all set under a veil of Spanish moss.

COASTAL COURIER

AFFIDAVIT OF PUBLICATION

STATE OF GEORGIA
COUNTY OF LIBERTY

Personally appeared before me, the undersigned Notary Public, Patrick Donahue, who after being duly sworn stated under oath that he is General Manager of the Coastal Courier, the official Legal Organ of Liberty County, newspaper published in the city of Hinesville, Georgia, and who further states under oath that the *Borrow Pit Managment Program*, advertisement attached hereto and made part of this affidavit appeared in the Coastal Courier on the following date(s):

Coastal Courier: 6/22/2023.

Patrick Donahue

Sworn to and subscribed before me 6/22/2023.

Leslye Granger

Leslye Granger
Notary Public
My commission expires 9/8/26

NOTICE OF AVAILABILITY
DRAFT PROGRAMMATIC ENVIRONMENTAL ASSESSMENT for
IMPLEMENTATION OF A BORROW PIT MANAGEMENT PROGRAM on
FORT STEWART AND HUNTER ARMY AIRFIELD, GEORGIA

The U.S. Army proposes to implement a Borrow Pit Management Program (BPMP) on Fort Stewart/Hunter Army Airfield (FSGA/HAAF), Georgia. This will ensure all existing and future borrow pits on the installation (and the fill materials they contain) are managed programmatically, in accordance with standards and guidelines established by installation experts and stakeholders, and in accordance with local, state, and federal laws. Implementation of a BPMP will also ensure sufficient amounts and types of borrow materials are available for current and proposed actions on the installation, as many of its existing borrow pits are nearing the end of their useful life.

National Environmental Policy Act (NEPA) analysis considered the potential impacts to the natural and human environment on FSGA/HAAF and determined that no significant adverse impacts would result from implementing the BPMP on installation lands. Accordingly, a Draft Finding of No Significant Impact (FONSI) was prepared. As some of the existing and proposed future borrow pits are located within or adjacent to wetlands and the 100-year floodplain, a Draft Finding of No Practicable Alternative (FONPA) was also prepared.

A copy of the Draft PEA, Draft FONSI, and Draft FONPA can be accessed via the Fort Stewart-Hunter Army Airfield NEPA webpage at: https://home.army.mil/stewart/index.php/about/Garrison/DPW/environmental/prevention-and-compliance/nepa. Hard copies, if preferred, may be obtained by contacting Ms. Melissa B. Kendrick, FSGA/HAAF NEPA/Project Integrator, Melissa.B.Kendrick.civ@army.mil. Please submit comments during the public comment period [June 22-July 21, 2023] to the email address identified or by calling (912) 767-2010.
LG45519 6/22/2023

LOCALiQ

The Augusta Chronicle
Athens Banner-Herald
Savannah Morning News

PO Box 631697 Cincinnati, OH 45263-1697

PROOF OF PUBLICATION

Melissa Kendrick
Melissa Kendrick
USAG Directorate of Public Works Environmental Prevention & Compliance Branch NEPA Project Integrator
1550 Veterans PKWY # 1137
Fort Stewart GA 31314-5601

STATE OF GEORGIA, COUNTY OF CHATHAM

The Savannah Morning News, a daily newspaper published and of general circulation in Chatham County; and personal knowledge of the facts herein state and that the notice hereto annexed was Published in said newspapers in the issues dated or by publication on the newspaper's website, if authorized, on:

06/22/2023

and that the fees charged are legal.
Sworn to and subscribed before on 06/22/2023

Legal Clerk

Notary, State of WI, County of Brown

My commision expires 6/30/2025

Publication Cost:	$35.00	
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THIS IS NOT AN INVOICE!

Please do not use this form for payment remittance.

AMY KOKOTT
Notary Public
State of Wisconsin

NOTICE OF AVAILABILITY
DRAFT PROGRAMMATIC ENVIRONMENTAL ASSESSMENT for IMPLEMENTATION OF A BORROW PIT MANAGEMENT PROGRAM on FORT STEWART AND HUNTER ARMY AIRFIELD, GEORGIA

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DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

City of Savannah
Attn: Mr. Michael Brown, City Manager
P.O. Box 1027
2 East Bay Street
Savannah, GA 31402

Dear Mr. Brown:

The U.S Army proposes to implement a Borrow Pit Management Plan (BPMP) on Fort Stewart/Hunter Army Airfield (FSGA/HAAF), Georgia. The goals of the BPMP are to ensure borrow pits on Post are managed in a programmatic nature, in accordance with local, state, and federal laws, maintaining training, testing, and mission requirements.

In accordance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality, and 32 Code of Federal Regulations Part 651 (Environmental Effects of Army Actions), a Programmatic Environmental Assessment was prepared, resulting in a Draft Finding of No Significant Impact and Draft Finding of No Practicable Alternative. The Army is utilizing a programmatic approach to allow for early planning, coordination, and flexibility in project implementation.

These documents are available on the FSGA/HAAF/NEPA webpage: https://home.army.mil/stewart/index.php/about/Garrison/DPW/environmental/prevention-and-compliance/nepa. If preferred, a CD version may be obtained by contacting Ms. Melissa B. Kendrick, FSGA/HAAF NEPA/Project Integrator, Melissa.B.Kendrick.civ@army.mil. Please submit comments during the 30-day public comment period (June 22 – July 21, 2023) to the email address identified or by calling. (912) 767-2010.

Sincerely,

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

Evans County Board of Commissioners
Attn: Casey Burkhalter
3 Freeman Street
Claxton, GA 30417

Dear Mr. Burkhalter:

The U.S Army proposes to implement a Borrow Pit Management Plan (BPMP) on Fort Stewart/Hunter Army Airfield (FSGA/HAAF), Georgia. The goals of the BPMP are to ensure borrow pits on Post are managed in a programmatic nature, in accordance with local, state, and federal laws, maintaining training, testing, and mission requirements.

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Sincerely,

Thomas C. for
James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

Georgia Department of Natural Resources
Environmental Protection Division
Attn: Mr. Richard Dunn
2 Martin Luther King Jr. Drive, SE
Atlanta, GA 30334-9000

Dear Mr. Dunn:

The U.S Army proposes to implement a Borrow Pit Management Plan (BPMP) on Fort Stewart/Hunter Army Airfield (FSGA/HAAF), Georgia. The goals of the BPMP are to ensure borrow pits on Post are managed in a programmatic nature, in accordance with local, state, and federal laws, maintaining training, testing, and mission requirements.

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Sincerely,

for James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

Chatham County Board of Commissioners
Attn: Mr. Chester A. Ellis
124 Bull Street, Suite 210
Savannah, GA 31401

Dear Mr. Ellis:

The U.S Army proposes to implement a Borrow Pit Management Plan (BPMP) on Fort Stewart/Hunter Army Airfield (FSGA/HAAF), Georgia. The goals of the BPMP are to ensure borrow pits on Post are managed in a programmatic nature, in accordance with local, state, and federal laws, maintaining training, testing, and mission requirements.

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Sincerely,

Thomas C. Fry

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

U.S. Environmental Protection Agency / Region 4
NEPA Program Office
Attn: Mr. Larry O. Gissentanna
61 Forsyth Street, SW
Atlanta, GA 30303-8960

Dear Mr. Gisentanna:

The U.S Army proposes to implement a Borrow Pit Management Plan (BPMP) on Fort Stewart/Hunter Army Airfield (FSGA/HAAF), Georgia. The goals of the BPMP are to ensure borrow pits on Post are managed in a programmatic nature, in accordance with local, state, and federal laws, maintaining training, testing, and mission requirements.

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Sincerely,

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

City of Hinesville
Attn: Mr. Kenneth Howard, City Manager
115 East MLK Jr. Drive
Hinesville, GA 31313

Dear Mr. Howard:

The U.S Army proposes to implement a Borrow Pit Management Plan (BPMP) on Fort Stewart/Hunter Army Airfield (FSGA/HAAF), Georgia. The goals of the BPMP are to ensure borrow pits on Post are managed in a programmatic nature, in accordance with local, state, and federal laws, maintaining training, testing, and mission requirements.

In accordance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality, and 32 Code of Federal Regulations Part 651 (Environmental Effects of Army Actions), a Programmatic Environmental Assessment was prepared, resulting in a Draft Finding of No Significant Impact and Draft Finding of No Practicable Alternative. The Army is utilizing a programmatic approach to allow for early planning, coordination, and flexibility in project implementation.

These documents are available on the FSGA/HAAF/NEPA webpage: https://home.army.mil/stewart/index.php/about/Garrison/DPW/environmental/prevention-and-compliance/nepa. If preferred, a CD version may be obtained by contacting Ms. Melissa B. Kendrick, FSGA/HAAF NEPA/Project Integrator, Melissa.B.Kendrick.civ@army.mil. Please submit comments during the 30-day public comment period (June 22 – July 21, 2023) to the email address identified or by calling, (912) 767-2010.

Sincerely,

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

Bryan County Board of Commissioners
Attn: Carter Infinger
51 North Courthouse Street
Pembroke, GA 31321

Dear Mr. Infinger:

The U.S Army proposes to implement a Borrow Pit Management Plan (BPMP) on Fort Stewart/Hunter Army Airfield (FSGA/HAAF), Georgia. The goals of the BPMP are to ensure borrow pits on Post are managed in a programmatic nature, in accordance with local, state, and federal laws, maintaining training, testing, and mission requirements.

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Sincerely,

for Thomas C. Fry
James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

Liberty County Development Authority
Attn: Joey Brown
425 W. Oglethorpe Highway
Hinesville, GA 31313

Dear Mr. Brown:

The U.S Army proposes to implement a Borrow Pit Management Plan (BPMP) on Fort Stewart/Hunter Army Airfield (FSGA/HAAF), Georgia. The goals of the BPMP are to ensure borrow pits on Post are managed in a programmatic nature, in accordance with local, state, and federal laws, maintaining training, testing, and mission requirements.

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Sincerely,

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

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Attn: Joey Brown
425 W. Oglethorpe Highway
Hinesville, GA 31313

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Sincerely,

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

City of Richmond Hill
Attn: Mr. Chris Lovell, City Manager
40 Richard R. Davis Drive
Richmond Hill, GA 31324

Dear Mr. Lovell:

The U.S Army proposes to implement a Borrow Pit Management Plan (BPMP) on Fort Stewart/Hunter Army Airfield (FSGA/HAAF), Georgia. The goals of the BPMP are to ensure borrow pits on Post are managed in a programmatic nature, in accordance with local, state, and federal laws, maintaining training, testing, and mission requirements.

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Sincerely,

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

Liberty County Board of Commissioners
Attn: Mr. Donald Lovette
112 North Main Street
Hinesville, GA 31313

Dear Mr. Lovette:

The U.S Army proposes to implement a Borrow Pit Management Plan (BPMP) on Fort Stewart/Hunter Army Airfield (FSGA/HAAF), Georgia. The goals of the BPMP are to ensure borrow pits on Post are managed in a programmatic nature, in accordance with local, state, and federal laws, maintaining training, testing, and mission requirements.

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Sincerely,

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

Georgia Department of Natural Resources
Environmental Protection Division
Attn: Mr. Amin Mahbub
2 Martin Luther King Jr. Drive, SE
Suite 1054 East
Atlanta, GA 30334-9000

Dear Mr. Mahbub:

The U.S Army proposes to implement a Borrow Pit Management Plan (BPMP) on Fort Stewart/Hunter Army Airfield (FSGA/HAAF), Georgia. The goals of the BPMP are to ensure borrow pits on Post are managed in a programmatic nature, in accordance with local, state, and federal laws, maintaining training, testing, and mission requirements.

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Sincerely,

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

Savannah District Corps of Engineers
Wetland Regulatory Division
Attn: Mr. Ross Sullivan
100 W. Oglethorpe Avenue
Savannah, GA 31401

Dear Mr. Sullivan:

The U.S Army proposes to implement a Borrow Pit Management Plan (BPMP) on Fort Stewart/Hunter Army Airfield (FSGA/HAAF), Georgia. The goals of the BPMP are to ensure borrow pits on Post are managed in a programmatic nature, in accordance with local, state, and federal laws, maintaining training, testing, and mission requirements.

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Sincerely,

James L. Heidle
Director, Public Works

APPENDIX B
Borrow Pit Excavation Management Plan
&
Borrow Pit Standard Operating Procedure

Borrow Pit Excavation Management Plan

1. The Directorate of Public Works, Environmental Division, Borrow Pit Management section will review the **BORROW PIT EXCAVATION PERMIT APPLICATION (**attached**)** for completeness/ adequacy. If complete, Ft Stewart will issue a permit and enter the data in to the Borrow Pit Management database. The following criteria and management objectives will be used to formulate a permit decision on an individual Borrow Pit Excavation Plan.

A. **Fill Material Requirement/Need**

(1) Will project require fill material from the installation?

[ ] Yes *(proceed)*

[ ] No (Borrow Pit Permit not required)

(2) If yes, how many cubic yards? _____

(3) Location of Borrow Pit site:

[ ] Borrow Pit available within 5 miles of project area.

[ ] Borrow Pit not available within 5 miles of project site.

(4) Soil Testing:

It will be the responsibility of the project engineer to determine if the borrow pit's soil is adequate to meet the engineering specification for the particular project. We HIGHLY recommend that your engineer have the borrow pit soil tested to determine if the borrow pit's soil will meet your engineering requirements. If the pit that you are requesting to use does not meet your engineering requirements another borrow pit can be assigned for your use.

(5) Restrictions:

- No new pits will be established.
- Only active/open borrow pits can be expanded.

B. Borrow Pit Expansions

[ ] IF a Site is to be expanded greater than or equal to 1 acre, but <5 acres:

- Regulatory Requirement: A Land Disturbing Activity Permit is required to be obtained from local permitting authority (GA EPD) to be submitted with a site specific Erosion and Sedimentation Control Plan (as recommended in the Manual for Erosion & Sedimentation Control for the State of Georgia from Georgia Soil & Water Conservation Commission, also see Regulatory Requirement of Georgia's in-Stream water quality standards as provided by the Rules and Regulations for Water Quality Control Chapter 391-3-6-.03 and E&S 391-3-7), and including a Comprehensive Monitoring Plan for Construction Activities, Notice Of Intent (NOI) and fees in the amount of $80.00/disturbed acre is required. A cashiers check to cover fees made payable to the Georgia Environmental Protection Division must be submitted to the address noted on the GA EPD Fee Form and the Erosion & Sedimentation Control Plan (E&SCP) and the initialed and signed NOI must be submitted to the Environmental Compliance Branch to obtain the DPW signature and then completed NOI packet will be forwarded to the Georgia Environmental Protection Division a minimum of 14 days prior to any timber harvest and ground disturbance by contractor.

- Exemption: Sites that have NRCS "technical oversight"; NRCS will issue a form with file number (recommend in lieu of the Land Disturbance Permit, see Regulatory Requirement; Storm water Discharges Associated with Construction Activities), that NRCS be used for technical review and oversight of E&S Control Plan.
- **Note**: The NRCS form stating they have "technical oversight", the E&SCP, NOI and fees in the amount of $80.00/disturbed acre must also be paid. A cashiers check to cover fees made payable to Georgia Environmental Protection

Division must be submitted to the address noted on the GA EPD Fee Form and the Erosion & Sedimentation Control Plan (E&SCP), the initialed and signed NOI and copy of Fee Form and check must be submitted to Environmental Compliance Branch to obtain DPW signature and then completed NOI packet will be forwarded together to the Georgia Environmental Protection Division, a minimum of 14 days prior to any timber harvest and any ground disturbance by contractor, for compliance records. NRCS POC is William Wright, 912-218-1995.

[ ] IF Site is to be expanded in undisturbed area greater than or equal to 5 acres:

- Regulatory Requirement: A Land Disturbing Activity Permit is required to be obtained from local permitting authority (GA EPD) to be submitted with a site specific Erosion and Sedimentation Control Plan (as recommended in the Manual for Erosion & Sedimentation Control for the State of Georgia from Georgia Soil & Water Conservation Commission, also see Regulatory Requirement of Georgia's in-Stream water quality standards as provided by the Rules and Regulations for Water Quality Control Chapter 391-3-6-.03 and E&S 391-3-7), and including a Comprehensive Monitoring Plan for Construction Activities, Notice Of Intent (NOI) and fees in the amount of $80.00/disturbed acre is required. A cashiers check to cover fees made payable to Georgia Environmental Protection Division must be submitted to the address noted on the GA EPD Fee Form and the Erosion & Sedimentation Control Plan (E&SCP), the initialed and signed NOI and copy of Fee Form and check must be submitted to Environmental Compliance Branch to obtain DPW signature and then completed NOI packet will be forwarded together to the Georgia Environmental Protection Division, a minimum of 14 days prior to any timber harvest and any ground disturbance by contractor, for compliance records. NRCS POC is William Wright, 912-218-1995.
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- **Note**: The NRCS form stating they have "technical oversight", the E&SCP, NOI and fees in the amount of $80.00/disturbed acre must also be paid. A cashier's check to cover fees made payable to the Georgia Environmental Protection Division must be submitted to GA EPD to the address on the GA EPD Fee Form. The E&SCP, NRCS Technical Oversight Form and the initialed and signed NOI and a copy of Fee Form w/copy of check must be submitted to DPW Environmental Compliance Branch to obtain DPW signature and forward together to the Georgia Environmental Protection Division a minimum of 14 days prior to any timber harvest and any ground disturbance by contractor and for compliance records. NRCS POC is William Wright, 912-218-1995.

Note:** **IF Borrow Pit expansion area required is greater than or equal to 5 acres an Environmental Assessment or supplement will be required.

C. Excavation Procedure

- The Operator (user) of the borrow pit will create and maintain a rim-ditch *from the first day* of excavation operations to maximize accessibility to borrow pit materials and ultimately to optimize excavation of that material.
- The Operator will utilize a water pump, where and when appropriate to fully utilize all fill materials in a manner consistent with proper surfacing mining procedures. Also, a sediment basin may become necessary and will be the responsible of the contractor/operator for its construction.

- The Operator shall show an individual plan as to how the Borrow Pit will be excavated, the limits of the affected acreage, the natural drainage features and water disposal, the initial overburden (debris) area(s), the erosion and sedimentation controls, the ingress/egress area(s), the direction and schedule of excavation advancement, the area to be left undisturbed (buffer) where necessary, and a plan that shows projected final reclamation of the site.
- All borrow pit design and excavation actions shall support the objective of the borrow pit eventually becoming a recreational fishpond, if soil conditions, location and ground water resources favor such development. To accomplish this objective the following procedures should be employed, but will not take precedent over the need to obtain fill material. The requirement for fill material supersedes the use of the Borrow Pit as a fish pond. In certain cases excavation to greater depth may occur if soils are suitable for the specific project.

    1. Average depth, when abandoned, will be 6 feet minimum and 15 feet maximum (water depth will range from 3-8 feet).
    2. Borrow pits will be excavated in a manner, *from the beginning*, to ultimately move them to a useable recreational fishpond.

➢ **DAILY, the pit Operator shall be responsible for maintaining a 4:1 slope on all pit walls/edges and marking the slopes/edges in a manner so as to prevent any foot or vehicle traffic from inadvertently falling into the pit excavation.**

D. Water Quality Control Measures

- No Point Source discharges *(i.e. dewatering operations)* shall be allowed without prior coordination with the Environmental Branch and BMPs will be followed at all times.
- Borrow pit excavation shall not be conducted within 100 feet of the banks of any waters of the State of Georgia, nor discharges to the water or ground to ensure no adverse affects on these waters.

E. Erosion & Sedimentation Control Measures

- Remain within the boundaries of the borrow pit (*which are marked by "red paint on the surrounding trees, and/or the perimeter road*) while making every effort to retain and/or create a buffer zone(s) of
- undisturbed/natural vegetation following all guideline within *Georgia's Best Management Practices* to prevent silts and sediments from leaving the borrow pit area and entering the waters of the State of Georgia.

- All slopes will be stabilized with an appropriate ground cover so as to prevent the erosion of the borrow pit's slopes. If the first application is not sufficient to prevent erosion *the pit operator will be responsible for returning to the borrow pit to correct the deficiencies that have resulted in erosion of the borrow pit's slopes.*

F. Air Quality Measures

- Where applicable, adverse effects from atmospheric elements, specifically fugitive dust, are to be prevented so as to avoid any significant deterioration of the air quality.

G. Solid/Hazardous Waste Measures

- All solid and hazardous wastes shall be disposed of properly.
- No debris, trash, or other garbage will be left at, in, or adjacent to the borrow pit

H. For any Borrow Pit activity a Ft Stewart Permit application needs to be submitted to Ft Stewart DPW, Environmental Division.

2. All borrow pit sites will require the project Contracting Officer Representative to coordinate with the Fort Stewart Environmental office to obtain a Ft Stewart Permit for an approved borrow pit site. Upon completion of the work at Ft Stewart/HAAF, a DPW Environmental Division, borrow pit management representative will inspect the completed work for compliance with the individual Borrow Pit Excavation Plan and provide a release date and authorization. This will be noted on the Permit. In the event that an excavator has adversely deviated from the individual Borrow Pit Excavation Plan, the COR will be notified for corrective action. After a favorable final inspection the Permit information will reside on the Borrow Pit database as archived information with comments and notes as required for future reference, but it will no longer be marked as an Active Permit. A new application is required for any new work by the same contractor.

FORT STEWART & HUNTER ARMY AIRFIELD
ENVIRONMENTAL DIVISION BORROW PIT EXCAVATION APPLICATION/PLAN

Environmental Branch
1550 Veterans Parkway
Building 1137
Fort Stewart, Georgia 31314
912/767-9779 (fax)
912/767-4937 (office)

FOR DEPARTMENT USE ONLY
Project Number:
Training Area:
Operation:
Acreage:
Amount of material required (cubic yards):

APPLICATION FOR BORROW PIT EXCAVATION PERMIT

Instructions: An application for a permit must include the Borrow Pit Operator's Excavation Plan and must be factual and complete. The Application and Plan (original and two [2] copies) must be submitted to the address shown above.

Pursuant to the requirements of the Fort Stewart/HAAF DPW Borrow Pit Management Plan.

1. Applies for a permit to conduct a Borrow Pit Excavation operation as represented in the attached Borrow Pit Excavation Plan;
2. Specifically grants to the applicant or any authorized representative of the applicant the right of entry and travel upon affected lands;
3. Certifies the information provided in or submitted by the Contracting Officer's Representative (COR) on behalf of the Borrow Pit Operator or Contractor as a part of this Borrow Pit Excavation Plan is true and correct, and the COR will ensure the Borrow Pit Operator agrees to comply with provisions of the Fort Stewart/HAAF DPW Borrow Pit Management Plan as specified herein.

Government COR Signature (Date)	Equipment Operator Name & Title
Government COR Name	Operator Contracting Company
Government COR Phone #	Company Address
Government COR Email Address	City, State, Zip
Government COR Building & Office Numbers	Telephone
Project Name	Borrow Pit Identification

The approval of this Application and Borrow Pit Excavation does not relieve the Operator of any obligation or responsibility for complying with the provisions of any other laws or regulations of any other federal, local or state authority.

FOR DEPARTMENT USE ONLY

Plan Recommendation: Approval/Disapproval

Reviewer (Date)

Comments:

Plan Recommendation: Approval/Disapproval

Program Manager (Date)

BORROW PIT EXCAVATION LAND USE PLAN

NOTE: Any corrections, changes of information or other alternatives of content of this Plan and attachment must be initialed and dated by the Operator and the Fort Stewart Environmental Branch.

I. OPERATOR AND GENERAL INFORMATION

1. DESCRIPTION OF EXCAVATION OPERATOR'S COMPANY *(hereinafter "Operator")*

Name of Company: _____

Address: _____

Telephone: _____

Type of Business: ( ) Corporation ( ) Partnership ( ) Proprietorship ( ) Other

Onsite Manager/Representative: _____

Title: _____ Telephone: _____ Mobile phone: _____

Government Contracting Officer Representative: _____

Training Area Location of Borrow Pit Operation: _____

Borrow Pit Location within T.A.: _____

Environmental Office Contact: Kevin Montano Title: Borrow Pit Program Manager

Address: 1550 Veterans Parkway, Bldg. 1137, Fort Stewart GA. Telephone: (912) 767-4937 / (912) 228-7179

2. GENERAL SITE LOCATION

Grid Coordinate of Borrow Pit Excavation Operation: _____

_____

_____

_____

3. MATERIAL TO BE EXCAVATED AND METHOD

Mineral/Material: _____

Method of Removal: _____

_____

4. SCHEDULES FOR EXCAVATION AND RECLAMATION

Anticipated Date to Begin _____
(Month/Year)

Anticipated Date to Complete _____
(Month/Year)

Anticipated Date of Final Reclamation _____
(Month/Year)

NOTE: If excavation is completed prior to the above stated date, the Operator shall notify DPW three (3) days prior to completion regardless of any stated or implied completion date. An inspection of the Borrow Pit is required by DPW to process a release. Failure to comply with the plan as stated herein will require notification to the COR before a release is authorized.

6. INFORMATION ON OTHER PERMITS

A. List any Georgia Surface Mining Permits suspended revoked, or for which a bond was forfeited:

_____

B. List other environmental permits being applied for in relation to this operation (i.e. erosion/sedimentation, storm water, etc…)

_____

C. List other local permits being applied for in relation to this operation:

_____

II. PERFORMANCE CRITERIA FOR BORROW PIT EXCAVATION PLAN AND DEWATERING ACTIVITIES

1. Plan Drawings (attached) shall show but are not limited to the metes and bounds of the property to be excavated, the limits of the affected acreage, the natural drainage features and water disposal, the initial site preparation and overburden (spoil) area(s), the erosion and sedimentation controls, the ingress/egress area(s), the direction, detail and schedule of excavation advancement, the area to be left undisturbed (buffer) where necessary, and the plan that shows projected final reclamation of the site.

2. The Operator will implement site survey control to ensure that all acres affected by the excavation operation will be on designated, permitted lands. Survey control will be accomplished through the use of permanent accessible benchmarks, survey control stakes, and/or boundary markers that designate and/or delineate all permitted acreage. Survey control shall be as indicated on the boundary survey, drawings, maps, etc. included as part of this Borrow Pit Excavation Plan (attached). Where necessary, for construction or operation proposes, vertical as well as horizontal survey control will be established and maintained.

MEANS	**Identifier/Location**
Property Boundary Markers	
Affected Acreage Markers	
Dredge limits	
Clearing Limits	
Other:	
Permanent Survey Control Markers	
Horizontal: (Identifier & Location)	
Vertical: (Identifier & Location)	
Known Elevation:	
Assumed Elevation:	

3. The Operator will ensure that all measures and facilities for control of erosion and sedimentation during site preparation, operation, and/or reclamation activities shall adhere to the following:

A. Erosion and sedimentation control measures and facilities will be employed prior to or concurrent with clearing, grading, overburden removal, access or other land disturbing activities for preparation or operation of the site. Provisions will be made for treatment or control of any source of sediments.

B. The Operator, so as to be effective, whether temporary or permanent, shall continuously maintain all erosion and sedimentation control measures or facilities.

C. Sediment in surface runoff water shall be trapped by use of debris basins, sediment basins, silt traps, sediment barriers or similar structures.

D. Permanent vegetation shall be installed as soon as possible. Temporary vegetation and/or mulch shall be employed where necessary to protect exposed critical areas until permanent vegetation or stabilization is attained.

E. Natural vegetation shall be retained, protected and supplemented wherever feasible to provide for natural buffer areas.

F. Diversions, dikes, and berms shall be employed to retain, direct and control surface water runoff from affected areas into sediment control structures.

G. All surface water discharges shall be controlled and released at a non-erosive velocity onto stabilized areas or into stabilized channels.

H. Constructed slopes, at the least should be four horizontal to one vertical (4:1) except where may be approved otherwise in this as shown in the attached Plan/drawings. All slopes shall be marked so as to prevent foot or vehicle traffic from inadvertently falling into the pit. Fill and cut slopes shall be designed and constructed to prohibit slumping or shear failures. Prior to final grading, all slopes will be blended in with the original existing topography. Slope grades shall be uniform. Mechanical or vegetative or both stabilization measures shall be employed as soon as practical to prevent erosion.

***NOTE**: The Operator may refer to design criteria in the "Manual for Erosion and Sedimentation Control in Georgia", published by the State Soil and Water Conservation Commission as a guide or through the use of alternate design criteria which conform to sound conservation and engineering practices.*

4. All permanent landform changes including, but not limited to, berms, drainage structures, surface water channel modifications, etc., shall be constructed in a manner to protect against failure, subsidence and/or erosion and will be permanently stabilized upon completion of construction.

5. Disposal or stockpiling of material at borrow pit(s) from another location is forbidden. Materials include: overburden refuse/debris, organics, spoil material, construction debris, solid waste, surplus fill/topsoil, and all other material from off-site or outside of the fill source's footprint.

6. Whenever a site lies contiguous to any waters of the State or whenever, in the judgment of the Fort Stewart Environmental Office, proposed operations at such site will adversely affect any portion of a watershed of the State, the Operator will follow sound engineering and conservation measures to provide protective barriers, such as dams, berms, silt ponds, or other similar structures, between the land to be affected and waters or watersheds involved. All such structures are to be approved by the Fort Stewart Environmental Office as a part of this Plan and are to be substantial for the protection of contiguous natural resources of the State. All structures referred to above are to be constructed a reasonable distance from waters of the State, or that portion of a watershed of the State that may be adversely affected, as determined by the Fort Stewart Environmental Office. Borrow Pit Excavation, if conducted within the 100-year floodplain, shall be done in accordance with any applicable local floodplain management ordinance, if any. Where a local floodplain management ordinance does not exist, the Operator shall ensure that the excavation activities are conducted so as to minimize flooding, erosion and/or sedimentation on adjacent upstream or downstream properties.

7. Before natural creeks, streams, rivers, lakes, or other bodies of water may be altered in course or relocated by the Operator, the Environmental Office as a part of this Plan must approve the plan for such alteration or relocation.

8. The Operator shall obtain required storm water permits and maintain compliance with the Water Quality Control Rules, Chapter 391-3-6-.16 (Storm Water Permit Requirements).

9. If archaeological or fossil resources are discovered during the course of an excavation; continued excavation and disturbance of the site will be suspended and the DPW, Environmental Division (767-2010) will be notified immediately. The ED will evaluate the significance of the finding and issue new guidance.

   A. Alternatives or measures to avoid or reduce effects on the historic properties;

   B. Determinations of effects on alteration to features of the property's location, setting, or use;

   C. Determinations of adverse effects which may diminish the integrity of the property's location, design, setting, materials, workmanship, or other structural detail.

Adverse effects on historic properties include, but are not limited to:

A. Physical destruction, damage, or alteration of all or part of the property;
B. Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
C. Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting.

***** Anytime archaeological or paleontological materials (e.g. artifacts, arrowheads, fossils, etc…) are encountered, the Fort Stewart Cultural Resources Section must be immediately notified at (912) 767-0992/2010.***

10. Adverse effects from the introduction of atmospheric elements shall be defined as repetitive non-conformance with the National Ambient Air Quality Standards (NAAQS) regarding fugitive dust particles of 10 microns and smaller which may leave the subject property as set forth by the Environmental Protection Agency.

11. Adverse effects from the introduction of audible elements shall be defined as repetitive non-compliance with the Georgia Blasting Standards Act (State of Georgia House Bill 824) regarding atmospheric overpressure limits as governed by the Department of the Fire Marshal for the State of Georgia. Avoidance of adverse effects by the introduction of visual elements shall be accomplished wherever practical by maintaining visual barriers, either by undisturbed buffer areas or manmade structures such as berms, as outlined in the approved Excavation Land Use Plan.

12. It is incumbent upon the Operator to provide satisfactory evidence to the Fort Stewart Environmental Office that alternatives have been considered and this plan contains appropriate measures to provide for minimizing and/or mitigating any adverse effects. If after the excavation operation begins adverse effects become evident, the Fort Stewart Program Manager will give the Operator written notice of the occurrence of such adverse effects. The Operator will then have thirty (30) days to mitigate the adverse effects. In certain cases depending on the nature of the impact the Operator may be required to cease work immediately. If during the thirty-day period no successful action is taken by the Operator to mitigate the adverse effects, the Operator upon notice from the Fort Stewart Environmental Office will cease operations. The Operator will then provide to the Fort Stewart Environmental Office, within ten (10) days, an assessment of the effects and a plan to mitigate the impact. Upon approval by the Fort Stewart Program Manager, the Operator may be allowed to resume excavation operations.

13. ***When Federally listed Endangered and/or Protected Plant/Animal Species are encountered the operator must immediately stop all excavation activities, and contact the Fort Stewart Fish and Wildlife Branch (912) 767-2584.***

14. The Operator shall post an identification sign, which shall display the Operator's Name, Borrow Pit Name/Number, and Permit at the entrance of the Borrow Pit.

15. In the event the Operator ceases active excavation, all exposed critical disturbed areas will be stabilized and the Operator will maintain all measures employed for erosion and sedimentation control. Should extraction of mineral or material cease prior to completion of the Excavation Plan, the Operator shall complete the reclamation as provided for within thirty (30) days from date of cessation.

III. PERFORMANCE CRITERIA FOR RECLAMATION

1. All applicable parts of Section II, 3. Erosion and Sedimentation Control apply including the following:

   A. Reclamation shall be concurrent with excavation activity as lands become available.

   B. Reclamation objectives as shown on Borrow Pit Excavation Plan will be achieved unless Operator submits an amendment.

   C. Following the removal or disposal of all structures, equipment, stock-piles, excavation refuse, and all other materials associated with surface excavation, the Operator will reclaim all affected land in accordance with the provisions of this Plan. All lands except those specifically exempted in this Plan will have a neat, clean appearance, and contain a high quality permanent vegetative cover.

   D. Vegetative Stabilization (planting) Requirement: The Operator will provide a high quality, enduring vegetative ground cover of properly planted and nurtured perennial vegetative species suited for the specific planting zone involved. The perennial vegetative species shall provide a complete, thorough stabilization by establishing root mass and cover for the total disturbed area.

   E. Structural Stabilization: Permanent structural control measures, i.e. stone riprap, ditches, berms, paved chutes, or piped down drains, etc, shall be utilized to convey concentrated storm flows down slopes to stable outlets. These measures are necessary in areas where concentrated storm flow velocities may cause erosion.

2. Specific requirements the Operator will adhere to:

   A. The Operator shall grade all peaks, ridges, and valleys resulting from surface excavation and backfill all pits and trenches resulting from same in a manner to minimize any hazardous effects of excavation adjacent to any Fort Stewart, State, or County maintained road.

B. All affected lands requiring backfilling as stated in the Reclamation Objective of this Plan shall be backfilled utilizing overburden, spoil material, and/or borrow from affected (permitted) land unless approval from the Fort Stewart Program Manager is obtained to utilize other materials. Sound engineering principles shall be applied to ensure that affected lands, as reclaimed, meet the intended use.

C. Immediate erosion control measures shall be applied to protect the topsoil cover until an adequate vegetative cover is established.

D. All high-walls occurring in unconsolidated materials shall be reduced by grading to blend the high-wall with the existing original site topography. High-walls occurring in consolidated material shall be reduced as much as may be practicable. If high walls are to remain they should have a constructed bench with reverse slope to the wall shall be provided at the top of. Any remaining high- walls of fifty (50) feet or greater shall be fenced or "bermed" at the top beyond the initial bench. Such fencing or berms shall be sufficient to provide an adequate degree of protection or warning to foot or vehicle traffic.

E. All affected land, unless otherwise specified in this Plan, shall be graded into a rolling topography and blended in with the existing landscape. All graded areas shall be free of debris, stockpiled materials, boulders, etc. that would interfere with the intended use and/or maintenance of the area.

F. Constructed slopes, at the least should be four horizontal to one vertical (4:1) except where may be approved otherwise in this Plan. Fill and cut slopes shall be designed and constructed to prohibit slumping or shear failures. Prior to final grading, all slopes will be blended in with the original existing topography. Slope grades shall be uniform. Mechanical or vegetative or both stabilization measures shall be employed as soon as practical to prevent erosion.

G. Overburden, spoil or refuse, when used as backfill material, for berms or other construction, shall be segregated as necessary, emplaced and compacted in accordance with sound engineering practices to provide for the purpose intended. Refuse does not include any material, which may be classified as solid waste under provisions of the Georgia Comprehensive Solid Waste Management Act.

H. All new landform structures created with the use of overburden (spoil) or refuse materials shall be constructed in a manner to protect against failure, subsidence and/or erosion and will be permanently stabilized upon completion of construction.

I. When lakes/ponds are proposed, the minimum acceptable design criteria shall meet or exceed those criteria in: Agriculture Handbook Number 590, Ponds – Planning, Design, Construction published by the United States Department of Agriculture, Soil Conservation Service, latest issue. When the dam structure proposed is 35 feet or higher, other acceptable design criteria shall be used.

J. Water shall be of a quality suitable for the intended use. The lake/pond shall have a safe access and be free of underwater hazards. All above water portions of the lake/pond site development shall be re-vegetated with an enduring permanent vegetative cover.

K. Under provisions of the Georgia Safe Dams Act, no permit shall be required to be obtained by the Operator if a dam is constructed with or incidental to "surface mining" as defined in the Georgia Surface Mining Act. If the dam so constructed is classified by the Fort Stewart Environmental Office as a Category I dam, then, before such lake is deemed acceptable reclamation and the Operator is released from his obligations under the Georgia Surface Mining Act, as amended, the Operator will obtain a permit for such dam under the Safe Dams Act.

L. Any proposal for the construction of wetlands as a reclamation objective shall be consistent with accepted practices utilizing the Best Available Technology (BAT) and include the best management practices (BMP's) to attain the desired result. The proposal shall be attached to and be a part of this Plan subject to approval by the Fort Stewart Environmental Office.

M. ***The Operator shall notify the Borrow Pit Management representative for Release upon completion of reclamation responsibilities on affected acreage***. A report may be filed on reclamation activities that partially complete the Operator's full responsibilities for total acreage affected.

* The following pass must be obtained from the Range Control Office ***before entering*** any Training Area.

POV PASS FOR FORT STEWART ROADS AND TRAINING AREAS

TO: Appropriate Range Guards and/or military police

FROM: Chief Range Division, Fort Stewart Ga. 31314 (912) 767-877/8100

The following individual(s) is/are authorized access to the following Training Area/Facilities beginning_____ thru _____ _____
(Start Date) (End Date)

_____ _____
Rank, Name (Last, First) Training Area(s) Facility

_____ _____
Organization Phone Number

Reason for Access Pass

Vehicle (Model) Year (License Plate Number)
(State)

Statement of understanding

I understand that I am permitted to use only the above listed training area(s) and roads leading to and from that area. I may only use that area/facility for the date and time listed below. I understand that I am using these roads at my own risk, and the Commander, 3rd infantry Division and Fort Stewart Assume no responsibility for my safety.

Permanently off limit areas- High Risk Dud Area: Artillery Impact Area, Aerial Gunnery Ranges 1-3 (AGR), EOD Area, Tank Gunnery Ranges (B9-16) and small arms impact area, Luzon Range. Abandoned Ranges located in C1 and C4 training areas.

CAUTION: DO NOT DISTURB UNEXPLODED AMMUNITION! Mark location and notify Range Control (912) 767-8777 or call the Military Police at 911.

I have been briefed and understand the OFF-LIMITS areas and the limitations of this pass. I will notify Range Control at 767-8777 prior to entering an area and upon departure.

_____ _____
Chief, Range Division Bearer's Signature

POST ON DASHBOARD OF VEHICLE

ATTACH PLAN DRAWINGS:

DPW Environmental Division
Borrow Pit Excavation Management Requirements
Standard Operating Procedures (SOP)
Fort Stewart and Hunter Army Airfield, Georgia

Reference 391-3-6 Rules for Water Quality Control; 391-3-7 Rules for Erosion & Sedimentation; OCGA 12-5-20 GA Water Quality Control Act; OCGA 12-7-1 GA Erosion & Sedimentation Control Act of 1975 [amended 2003]; and OCGA 12-7-6 Stream Buffer Variance requirements.

The following are the Standard Operating Procedural requirements for Fort Stewart/Hunter Army Airfield Borrow Pit excavation and usage for National Pollution Discharge Elimination Systems Permitted and Siviculture Non-Permitted Borrow Pits:

For any Borrow Pit activity a Fort Stewart/Hunter Army Airfield Borrow Pit Permit application needs to be submitted to the Fort Stewart DPW, Environmental Division.

1. The Directorate of Public Works, Environmental Division, Borrow Pit Management Program will review **BORROW PIT EXCAVATION PERMIT APPLICATION** for completeness and adequacy. If complete, a permit will be issued and the data will be entered into the Borrow Pit Management database. The following criteria and management objectives will be used to formulate a permit decision on an individual Borrow Pit Excavation.

2. All borrow pit sites will require the project Contracting Officer Representative to coordinate with the Fort Stewart Environmental Division to obtain a Borrow Pit Permit for an approved borrow pit site. Upon completion of the work at Fort Stewart/HAAF, a DPW Environmental Division, Borrow Pit Management representative will inspect the completed work for compliance with the individual Borrow Pit Excavation Plan and provide a release date and authorization. This will be noted on the Permit. In the event that an excavator has adversely deviated from the individual Borrow Pit Excavation Plan, the COR will be notified for corrective action. After a favorable final inspection the Permit information will reside on the Borrow Pit database as archived information with comments and notes as required for future reference, but it will no longer be marked as an Active Permit. A new application is required for any new work by the same contractor.

A. Excavation Procedure

• The Operator* shall show an individual plan as to how the Borrow Pit will be excavated, the limits of the affected acreage, the natural drainage features and water disposal, the initial overburden (debris) area(s), the erosion and sedimentation controls, the ingress/egress area(s), the direction and schedule of excavation advancement, the area to be left undisturbed (buffer) where necessary, and a plan that shows projected final reclamation of the site. (*Any person or persons performing "surfacing mining" for soils).

• The Operator (user) of the borrow pit will create and maintain a rim-ditch *from the first day* of excavation operations to maximize accessibility to borrow pit materials and ultimately to optimize excavation of that material.

• The Operator will be required to utilize a water pump, where and when appropriate to fully extract all fill materials in a manner consistent with proper surfacing mining procedures and adhering to the Erosion & Sedimentation Control Act of Georgia. Also, a sediment basin may become necessary and will be the responsibility of the contractor/operator for its construction.

• All borrow pit design and excavation actions shall support the objective of the borrow pit eventually becoming a recreational fishpond, if soil conditions, location and ground water resources favor such development. To accomplish this objective the following procedures should be employed, but will not take precedent over the need to obtain fill material. The requirement for fill material supersedes the use of the Borrow Pit as a fish pond. In certain cases excavation to greater depth may occur if soils are suitable for the specific project.

1. Average depth, when abandoned, will be 6 feet minimum and 15 feet maximum (water depth will range from 3-8 feet).

2. Borrow pits will be excavated in a manner, *from the beginning*, to ultimately move them to a useable recreational fishpond.

DAILY: the Operator shall be responsible for maintaining a 4:1 slope on all pit walls/edges and marking the slopes/edges in a manner so as to prevent any foot or vehicle traffic from inadvertently falling into the pit excavation.

B. Water Quality Control Measures

• The OCGA 12-5-20 GA Water Quality Control Act will be adhered too.

• No Point Source discharges *(i.e. dewatering operations)* shall be allowed without prior coordination with the Environmental Branch and BMPs will be followed at all times.

• Borrow pit excavation shall not be conducted within 100 feet of the banks of any waters of the State of Georgia, nor discharges to the water or ground to ensure no adverse affects on these waters.

C. Erosion & Sedimentation Control Measures

• The 391-3-7 Rules for Erosion & Sedimentation and the OCGA 12-7-1 GA Erosion & Sedimentation Control Act of 1975 [amended 2003] will be adhered too.

• Remain within the boundaries of the borrow pit (*which are marked by "red paint on the surrounding trees, and/or the perimeter road*) while making every effort to retain and/or create a buffer zone(s) of undisturbed/natural vegetation following all guidelines within *Georgia's Manual for Erosion and Sediment Control Best Management Practices* to prevent silts and sediments from leaving the borrow pit area and entering the waters of the State or wetland areas.

> **VEGETATION:** All marketable timber will be salvaged. Top soil will be salvaged, stockpiled and spread on areas to be vegetated. Trees outside of the clearing line will be protected from damage by appropriate markings. Supplemental vegetation will be established.
>
> **BUFFER REQUIREMENTS:** An undisturbed natural vegetative buffer of 25 feet measured from the stream banks (100 feet measured horizontally, adjacent to trout streams) shall be retained adjacent to any state waters except where a drainage structure must be constructed, provided that adequate erosion control measures are incorporated in the project plans and specifications are implemented.
>
> **EROSION CONTROL PROGRAM**: Clearing will be kept to an absolute minimum. Land-disturbing will be scheduled to limit exposure of exposed soils to erosive elements. Stormwater management structures will be employed to prevent erosion in areas of concentrated water flows.

Erosion at the exits of all stormwater structures will be prevented by the installation of storm drain outlet protection devices.

SEDIMENT CONTROL PROGRAM: Sediment control basins will be installed when appropriate, approximately 375 feet of temporary brush barriers. Diversions will be installed to divert sediment laden runoff into the sediment basins and to protect cut and fill slopes from erosive water flow.

MAINTENANCE PROGRAM: Sediment and erosion control measures will be inspected daily by the operators. Any damages observed will be repaired by the end of that day. Cleanout of sediment control structures will be accomplished in accordance with the specifications and sediment disposal accomplished by spreading on the site. When applicable, Sediment basins and barriers will remain in place until sediment contributing areas are stabilized.

NOTE: See attached guidelines from the *Manual for Erosion & Sedimentation Control in Georgia*

• All slopes will be stabilized with an appropriate ground cover so as to prevent the erosion of the borrow pit's slopes. If the first application is not sufficient to prevent erosion *the pit operator will be responsible for returning to the borrow pit to correct the deficiencies that have resulted in erosion of the borrow pit's slopes.*

D. Air Quality Measures

• Where applicable, adverse effects from atmospheric elements, specifically fugitive dust, are to be prevented so as to avoid any significant deterioration of the air quality.

E. Solid/Hazardous Waste Measures

• All solid and hazardous wastes shall be disposed of properly.

• No debris, trash, or other garbage will be left at, in, or adjacent to the borrow pit.

F. Borrow Pit Expansions:

• Any borrow pit expansions must be pre approved and coordinated with the DPW Environmental Division.

G. Inspections:

• The operator‘s utilizing borrow pits must ensure all Standard Operating Procedures are being adhered too. Random or impromptu site inspections will be performed by DPW Environmental Division personnel to ensure continuing compliance and the proper maintenance of erosion and sediment control measures.

Borrow Pits Standards for Erosion & Sedimentation Controls

Waters of the United States and Erosion and Sediment Control

Wetlands are defined as areas that are inundated by surface or ground water for a long enough period of time that the area supports the growth of vegetation that can perpetuate in saturated soil. Wetlands are a valuable resource, and it is imperative that these areas are protected from damage caused by adjacent erosion and subsequent sedimentation. While state law does not necessarily require buffers adjacent to wetlands, these areas are still considered valuable, and all efforts must be made to protect these areas during land disturbing activities. Obviously, the best and most effective method for protecting wetlands is maintaining a buffer between and land-disturbing activity and the wetland. If this is not possible, standard erosion and sediment control devices can be utilized to protect these areas. As always, it is imperative that these devices be designed, installed, and properly maintained.

The Georgia Erosion and Sediment Control (E&SC) Act requires that land-disturbing activities in Georgia are protected from erosion and subsequent sedimentation up to and including a 25-year storm. Few realize that activities that impact Waters of the United States can mean stricter Federal requirements for erosion and sediment control. Waters of the United States are navigable waters as well as adjacent wetlands and tributaries to navigable waters. Discharge of dredged of fill material into Waters of the United States is regulated by the United States Army Corps of Engineers under Section 404 of the Clean Water Act (33 U.S.C. 1344).

While State Law requires E&SC protection for a 25-year storm, Federal Law requires that adequate erosion and sediment control must be implemented during land-disturbing activities where a section 404 permit (usually known as a wetland permit) is required. Few realize that minor activities of filling and dredging, while not requiring U.S. Army Corps of Engineers notification, still must meet the Federal requirement of "adequate erosion and sediment control" as if a permit had been issued. According to Federal Law, "adequate equates to "no failures tolerated." In short, when filling or dredging activity impacts any Waters of the United States, adequate erosion control must occur at the site. Therefore, during land-disturbing activities regulated by the state, erosion and sediment control regulations fall under stricter Federal guidelines as well as the standard State guidelines if Waters of the United States are impacted.

To get more information concerning discharge of dredged or fill material into Waters of the United States, permitting for these activities, and stipulations for permitting please contact the United States Army Corps of Engineers, Savannah District, Regulatory Branch, at 1-800-652-5065.

Borrow Pits Standards for Erosion & Sedimentation Controls, and Avoidance of Natural Resource Impacts

Borrow pits at Fort Stewart and Hunter Army Airfield are managed to avoid erosion and movement of sediment into wetlands and navigable waters, as well as to avoid damage to known and unknown archaeological sites and wildlife habitats, and limit air and noise pollution. The following are the mandates given to the project managers and operators of excavation equipment working in borrow pits:

1. The Operator** will ensure that all measures and facilities for control of erosion and sedimentation during site preparation, operation, and/or reclamation activities shall adhere to the following:

    a.. Ensure as a minimum, a Level 1A Erosion & Sedimentation Control State Certified trained individual is on the site during ANY land disturbance activities.

    b. Erosion and sedimentation control measures and facilities will be employed prior to or concurrent with clearing, grading, overburden removal, access or other land disturbing activities for preparation or operation of the site. Provisions will be made for treatment or control of any source of sediments.

    c. The Operator, so as to be effective, whether temporary or permanent, shall continuously maintain all erosion and sedimentation control measures or facilities.

    d. Sediment in surface runoff water shall be trapped by use of debris basins, sediment basins, silt traps, sediment barriers or similar structures.

    e. Permanent vegetation shall be installed as soon as possible. Temporary vegetation and/or mulch shall be employed where necessary to protect exposed critical areas until permanent vegetation or stabilization is attained.

    f. Natural vegetation shall be retained, protected and supplemented wherever feasible to provide for natural buffer areas.

    g. Diversions, dikes, and berms shall be employed to retain, direct and control surface water runoff from affected areas into sediment control structures.

    h. All surface water discharges shall be controlled and released at a non-erosive velocity onto stabilized areas or into stabilized channels.

    i. Constructed slopes, will be four horizontal to one vertical (4:1) except where it may be approved otherwise and is shown on and in the attached Plan/drawings. All slopes shall be marked so as to prevent foot or vehicle traffic from inadvertently falling into the pit. Fill and cut slopes shall be designed and constructed to prohibit slumping or shear failures. Prior to final grading, all slopes will be blended in with the original existing topography. Slope grades shall be uniform. Structural, vegetative or both stabilization measures shall be employed as soon as practical to prevent erosion.

    NOTE: It is recommended Operators refer to the design criteria in the “Manual for Erosion and Sedimentation Control in Georgia”, published by the State Soil and Water Conservation Commission as a guide to design criteria which conform to sound conservation and engineering practices.

****** Any person or persons performing “surfacing mining” for soils.

Borrow Pits Standards for Erosion & Sedimentation Controls, and Avoidance of Natural Resource Impacts (Cont'd)

2. All permanent landform changes including, but not limited to, berms, drainage structures, surface water channel modifications, etc., shall be constructed in a manner to protect against failure, subsidence and/or erosion and will be permanently stabilized upon completion of construction.

3. Whenever a site lies contiguous to any waters of the State or whenever, in the judgment of the Fort Stewart Environmental Division, proposed operations at such site will adversely affect any portion of a watershed of the State, the Operator will follow sound engineering and conservation measures to provide protective barriers, such as dams, berms, silt ponds, or other similar structures, between the land to be affected and waters or watersheds involved. All such structures are to be approved by the Fort Stewart Environmental Division as a part of this Plan and are to be substantial for the protection of contiguous natural resources of the State. All structures referred to above are to be constructed a reasonable distance from waters of the State, or that portion of a watershed of the State that may be adversely affected, as determined by the Fort Stewart Environmental Division. Borrow Pit Excavation, if conducted within the 100-year floodplain, shall be done in accordance with any applicable local floodplain management ordinance, if any. Where a local floodplain management ordinance does not exist, the Operator shall ensure that the excavation activities are conducted so as to minimize flooding, erosion and/or sedimentation on adjacent upstream or downstream properties.

4. Before natural creeks, streams, rivers, lakes, or other bodies of water may be altered in course or relocated by the Operator, the Environmental Division as a part of this Plan must approve the plan for such alteration or relocation.

5. The Operator shall obtain required stormwater permits and maintain compliance with the Water Quality Control Rules, Chapter 391-3-6-.16 (Storm Water Permit Requirements).

6. If archaeological or fossil resources are discovered during the course of an excavation; continued excavation and disturbance of the site will be suspended and the DPW, Environmental Division (767-2010) will be notified immediately. The Environmental Division will evaluate the significance of the finding and issue new guidance:

    a. Alternatives or measures to avoid or reduce effects on the historic properties;

    b. Determinations of effects on alteration to features of the property's location, setting, or use;

    c. Determinations of adverse effects which may diminish the integrity of the property's location, design, setting, materials, workmanship, or other structural detail.

        Adverse effects on historic properties include, but are not limited to:

        1) Physical destruction, damage, or alteration of all or part of the property;
        2) Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
        3) Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting.

    Anytime archaeological or paleontological materials (e.g. artifacts, arrowheads, fossils, etc…) are encountered, the Fort Stewart Environmental Division, Cultural Resources Section must be immediately notified at (912) 767-0992/2010.

7. Adverse effects from the introduction of atmospheric elements shall be defined as repetitive non-conformance with the National Ambient Air Quality Standards (NAAQS) regarding fugitive dust

Borrow Pits Standards for Erosion & Sedimentation Controls, and Avoidance of Natural Resource Impacts (Cont'd)

particles of 10 microns and smaller which may leave the subject property as set forth by the U.S. Environmental Protection Agency.

8. Adverse effects from the introduction of audible elements shall be defined as repetitive non-compliance with the Georgia Blasting Standards Act (State of Georgia House Bill 824) regarding atmospheric overpressure limits as governed by the Department of the Fire Marshal for the State of Georgia. Avoidance of adverse effects by the introduction of visual elements shall be accomplished wherever practical by maintaining visual barriers, either by undisturbed buffer areas or manmade structures such as berms, as outlined in the approved Excavation Land Use Plan.

9. It is incumbent upon the Operator to provide satisfactory evidence to the Fort Stewart Environmental Division that alternatives have been considered and this plan contains appropriate measures to provide for minimizing and/or mitigating any adverse effects. If after the excavation operation begins adverse effects become evident, the Fort Stewart Borrow Pit Program Manager will give the Operator written notice of the occurrence of such adverse effects. The Operator will then have thirty (30) days to mitigate the adverse effects. In certain cases depending on the nature of the impact the Operator may be required to cease work immediately. If during the thirty-day period no successful action is taken by the Operator to mitigate the adverse effects, the Operator upon notice from the Fort Stewart Environmental Division will cease operations. The Operator will then provide to the Fort Stewart Environmental Division, within ten (10) days, an assessment of the effects and a plan to mitigate the impact. Upon approval by the Fort Stewart Borrow Pit Program Manager, the Operator may be allowed to resume excavation operations.

10. When Federally listed Endangered and/or Protected Plant/Animal Species are encountered the operator must immediately stop_all excavation activities, and contact the Fort Stewart Fish and Wildlife Branch (912) 767-2584.

11. The Operator shall post an identification sign, which shall display the Operator's Name, Borrow Pit Name/Number, and Permit at the entrance of the Borrow Pit.

12. In the event the Operator ceases active excavation, all exposed critical disturbed areas will be stabilized and the Operator will maintain all measures employed for erosion and sedimentation control. Should extraction of mineral or material cease prior to completion of the Excavation Plan, the Operator shall complete the reclamation as provided for within thirty (30) days from date of cessation.

Borrow pit operators are expected to prepare the pit to safely lie fallow until such time as it is excavated again, as follows:

1. All applicable parts of Section C. Erosion and Sedimentation Control Measures of the SOP apply including the following:

    a. Reclamation shall be concurrent with excavation activity as lands become available.

    b. Reclamation objectives as shown on Borrow Pit Excavation Plan will be achieved unless Operator submits an amendment.

    c. Following the removal or disposal of all structures, equipment, stock-piles, excavation refuse, and all other materials associated with surface excavation, the Operator will reclaim all affected land in accordance with the provisions of this Plan. All lands except those specifically

Borrow Pits Standards for Erosion & Sedimentation Controls, and Avoidance of Natural Resource Impacts (Cont'd)

exempted in this Plan will have a neat, clean appearance, and contain a high quality permanent vegetative cover.

d. Vegetative Stabilization (planting) Requirement: The Operator will provide a high quality, enduring vegetative ground cover of properly planted and nurtured perennial vegetative species suited for the specific planting zone involved. The perennial vegetative species shall provide a complete, thorough stabilization by establishing root mass and cover for the total disturbed area.

e. Structural Stabilization: Permanent structural control measures, i.e. stone riprap, ditches, berms, paved chutes, or piped down drains, etc, shall be utilized to convey concentrated storm flows down slopes to stable outlets. These measures are necessary in areas where concentrated storm flow velocities may cause erosion.

2. Specific requirements the Operator will adhere to:

a. The Operator shall grade all peaks, ridges, and valleys resulting from surface excavation and backfill all pits and trenches resulting from same in a manner to minimize any hazardous effects of excavation adjacent to any Fort Stewart, State, or County maintained road.

b. All affected lands requiring backfilling as stated in the Reclamation Objective of this Plan shall be backfilled utilizing overburden, spoil material, and/or borrow from affected (permitted) land unless approval from the Fort Stewart Borrow Pit Program Manager is obtained to utilize other materials. Sound engineering principles shall be applied to ensure that affected lands, as reclaimed, meet the intended use.

c. Immediate erosion control measures shall be applied to protect the topsoil cover until an adequate vegetative cover is established.

d. All high-walls occurring in unconsolidated materials shall be reduced by grading to blend the high-wall with the existing original site topography. High-walls occurring in consolidated material shall be reduced as much as may be practicable. If high walls are to remain they should have a constructed bench with reverse slope to the wall shall be provided at the top of the initial bench. Any remaining high-walls of fifty (50) feet or greater shall be fenced or "bermed" at the top beyond the initial bench. Such fencing or berms shall be sufficient to provide an adequate degree of protection or warning to foot or vehicle traffic.

e. All affected land, unless otherwise specified in this Plan, shall be graded into a rolling topography and blended in with the existing landscape. All graded areas shall be free of debris, stockpiled materials, boulders, etc. that would interfere with the intended use and/or maintenance of the area.

f. Constructed slopes, will be at least four horizontal to one vertical (4:1) except where may be approved otherwise in this Plan. Fill and cut slopes shall be designed and constructed to prohibit slumping or shear failures. Prior to final grading, all slopes will be blended in with the original existing topography. Slope grades shall be uniform. Structural, vegetative or both stabilization measures shall be employed as soon as practical to prevent erosion.

g. Overburden, spoil or refuse, when used as backfill material, for berms or other construction, shall be segregated as necessary, emplaced and compacted in accordance with sound engineering practices to provide for the purpose intended. Refuse does not include any

Borrow Pits Standards for Erosion & Sedimentation Controls, and Avoidance of Natural Resource Impacts (Cont'd)

material which may be classified as solid waste under provisions of the Georgia Comprehensive Solid Waste Management Act.

h. All new landform structures created with the use of overburden (spoil) or refuse materials shall be constructed in a manner to protect against failure, subsidence and/or erosion and will be permanently stabilized upon completion of construction.

i. When lakes/ponds are proposed, the minimum acceptable design criteria shall meet or exceed those criteria in: "Agriculture Handbook Number 590, Ponds – Planning, Design, Construction" published by the United States Department of Agriculture, Soil Conservation Service, latest issue. When the dam structure proposed is 35 feet or higher, other acceptable design criteria shall be used.

j. Water shall be of a quality suitable for the intended use. The lake/pond shall have a safe access and be free of underwater hazards. All above water portions of the lake/pond site development shall be re-vegetated with an enduring permanent vegetative cover.

k. Under provisions of the Georgia Safe Dams Act, no permit shall be required to be obtained by the Operator if a dam is constructed with or incidental to "surface mining" as defined in the Georgia Surface Mining Act. If the dam so constructed is classified by the Fort Stewart Environmental Division as a Category I dam, then, before such lake is deemed acceptable reclamation and the Operator is released from his obligations under the Georgia Surface Mining Act, as amended, the Operator will obtain a permit for such dam under the Safe Dams Act.

l. Any proposal for the construction of wetlands as a reclamation objective shall be consistent with accepted practices utilizing the Best Available Technology (BAT) and include the best management practices (BMP's) to attain the desired result. The proposal shall be attached to and be a part of this Plan subject to approval by the Fort Stewart Environmental Division.

m. The Operator shall notify the DPW Fort Stewart Borrow Pit Management for Release upon completion of reclamation responsibilities on affected acreage. A report may be filed on reclamation activities that partially complete the Operator's full responsibilities for total acreage affected.

Buffer Zone

Bf

DEFINITION

A strip of undisturbed, original vegetation, enhanced or restored existing vegetation or the re-establishment of vegetation surrounding an area of disturbance or bordering streams, ponds, wetlands, lakes and coastal waters.

PURPOSE

To provide a buffer zone serving one or more of the following purposes:

- Reduce storm runoff velocities
- Act as screen for “visual pollution”
- Reduce construction noise
- Improve aesthetics on the disturbed land
- Filtering and infiltrating runoff
- Cooling rivers and streams by creating shade provide food and cover for wildlife and aquatic organisms
- Flood protection
- Protect channel banks from scour and erosion

CONDITIONS

A natural strip of vegetation should be preserved and, if needed, supplemented to form the buffer zone. There are two types of buffer zones.

General Buffers

A strip of undisturbed, original land surrounding the disturbed site. It can be useful not only to filter and infiltrate runoff, but also to act as a screen for “visual pollution” and reduce construction noise. General buffers may be enhanced to achieve desired goals.

Vegetated Stream Buffers

Buffers bordering streams are critical due to the invaluable protection of streams from sedimentation. Stream buffers are also useful in cooling rivers and providing food and cover for wildlife. Refer to the minimum requirements in Act 599 (O.C.G.A. 1-7-1, et. seq.) and Chapters 16 and 18 of the NRCS Engineering Field Handbook.

In most cases, the buffer zone will be incorporated into the permanent vegetative cover. Refer to specification **Ds3 - Disturbed Area Stabilization (With Permanent Vegetation).**

DESIGN SPECIFICATIONS

Important design factors such as slope, hydrology, width and structure shall be considered. While Georgia’s Environmental Protection Division enforces minimum stream buffer requirements, expanding the stream buffer width is always encouraged. If any land-disturbing activity, including exempt and non-exempt practices, occurs within the GA EPD mandated stream buffers, cut and fills within the buffer shall be stabilized with appropriate matting or blanket.

General Buffers

A width should be selected to permit the zone to serve the purpose(s) as listed above. Supplemental plantings may be used to increase the effectiveness of the buffer zone.

Vegetated Stream Buffers

The structure of vegetated stream buffers should be considered to determine if the buffer must be enhanced to achieve the necessary goals. The size of the stream as well as the topography of the area must be considered to determine the appropriate width of the vegetated stream buffer. A vegetated stream buffer of 50 feet or greater can protect waters from excess sedimentation. The buffer should be increased 2 feet in width for every 1% slope (measured along a line perpendicular to the stream bank). Surface water pollution can be reduced with a 100 foot or wider vegetative buffer.

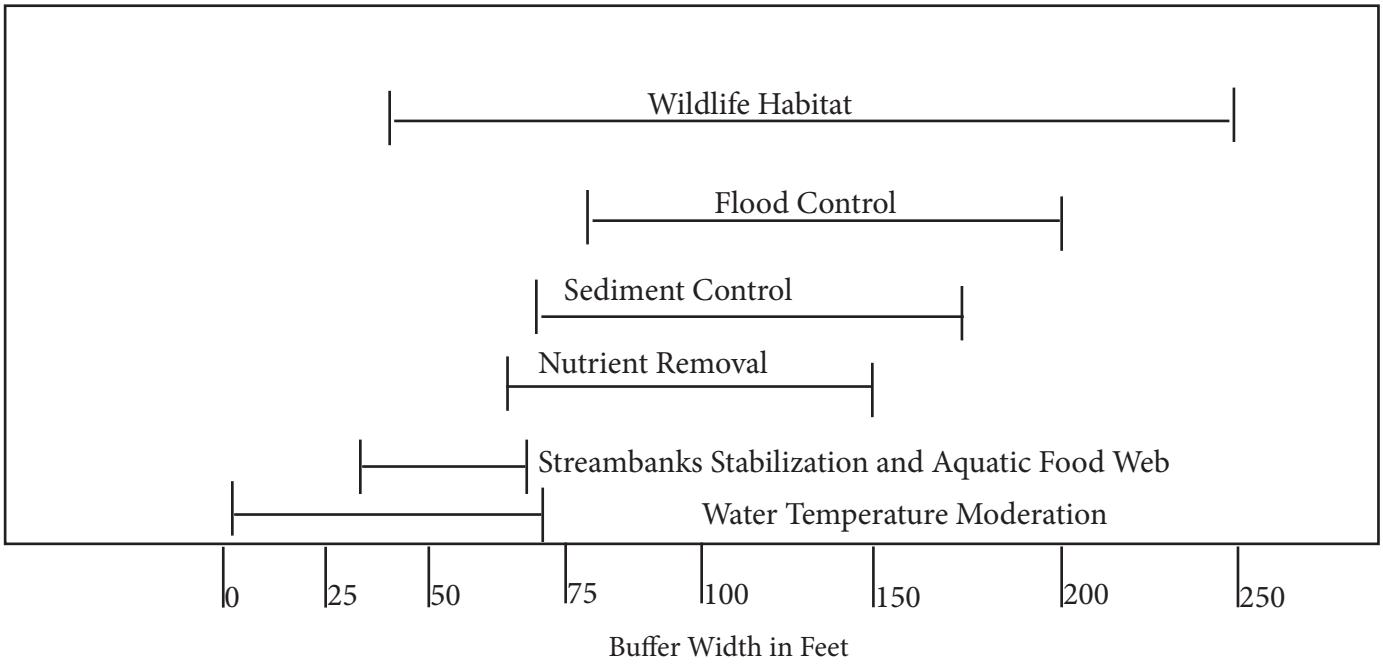


Figure 6-1.1 - Range of Minimum Width for Meeting Specific Buffer Objectives (Palone and Todd, draft)

A general multipurpose riparian buffer consists of three zones.

1. Zone 1 The first 20 feet nearest the stream should consist of trees spaced 6-10 feet apart.

2. Zone 2 The next 10 feet should consist of managed forest.

3. Zone 3 The following 20 feet should be comprised of grasses.

This general multipurpose design contains trees and shrubs that help to stabilize stream banks and grasses that spread and reduce the flow from adjacent areas as well as increase settling and infiltration. See Tables 6-1.1 and 6-1.2 for suggested plant species.

If the ideal vegetated buffer width cannot be achieved; narrower buffers can still be used to obtain the goals concerning forest structure and riparian habitat. If this is the case, several design principles should be considered:

1. Sheet flow should be encouraged at the edge of the vegetated stream buffer.

2. The structure of the buffer should consist of under-story and canopy species.

3. The width should be proportional to the watershed area and slope.

4. Native and non-invasive plant species should be used.

5. Density must be considered to determine if the existing buffer must be enhanced to achieve the necessary goals. Vegetation must be dense enough to filter sediment and provide detrital nutrients for aquatic organisms.

Streambank stabilization techniques may be required if steep slopes and hydrologic patterns deem it necessary. Refer to specification **Sb - Streambank Stabilization (Using Permanent Vegetation)**. Vegetated stream buffers on steep slopes may need to be wider to effectively filter overland flow. Corridors subject to intense flooding may require additional streambank stabilization measures.

PLANTING TECHNIQUES

Plantings for buffer re-establishment and enhancement can consist of bare root seedlings, container-grown seedlings, container-grown plants, and balled and burlapped plants. Refer to Tables 6-1.1 and 6-1.2, and Wildlife Plantings in **Ds3 - Disturbed Area Stabilization (With Permanent Vegetation**). Standard permanent ero-

sion control grasses and legumes may be used in denuded areas for quick stabilization. Refer to specification **Ds3 - Disturbed Area Stabilization (With Permanent Vegetation).** Availability, cost, associated risk, equipment, planting procedures, and planting density must be considered when choosing planting types.

Soil preparation and maintenance are essential for the establishment of planted vegetation. Soil fertility, weed control, herbaceous cover, as well as additional associated products may be required.

OPERATIONS AND MAINTENANCE

Areas closest to the stream should be maintained with minimal impact.

Watering

During periods of drought as well as during the initial year, watering may be necessary in all buffer areas planted for enhancement.

Weed Control

Weeds can be removed by hand or with careful spraying.

Replanting

It is imperative that the structure of the vegetated stream buffer be maintained. If the buffer has been planted, it is suggested that the area be monitored to determine if plant material must be replaced. See Tables 6-1.1 and 6-1.2 for suggested plant species. Provisions for the protection of new plantings from destruction or damage from beavers shall be incorporated into the plan.

Fertilizer

If appropriate vegetation is chosen, it is unlikely that fertilizer will be necessary.

Local Contacts:

USDA Natural Resources Conservation Service
Georgia Forestry Commission

TEMPORARY SEDIMENT BASIN

CROSS-SECTIONAL DETAIL

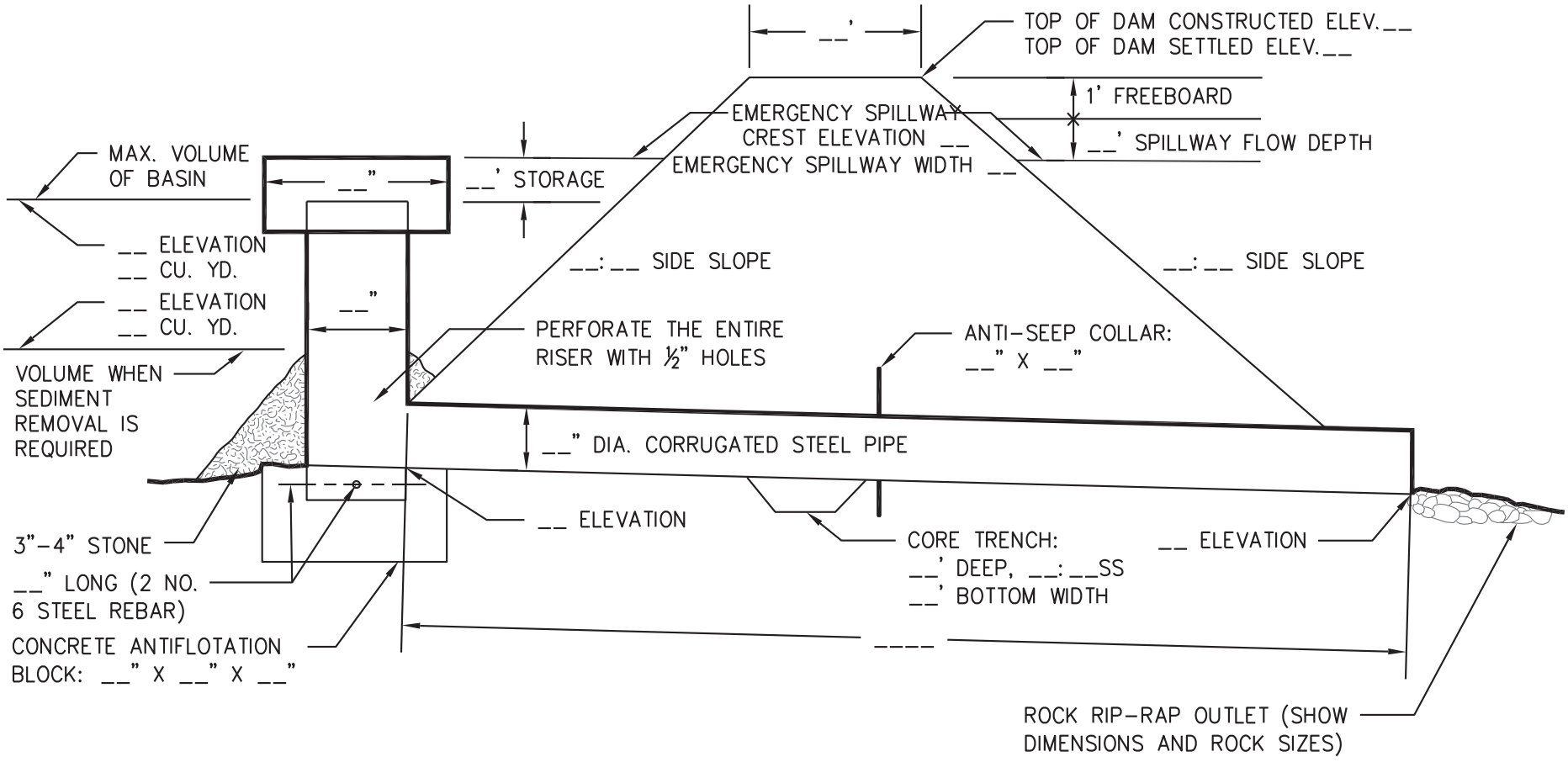
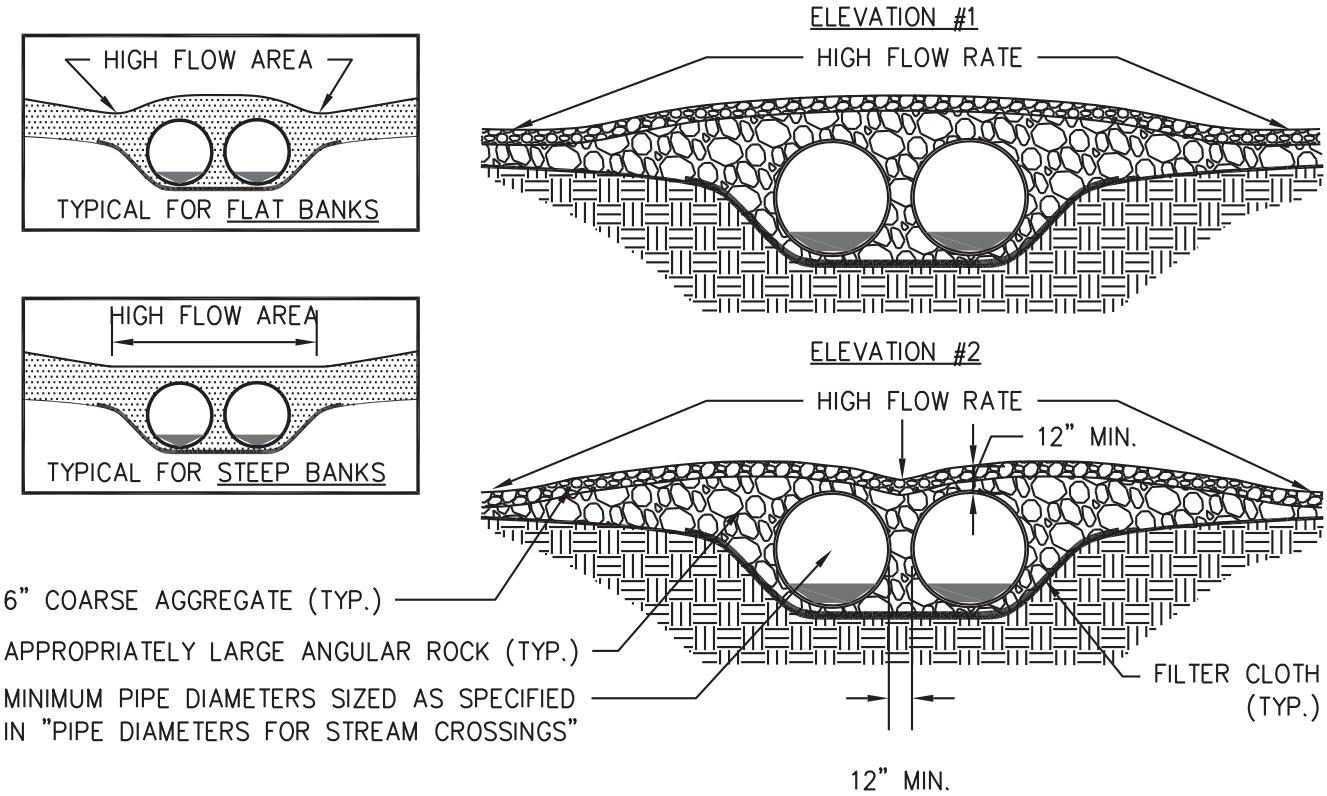


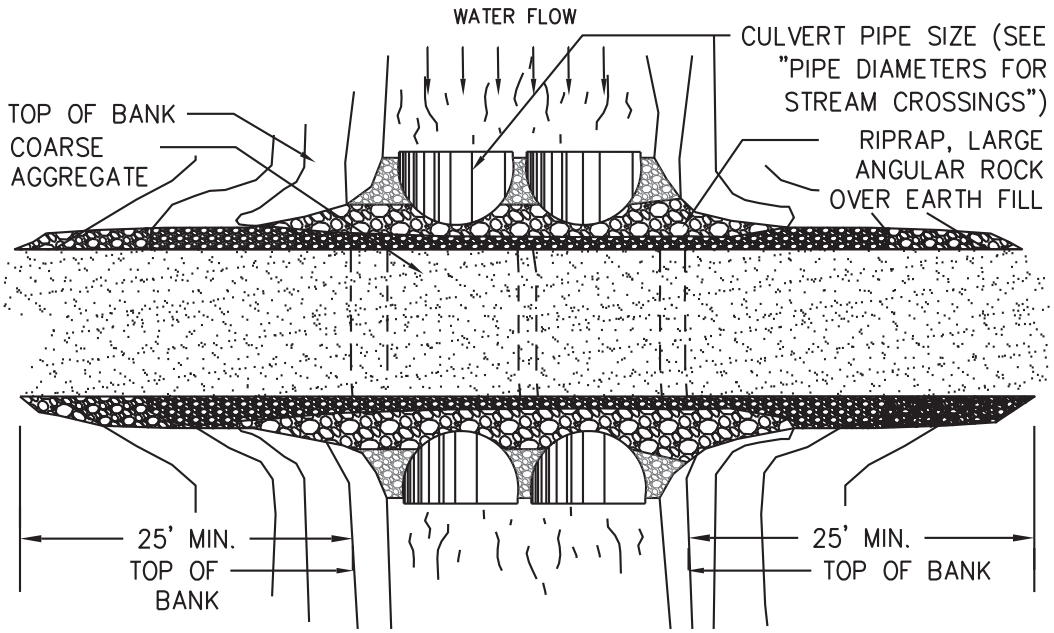
Figure 6-29.7

CONFIGURATION OF TEMPORARY CULVERT CROSSINGS

(SECTIONS – NOT TO SCALE)



TYPICAL CULVERT CROSSING PLAN (NOT TO SCALE)



NOTES:

1. THIS TYPE OF CROSSING CAN BE INSTALLED IN BOTH A WET OR DRY WEATHER STREAM CONDITION WHERE THE DRAINAGE AREA EXCEEDS 10 ACRES.
2. REMOVE DURING CLEANUP.

Figure 6-33.2

Storm Drain Outlet Protection

St

DEFINITION

Paved and/or riprapped channel sections, placed below storm drain outlets.

PURPOSE

To reduce velocity of flow before entering receiving channels below storm drain outlets.

CONDITIONS

This standard applies to all storm drain outlets, road culverts, paved channel outlets, etc., discharging into natural or constructed channels. Analysis and/or treatment will extend from the end of the conduit, channel or structure to the point of entry into an existing stream or publicly maintained drainage system.

DESIGN CRITERIA

Structurally lined aprons at the outlets of pipes and paved channel sections shall be designed according to the following criteria:

Capacity

Peak stormflow from the 25-year, 24-hour frequency storm or the storm specified in Title 12-7-1 of the Official Code of Georgia Annotated or the design discharge of the water conveyance structure, whichever is greater.

Tailwater Depth

The depth of tailwater immediately below the pipe outlet must be determined for the design capacity of the pipe. Manning's Equation may be used to determine tailwater depth. If the tailwater depth is less than half the diameter of the outlet pipe, it shall be classified as a Minimum Tailwater Condition. If the tailwater depth is greater than half the pipe diameter, it shall be classified as a Maximum Tailwater Condition. Pipes that outlet onto flat areas with no defined channel may be assumed to have a Minimum Tailwater Condition.

Apron Length and Thickness

The apron length and d_{50}, stone median size, shall be determined from the curves according to tailwater conditions:

Minimum Tailwater- Use Figure 6-34.1

Maximum Tailwater- Use Figure 6-34.2

Maximum Stone Size = 1.5 x d_{50}

Apron Thickness = 1.5 x dmax

Apron Width

If the pipe discharges directly into a well-defined channel, the apron shall extend across the channel bottom and up the channel banks to an elevation one foot above the maximum tailwater depth or to the top of the bank (whichever is less). If the pipe discharges onto a flat area with no defined channel, the width of the apron shall be determined as follows:

a. The upstream end of the apron, adjacent to the pipe, shall have a width three times the diameter of the outlet pipe.

b. For a Minimum Tailwater Condition, the downstream end of the apron shall have a width equal to the pipe diameter plus the length of the apron. Refer to Figure 6-34.1.

c. For a Maximum Tailwater Condition, the down stream end shall have a width equal to the pipe diameter plus 0.4 times the length of the apron. Refer to Figure 6-34.2.

Bottom Grade

The apron shall be constructed with no slope along its length (0.0% grade). The invert elevation of the downstream end of the apron shall be equal to the elevation of the invert of the receiving channel. There shall be no overfall at the end of the apron.

Side Slope

If the pipe discharges into a well-defined channel, the side slopes of the channel shall not be steeper than 2:1.

Alignment

The apron shall be located so that there are no bends in the horizontal alignment.

Geotextile

Geotextiles should be used as a separator between the graded stone, the soil base, and the abutments. The geotextile will prevent the migration of soil particles from the subgrade into the graded stone. The geotextile shall be specified in accordance with AASHTO M288-06 Section 8, *Geotextile Property Requirements.* The geotextile should be placed immediately adjacent to the subgrade without any voids.

Materials

The apron may be lined with riprap, grouted riprap, or concrete. The median sized stone for riprap, d_{50}, shall be determined from the curves, Figures 6-34.1 and 6-34.2, according to the tailwater condition. The gradation, quality and placement of riprap shall conform to Appendix C.

Refer to Figure 6-34.4, for alternative structures to achieving energy dissipation at an outlet. For information regarding the selection and design of these alternative energy dissipators, refer to:

FHWA Standard (REF. Hydraulic Design of Energy Dissipators for Culverts and Channels; HEC No. 14, FHWA, Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

CONSTRUCTION SPECIFICATIONS

1. Ensure that the subgrade for the filter and riprap follows the required lines and grades shown in the plan. Compact any fill required in the subgrade to the density of the surrounding undisturbed material. Low areas in the subgrade on undisturbed soil may also be filled by increasing the riprap thickness.

2. The riprap and gravel filter must conform to the specified grading limits shown on the plans.

3. Geotextile must meet design requirements and be properly protected from punching or tearing during installation. Repair any damage by removing the riprap and placing another piece of filter fabric over the damaged area. All connecting joints should overlap a minimum of 1 ft. If the damage is extensive, replace the entire filter fabric.

4. Riprap may be placed by equipment, but take care to avoid damaging the filter.

5. The minimum thickness of the riprap should be 1.5 times the maximum stone diameter.

6. Construct the apron on zero grade with no overfall at the end. Make the top of the riprap at the downstream end level with the receiving area or slightly below it.

7. Ensure that the apron is properly aligned with the receiving stream and preferably straight throughout its length. If a curve is needed to fit site conditions, place it in the upper section of the apron.

8. Immediately after construction, stabilize all disturbed areas with vegetation.

9. Stone quality - Select stone for riprap from field stone or quarry stone. The stone should be hard, angular, and highly weather-resistant. The specific gravity of the individual stones should be at least 2.5.

10. Filter - Install a filter to prevent soil movement through the openings in the riprap. The filter should consist of a graded gravel layer or a synthetic filter cloth. See Appendix C; p. C-1.

MAINTENANCE

Inspect riprap outlet structures after heavy rains to see if any erosion around or below the riprap has taken place or if stones have been dislodged. Immediately make all needed repairs to prevent further damage.

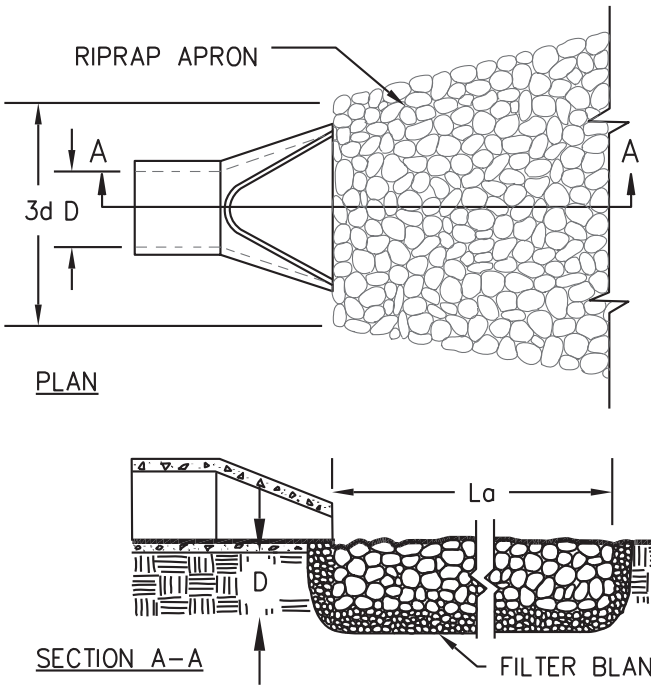
TO BE SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN

1. The flow characteristics of the pipe at full flow including pipe diameter, flow rate (cfs), velocity (fps), and tail-water condition.

2. The dimensions of the apron including length (La), width at the headwall (W_1), downstream width (W_2), average stone diameter (d50), and stone depth (D) designed in accordance with Figures 6-34.1 and 6-34.2.

RIPRAP OUTLET PROTECTION

PIPE OUTLET TO FLAT AREA -- NO WELL DEFINED CHANNEL



NOTES:

1. La IS THE LENGTH OF THE RIPRAP APRON.
2. D = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6".
3. IN A WELL–DEFINED CHANNEL, EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK (WHICHEVER IS LESS).
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND THE SOIL FOUNDATION.

PIPE OUTLET TO WELL DEFINED CHANNEL

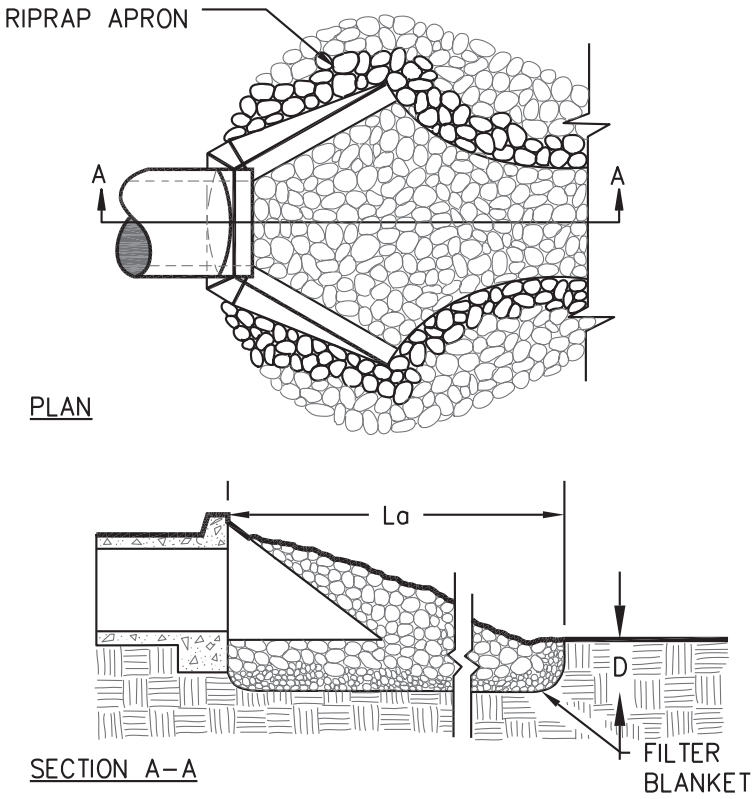
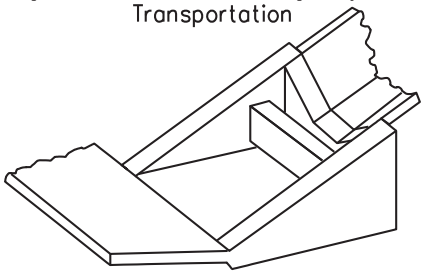


Figure 6-34.3 - Riprap Outlet Protection (Modified From Va SWCC)

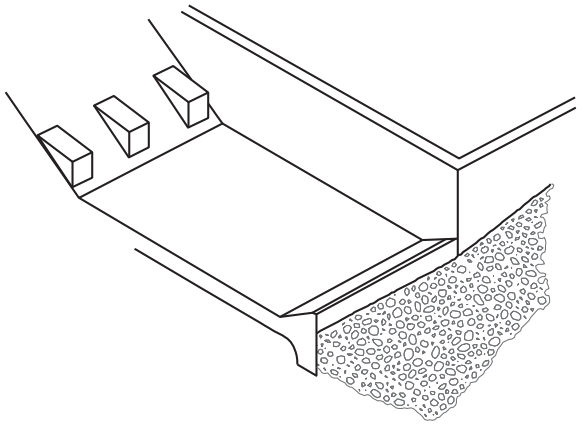
ALTERNATE STRUCTURES FOR ENERGY DISSIPATION AT AN OUTLET

(Modified from Goldman, Jackson, and Bursztynsky)

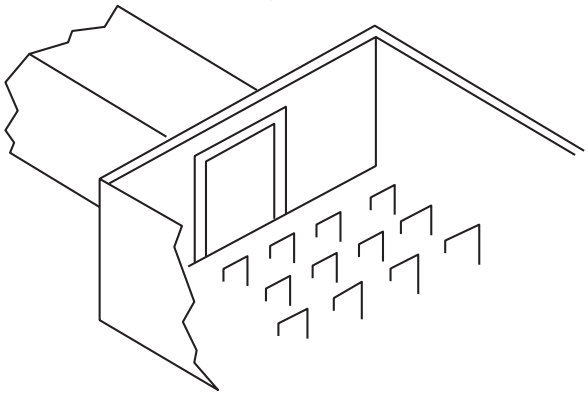
Virginia Department of Highways and Transportation



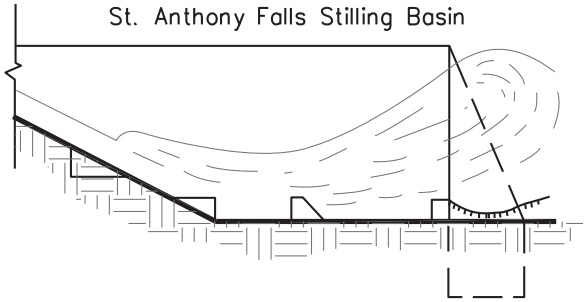
Colorado State University Rigid Boundary Basin



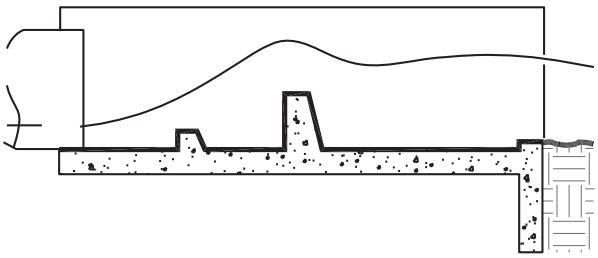
USBR Type IV Basin



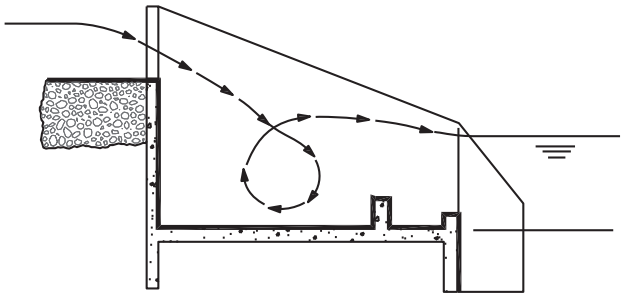
St. Anthony Falls Stilling Basin



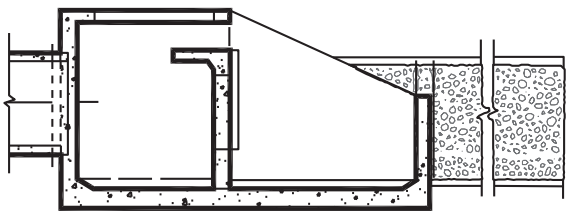
Contra Costa County, Calif.



Straight Drop Spillway Stilling Basin



USBR Type VI Baffle Wall Basin



T–fitting on CMP Outlet

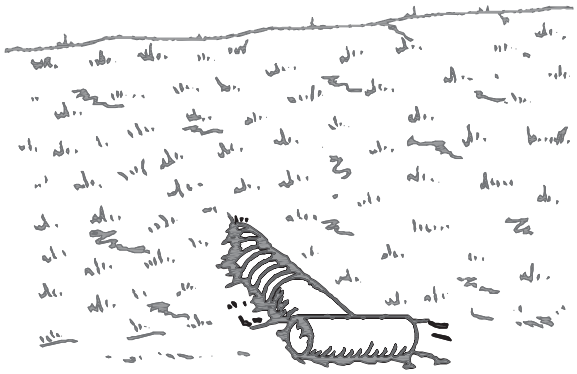


Figure 6-34.4

Dust Control on Disturbed Areas

Du

DEFINITION

Controlling surface and air movement of dust on construction sites, roads, and demolition sites.

PURPOSE

- To prevent surface and air movement of dust from exposed soil surfaces.
- To reduce the presence of airborne substances that may be harmful or injurious to human health, welfare, or safety, or to animals or plant life.

CONDITIONS

This practice is applicable to areas subject to surface and air movement of dust where on and off-site damage may occur without treatment.

METHOD AND MATERIALS

A. Temporary Methods

Mulches. See standard **Ds1 - Disturbed Area Stabilization (With Mulching Only)**. Synthetic resins may be used instead of asphalt to bind mulch material. Refer to specification **Tac - Tackifiers**. Resins should be used according to manufacturer's recommendations.

Vegetative Cover. See specification **Ds2 - Disturbed Area Stabilization (With Temporary Seeding)**.

Spray-on Adhesives. These are used on mineral soils (not effective on muck soils). Keep traffic off these areas. Refer to specification **Tac - Tackifiers**.

Tillage. This practice is designed to roughen and bring clods to the surface. It is an emergency measure that should be used before wind erosion starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and similar plows are examples of equipment that may produce the desired effect.

Irrigation. This is generally done as an emergency treatment. Site is sprinkled with water until the surface is wet. Repeat as needed.

Barriers. Solid board fences, snowfences, burlap fences, crate walls, bales of hay and similar material can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 15 times their height are effective in controlling wind erosion.

Calcium Chloride. Apply at rate that will keep surface moist. May need retreatment.

B. Permanent Methods

Permanent Vegetation. See specification **Ds3 -Disturbed Area Stabilization (With Permanent Vegetation)**. Existing trees and large shrubs may afford valuable protection if left in place.

Topsoiling. This entails covering the surface with less erosive soil material. See specification **Tp - Topsoiling**.

Stone. Cover surface with crushed stone or coarse gravel. See specification **Cr-Construction Road Stabilization**.

APPENDIX C

Cumulative Impacts Figures

Image Redacted for Operation Security.

Enclosure 2: Fort Stewart Preferred Range Locations

Existing Borrow Pits

Image Redacted for Operation Security.

0 0.3 0.6 1.2 1.8 2.4
Miles

Image Redacted for Operation Security.

APPENDIX D

Resources Eliminated from Review

D.1 HEALTH AND SAFETY

Health and Safety includes the evaluation of fire and police protection, airfield operations, worker safety during construction, operations, repairs/maintenance on Installation job sites and facilities, and range/training activities. Occupational health and safety apply to on-the-job safety and also implements the requirements of 29 CFR 1926 *et. seq.*, the Occupational Safety and Health Act (OSHA). All work on FSGA/HAAF is performed in accordance with applicable OSHA regulations to protect human health and minimize safety risks.

Fire and Police Protection. Law enforcement services on FSGA are provided by Department of the Army Civilian Police (DACP), in accordance with AR 190-56, *The Army Civilian Police and Security Guard Program* (DA, 2013). DACP Officers perform a multitude of duties, ranging from manning the ACPs, conducting traffic control and enhancement, patrolling the Installation, answering calls for service registered by workers and residents on FSGA, and assisting/presenting at events as needed. DACP law enforcement and security duties are authorized by the Installation within the limits of the Installation boundaries. They can apprehend any persons found on the Installation or at an activity for offenses committed on-Post that are felonies, misdemeanors, breaches of the peace, a threat to property or welfare, or detrimental to good order and discipline. In addition to apprehension authority, the DACP are authorized by the Federal/State/United States Code of Military Justice (UCMJ) to issue traffic citations and coordinate with local tenant units for the release of Soldiers for prosecution under/in accordance with the UCMJ and the local U.S. Magistrates for Federal/State prosecution of non-affiliated civilians. Installation Law Enforcement responsibilities fall under the Directorate of Emergency Services and the DACP and Military Police collectively work together to accomplish the Department of the Army Law Enforcement mission(s). Law enforcement personnel currently operate out of facilities located in the cantonment area, 24 hours per day, and 7 days a week (24x7).

The FSGA/HAAF Fire Department is operated by Civilian Service personnel out of dedicated facilities located in the cantonment area, in accordance with AR 420-90, *Fire and Emergency Services*, the National Fire Protection Association (NFPA), OSHA, and other pertinent federal, state, and local safety regulations and laws. The Department provides protection from fire, rescue from dangerous situations, incidents involving acts associated with terrorism or personal and large-scale disasters (man-made or natural), education in fire prevention, fire and life safety assessments and assistance in any emergency where lives and property are in jeopardy. There are no changes proposed to the FSGA/HAAF DACP or Fire Department, their facilities, their standard operating procedures, or any aspect of their operations as a result of implementing either alternative analyzed in this Programmatic Environmental Assessment (PEA). Accordingly, no impacts are anticipated to Fire and Police Protection.

Healthcare Services Availability. Winn Army Community Hospital (WACH) and its series of on-Post clinics provide healthcare to the FSGA military community and beneficiaries through a comprehensive range of health services including flight medicine, family medicine, pediatrics, behavioral health, emergency, and a host of other valuable functions. Tuttle Army Health Clinic (TAHC) likewise provides these services to the HAAF military community and beneficiaries in the Savannah, GA area. No changes to these facilities or their standard operating procedures are anticipated as a result of implementing either alternative analyzed in this PEA. Accordingly, no impacts are anticipated to Healthcare Service Availability.

Worker Safety. Occupational health and safety apply to on-the-job safety and implements the requirements of 29 CFR 1926 *et seq*. All construction, demolition, and associated actions on FSGA/HAAF are performed in accordance with applicable OSHA regulations to protect human health and minimize safety risks, and all such activities are coordinated between contractors and the Safety Office prior to their start. This also applies to all actions performed at existing and planned installation borrow pits. The "Army Safety

Program," implemented under Army Regulation (AR) 385-10, provides additional guidance, and governs Army policies, responsibilities, and procedures to protect and preserve Army personnel and property against accident loss (DA, 2013). This provides for operational safety and mandates compliance with applicable safety laws and regulations. To ensure worker health, compliance with OSHA standards and the Army Safety Program is required and only authorized personnel are allowed within the footprint of a proposed activity. In addition, all workers must adhere to safety standards established by OSHA and noted per the Army Safety Program. For example, personnel involved in timber harvest, site clearance, and other associated actions, must adhere to all known prescribed safety standards per OSHA and act in accordance with the project-specific timber harvest plan. Only authorized personnel are allowed within each project's footprint. Prior to implementation of any proposed action, including timber harvest, all activities must be coordinated with the FSGA/HAAF Safety Office, including their approval of any contractor's Health and Safety Plan. No changes to standard operating procedures are anticipated as a result of implementing either alternative analyzed in this PEA. Accordingly, no impacts are anticipated to Worker Safety.

Range Safety. The FSGA/HAAF "Range Safety Program," implemented under AR 385-63, governs Army policies, responsibilities, and procedures for firing ammunitions, lasers, guided missiles, demolitions, explosives, rockets, and the delivery of bombs on Army and Marine Corps ranges and live-fire training facilities (DA, 2012). The program is applicable to operational ranges, non-range training lands, bombing ranges, impact areas IAs, surface dangers zones, target areas, all live fire weapons firing areas, recreational ranges utilized for rod and gun clubs, and test and evaluation ranges. All ranges are sited within the appropriate Training Standard, which is devoted entirely to Soldier training on the Installation and not adjacent to any facilities with which there is a conflicting land use. No changes to these standard operating procedures are anticipated as a result of implementing either alternative analyzed in this PEA. Accordingly, no impacts are anticipated to Range Safety.

Airfield Operations/Airfield Safety. Airfield operations are accomplished within a multitude of facilities on FSGA/HAAF airfields and include the Airfield Control Tower, airfield support facilities, aircraft rescue and firefighting facilities, squadron operations/aircraft maintenance units, and air mobility operations groups. These facilities are located within the Airfield Support Building Standard and Airfield Operations Building Standard of the Regulating Plan and land immediately adjacent to the airfield is located within the Airfield Support Standard and Training Standard of the Regulating Plan, to ensure no conflict with activities on the airfield or adjacent to it. This also applies to airstrips, drops zones, and landing zones on Post. In accordance with FAA regulations, 14 CFR Part 139 Section 331, *Obstructions*, and UFC 3-260-01, *Airfield and Heliport Planning and Design*, airfields must be kept free of vertical and horizontal obstructions. Future construction on, adjacent, or in the immediate vicinity of the airfield must also adhere to these requirements to ensure these safety measures are in place for the future workers and flight crew. Accordingly, borrow Pits are not sited within or adjacent to airfields and no impacts to airfield operations/airfield safety are anticipated as a result of implementing either alternative analyzed in this PEA. Accordingly, no impacts are anticipated to Airfield Operations/Airfield Safety.

D.2 LAND USE

Note: Training and Recreation discussed in main body of the PEA.

Joint Land Use Study / Army Compatible Use Buffer. The JLUS is collaborative, compatible use planning effort involving military installations and adjacent local governments. It provides land use and developmental control recommendations that support and encourage acceptable development near military installations. Its goal is to protect the public health, safety, and welfare by guiding the long-term development decisions made by neighboring governmental entities to ensure that the installation mission is not compromised by unacceptable development. The JLUS program is centrally managed by the Department of Defense Office of Economic Adjustment (OEA) (DoDD 3030.1). Finalized in 2005, the

FSGA/HAAF JLUS is a cooperative land use planning initiative between the U.S. Army and surrounding cities and counties, to include Bryan, Effingham, Chatham, Liberty, Long, Tattnall, and Evans counties; the cities of Hinesville, Savannah, Pooler, Bloomingdale, Pembroke, Richmond Hill, Glennville, Gum Branch, Allenhurst, Flemington, and Walthourville; the Coastal Georgia Regional Development Center; as well as the Heart of Georgia-Altamaha Regional Development Center (http://hogarc.org/). It guides local government and Army actions to enhance compatibility and strengthen the civilian-military relationship.

The ACUB program is an integral component of the Army sustainability triple bottom line: mission, environment, and community. In recent years, Army installations have been experiencing increasing encroachment from a variety of sources, including population growth, urban land use, and environmental requirements. The ACUB program proactively addresses encroachment and is a powerful tool that allows the military to contribute funds to the partners' purchase of these easements and properties for willing landowners. These partnerships preserve high-value habitat and limit incompatible land use near military installations. Title 10, Section 2684a, of the United States Code authorizes the DoD to partner with nonfederal government or private organizations to limit encroachment and protect habitat around installations. The Army implements this authority through the ACUB program, which is managed at Army headquarters level by the office of the Assistant Chief of Staff for installation Management based on priorities established by the DPTMS. The Army Environmental Command provides technical assistance, facilitates ACUB proposal development, and monitors program execution and advancement. The key cooperative partner in the FSGA ACUB is the Georgia-Alabama Land Trust, although several other entities have partnered with Fort Stewart in the ACUB program including Chatham County. City of Savannah, The Conservation Fund, Georgia Department of Natural Resources, Georgia Forestry Commission, Knobloch Foundation, The Longleaf Alliance, The Nature Conservancy, The Trust for Public Land, U.S. Department of Agriculture-Natural Resources Conservation Service, U.S. Fish and Wildlife Service, and U.S. Forest Service. As of 2022, the program has successfully preserved more than 45,000 acres. Although some of the protected species managed by the installation are present on ACUB lands, FSGA/HAAF does not manage these species on ACUB lands, and they are not accounted for in the surveys/counts maintained in their records.

No change in land use is proposed as a result of the alternatives. Local government officials, including the zoning and planning boards, are informed regarding future activities on Post (and an open dialogue maintained) so they will be able to accurately assess both sides of issues before them and factor such information into any decision-making process concerning urban development and land use. In this manner, potential land use conflicts and/or incompatibilities are identified early, and issues of concern resolved prior to coming to fruition. For example, nearby residents and communities are made aware of FSGA's mission and its by-products, including noise, through newspaper articles, community displays, public presentations, information brochures, and other information released to the community that addresses their concerns. Adjacent communities also implement development in accordance with their own city and county development plans, as well, and these efforts are shared with FSGA/HAAF to ensure a two-way communication and planning process is established. Accordingly, there are no impacts to these Programs, and they are not discussed further in this section.

Visual Resources. Visual resources are the natural and man-made features that make up the landscape of an area. These features combine to give an area its unique characteristics and are inherent to the structure and function of that landscape. The relative importance of a change to these visual resources is influenced by the value it has to the viewer, public awareness of the area, and general community concern for visual resources in the area. All of the borrow pits utilized on FSGA/HAAF (and those proposed for the future) are located in areas not utilized for their visual impacts. Accordingly, no impacts are anticipated to Visual Resources.

Solid Waste and Landfill Sites. Solid waste is generated on FSGA/HAAF in a variety of ways, including routine day-to-day activities at offices, barracks, schools, and construction sites. Construction and

demolition (C&D) debris is maintained as a separate solid waste stream and includes excavated soil as well as scrap from the constructed or demolished site. HAAF operated one inert landfill for the deposition of C&D debris, which underwent formal closure procedures in 2015, in accordance with the Georgia Rules for Solid Waste Management Chapter 391-3-4-.06(3)(c), as amended. There are no plans to re-open the landfill or to construct any facilities on or in its immediate vicinity. Currently, all municipal and inert waste generated on HAAF is collected and transported to existing landfills on FSGA and these materials do not enter the waste stream within the Study Area. FSGA has three active landfills: the South Central Sanitary Landfill, Non-Putrescible Landfill, and Inert (Yard Waste) Landfill. All are located in the South Central Landfill Complex in the northwest corner of the cantonment area. These landfills are inspected in accordance with all federal, state, and installation laws and regulations and were found to be fully in compliance during inspections by the GA EPD. One borrow pit is located in the vicinity of the installation landfill; however, this is an existing landfill, and its operation does not adversely impact the function of the landfill, nor is it anticipated to do so in the future. No changes to the solid waste/landfill program and/or its associated existing sites are proposed as a part of the proposed action and no impacts are anticipated. Accordingly, it is not discussed further in this section.

Recycling. FSGA/HAAF operates under the Solid Waste and Recycling SOP and Recycling Clause (52.000-4061), which states that all Army personnel, on-Post housing, and other community members and contractors are required to actively participate in the recycling program, and all contracts issued work must include participation in the recycling program. Achievement of at least 60 percent diversion, by weight, of all non-hazardous construction and demolition waste debris is required and all working projects on the installation must track and report all potentially recyclable materials, to include excess soils, cardboard, concrete, asphalt, and scrap metal. The data collected plays an important role in the installation achieving the measures of merit established by Federal mandates. This data is consolidated with other solid waste data and reported to the Department of the Army in the Solid Waste Annual Reporting System (SWARS). All recyclables generated through construction projects must be kept separate from other waste and may be delivered to the Processing Station/Building 1384 (cardboard) or the Recycling Center/Building 1143 (scrap metal). Curb-side recycling from on-Post activities, to include offices and residences, is collected weekly by the installation waste management contract. The recycling center on FSGA is located off North Perimeter Road on Westley Avenue and the recycling center on HAAF is located off North Perimeter Road on Westley Avenue.

Recyclables gleaned from on-Post operations include paper products, CD Rom disks, aluminum cans, food and beverage cans, glass, plastic bottles, and toner cartridges. Textiles, metals, military tires, tree waste, wood boxes, wood pallets, used antifreeze, used oil, horse manure, and yard waste are also recycled to the greatest extent possible. This is accomplished via dumpsters and bins at installation offices, while contractors collect and transport recyclables from the housing areas via curb-side recycling bins at the homes of persons residing on HAAF. In all actions, HAAF ensures compliance with EO 13834, Efficient Federal Operations, guidance for HAAF on how to increase energy efficiency; eliminate waste, recycle, and prevent pollution; acquire sustainable and environmentally preferable materials, products, and services; and design, construct, maintain, and operate high-performance, sustainable buildings. All projects occurring on Post must have a written Construction and Demolition Waste Management Plan that specifically outlines the activities the contractors will take to salvage or recycle as much of their materials as possible. To ensure adherence to the installation's requirements, the plan must be approved by the installation in advance of any action's start. No changes to the recycling program and/or to any of its existing collection sites is proposed as a part of the proposed action and no impacts are anticipated.

D.3 NOISE

Noise is often defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, diminishes the quality of the environment, or is otherwise annoying. Human response to noise varies by the type and characteristics of the noise source, distance from the source,

receptor sensitivity, and time of day. Noise can be intermittent or continuous, steady or impulsive, and it may be generated by stationary or mobile sources. The Army has implemented an Installation Operational Noise Management Program (IONMP) that provides a method for evaluating the effect of noise and the hazards associated with training operations that stem from activities at military Installations. The purpose of the program is to identify land areas that are exposed to generally unacceptable noise levels and aircraft accident potential and then recommend uses for the land within these areas that are compatible with the needs of the civilian community and the Army.

One focus of the Army's Operational Noise Program has been to develop the ICUZ Study (APHC, 2020). In addition to the focus on maintaining land use compatibility, the plan includes information to educate Installation personnel, surrounding residents and local government officials, provide recommendations on the management of noise complaints, strategies for the mitigation of the noise, noise abatement procedures, and advice on steps to take when the noise environment is already incompatible. Local government officials, including the zoning and planning boards, are informed regarding future activities on Post (and an open dialogue maintained) so they will be able to accurately assess both sides of issues before them and factor such information into any decision-making process concerning urban development and land use. In this manner, potential land use conflicts and/or incompatibilities are identified early, and issues of concern resolved prior to coming to fruition.

FSGA/HAAF maintains adherence to an exposure limit of 85 dBA as an eight-hour time-weighted average for all personnel working on the Installation. Compliance with this and all OSHA regulations is required, at a minimum, as a measure to minimize the potential for impacts to both the on- and off-Post community. Impacts may be further minimized via adherence to standard BMPs, such as safety helmets and ear plugs and modification of shifts. Additional measures to minimize potential noise impacts to workers may be found in DoD Instruction 6055.12, *Hearing Conservation Program*, and U.S. Department of the Army Pamphlet 40-501, *Hearing Conservation Program*. Standard noise abatement policies and procedures currently employed on the Installation have been successful at ensuring no significant impacts occur and should continue to do so. Implementation of actions at the installation borrow pits occur well within the interior of the installation and away from areas known to contain sensitive receptors, such as Army family housing areas and child development centers. There is one borrow pit located near the cantonment area, adjacent to the installation's operating landfills at the northeastern corner of the cantonment area. However, these existing facilities are not near sensitive receptors and do not result in adverse impacts. No impacts associated with noise are anticipated from either of the alternative in the PEA.

D.4 TRANSPORTATION

Transportation resources refer to the infrastructure and associated equipment required for the movement of people, manufactured goods, and raw materials in a defined geographic space.

Railways/Railroads. There are 90 kilometers of railroad and tramline track on FSGA, installed during the early 1900s by the Savannah and Southern Railroad Company (FSGA, 2014), and this system connects the FSGA cantonment area to HAAF and in turn to a railway system that encompasses the entire eastern coast of the United States. This enables the movements of assets from FSGA to HAAF and/or directly dockside to the ports of Savannah (GA) to the east, Brunswick (GA) to the southwest, and Jacksonville (FL) to the south during military deployments and other required actions. This integration of railway/railroad resource providers allows for a highly streamlined and efficient transportation process within the Study Area, all of which aid the local and regional economies, to include that of FSGA and its surrounding communities. No alterations to this network are proposed as a result of implementing either alternative analyzed in this PEA and no impacts are anticipated.

Airspace and Airfields. The Federal Aviation Act (49 USC 40103) and the Federal Aviation Authority (FAA) regulate and manage the navigable airspace of the U.S., including military training routes (MTR), military operating airspace, and restricted airspace. FSGA/HAAF accommodates a broad spectrum of aviation activities for permanently stationed 3CAB and U.S. Coast Guard aircraft, as well as active Army, Army Reserve, National Guard, and U.S. Air Force/Air National Guard units. Regulated local airspace includes HAAF; WAAF/Midcoast Regional Airfield, a joint military-civilian operated airfield in the southeastern corner of FSGA; and the Savannah/Hilton Head International Airport, located approximately 40 miles to the northeast of FSGA. Each operates within FSGA Restricted Airspace Area R-3005, which is divided into five special use airspace areas (A, B, C, D, and E). There is a sixth restricted area designated as the Small Arms Range Safety Area, located along FSGA's northeastern boundary. No alterations to the Installation's airspace, airfields, drop zones or other associated resources are proposed as a result of implementing either alternative analyzed in this PEA and no impacts are anticipated.

Public Transportation. Persons residing and/or working within the Study Area have access to several modes of public transportation (LTDP, 2018). In 2007, the 2007–2012 Hinesville Area Metropolitan Planning Organization (HAMPO) Transit Development Plan (TDP) was adopted, which provided capital and operational goals and financial plans for what would become the Liberty Transit System. The Liberty Transit System is a regional, urban, transportation service, operating three fixed routes via a fleet of nine buses, each equipped with ADA compliant wheelchair lifts and tie downs, as well as bicycle racks for multimodal passengers. Curb-to-curb service is available, including a limited number of stops on FSGA. On HAAF, similar services are provided by the Chatham County Area Transit System. No alterations to this network are proposed as a result of implementing either alternative analyzed in this PEA and no impacts are anticipated.

Pedestrian Pathways and Bicycle Paths. FSGA and HAAF actively support the expansion of the bicycle and pedestrian network and are facilitating the use of funds for infrastructure investments. The majority of sidewalks within the service area can been seen in the urban core of Hinesville and Savannah, and along the main roads in the region. Biking lanes along the roadsides and sidewalks physically separated from the roadway are the preferred accommodation for bikers and pedestrians, as these resources provide safety, mobility, and healthier communities, per studies conducted by the Federal Highway Administration. In addition, military construction standard designs have begun incorporating bicycle racks, encouraging the benefits of cycling around the Installation versus driving from place to place, as well as focusing on the incorporation of pedestrian walking trails within Area Development Plans. Borrow pits do not utilize these transportation systems and none are located adjacent to those proposed in this PEA. Accordingly, no impacts are anticipated.

D.5 UTILITIES

Energy. The Army Energy Program, with which FSGA/HAAF is fully compliant, set goals for all military Installations to make energy a consideration for all Army activities to reduce demand, increase efficiency, seek alternative sources, and create a culture of energy accountability while sustaining or enhancing operational capabilities. Army construction, operation, and maintenance must also be compliant with Leadership in Energy and Environmental Design (LEED) and Low Impact Development (LID) protocols. FSGA has a diverse energy consumption profile, consisting of electric power, solar power, natural gas (both delivered by commercial utilities) and others. The abundance of energy sources and adequate supplies from each source provide the Installation with ample excess energy capacity, allowing Fort Stewart to accommodate a variety of future mission expansion scenarios. Fort Stewart is served by Georgia Power Company (GPC), which serves roughly 2.55 million customers each year in 155 of Georgia's 159 counties. The company has total of 75,972 miles of distribution lines and a total of 12,453 miles of GPC-owned

transmission lines, distributing a generation capacity of 15,307,927 kW[1]. Fort Stewart is also under a utilities privatization contract for their distribution systems with Canoochee Electric Membership Cooperative (EMC). Canoochee EMC has over 2,000 miles of line and territory across nine counties in Georgia.

FSGA is directly served by the GPC-owned Fort Stewart Substation, which is tied to two community substations, Daniel Sliding Substation (GPC-DSS) and Hinesville Primary Substation (GPC-HPS). GPC Substation is also connected to an onsite 30MW photovoltaic (PV) array located along GA Highway 144 that feeds the community located outside the FSGA fenceline. Backup power needs for critical missions on Fort Stewart are met primarily with auxiliary generators permanently integrated with the facility's electrical systems. Across the Installation, generators serve critical Army and Department of Defense facilities, privatized infrastructure (water and wastewater), ranges, and tenant missions. Sixty-two generators were identified as being in service to the critical facilities identified on Fort Stewart and HAAF. The combined capacity of 10,448 KW represents a 1.09 capacity/peak demand coverage based on estimated peak demands provided by FSGA at each critical facility. In 2020, it was estimated that Fort Stewart consumes approximately 0.26 percent of GPC's total energy production. Currently, GPC is planning to construct a battery facility adjacent to the 30MW PV Array, which will connect to both it and the GPC Substation, providing a source of backup power and energy resiliency to the Installation.

FSGA is served by Gas South, a subsidiary of Atlanta Gas Light and one of the largest natural gas providers in the Southeast United States, serving more than 300,000 consumers[2]. In 2020, natural gas accounted for approximately 34% of FSGA's total energy consumption (IEWP, 2020). Natural gas boilers are used at Fort Stewart's Central Energy Plant for heating and cooling and most of Fort Stewart's mission critical facilities are served by nearby pressure regulated natural gas lines stemming from one supply point. There are roughly 37 miles of the distribution pipes made with Polyethylene Flexible DR-11, coated and wrapped steel, and PVC throughout the Installation. No alterations to this network are proposed as a result of implementing either alternative analyzed in this PEA and no impacts are anticipated.

Communications. FSGA's communication system is government-owned but operated by a communications contractor. It serves the entire cantonment area and provides local area network services and Internet access; Bell South is the local telephone provider for the Savannah metropolitan area, and Comcast provides cable television service. There are several distinct types of information networks in a range environment: administrative, range control (RC), and tactical. The administrative networks provide telephone and data support for the range buildings, to include safety telephones. The special RC networks control down-range targets and sensors, which monitors and transports this information to off-site locations. The tactical networks support the unit training requirements in a field environment. In addition, there could be security and alarm networks. The current infrastructure consists of single mode (SM) fiber optic cable (FOC) installed in a maintenance hole/duct system, sections of which are direct buried. The fiber between nodes consists of directly connected fiber, as well as fibers that are spliced through intermediate buildings to make connections. No alterations to this network are proposed as a result of implementing either alternative analyzed in this PEA and no impacts are anticipated.

Wastewater. Fort Stewart owns the wastewater collection system; however, the wastewater treatment plant (WWTP) itself, at which operations occur, is owned and operated by the City of Hinesville. The WWTP consists of sequential batch reactors and is permitted for 7.15 mgd. Fort Stewart is permitted to use up to half the capacity of the plant. The wastewater distribution system consists of 100 lift stations and 454,654 feet of sewer pipe and there are also 38 septic tanks which serve more remote sites on the installation. The wastewater system at Hunter Army Airfield is Army owned and operated by the

installation and has a capacity of 1.5 mgd and is an activated sludge plant. There is a backup generator for the wastewater plant, but it is not capable of running the entire plant. The wastewater distribution system consists of 43 lift stations and 242,610 feet of sewer pipe and there are 15 septic tanks serving the more remote locations. No alterations to the wastewater network are proposed as a result of implementing either alternative analyzed in this PEA and no impacts to this system are anticipated. ***Potable Water and Stormwater addressed under Water Quality, Section 3.4.***

D.6 HAZARDOUS MATERIALS/WASTE MANAGEMENT AND REMEDIATION

For the purpose of this analysis, the terms "hazardous waste," "hazardous materials," and "toxic substances" include those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), and/or the Toxic Substances Control Act (TSCA). In general, they include substances that, because of their quantity, concentration, or physical, chemical, or toxic characteristics, may present substantial danger to public health, welfare, or the environment when released into the environment.

Asbestos Containing Materials (ACM). Contact with ACM is regulated on FSGA/HAAF to only those who are certified to handle this material. ACM was phased out of use in the United States in 1981 and all buildings/facilities/structures that were constructed prior to that year are assumed to contain ACM and/or are surveyed for ACM prior to work that will result in physical disturbance to materials that may contain ACM. Abatement/removal of ACM is not required if work will not disturb the ACM, rendering it friable/airborne; however, if ACM is present and will be disturbed, abatement is required and included as part of the contract, to include renovation, remodeling, or demolition. The contractor performing the work must conduct all asbestos abatement, containment, and disposal actions, and submit a 10-day notification to the GA EPD in accordance with the *Georgia Asbestos Safety Act, Official Code of Georgia, Annotated Section 12-12-1*. FSGA shall receive a copy of all documentation and the 10-day notification to the GA EPD. Troop labor is not approved for work with ACM. The disposal of ACM must be in accordance with both the GA EPD and OSHA requirements and FSGA maintains copies of all disposal manifests and surveys in the offices of the DPW Environmental Division. No impact to facilities is proposed as a part of this proposed action and there is no potential to impact ACM.

Lead Based Paint (LBP). Contact with LBP is also regulated on FSGA/HAAF to only those who are certified to handle this material, and all buildings/facilities/structures that were constructed prior to 1978 are assumed to contain LBP, the date these materials were phased out of use within the United States. Removal of LBP is not required if work within the building will not disturb the area containing LBP, rendering the lead airborne; for example, it may be painted over and encapsulated. If LBP removal is necessary, it is collected and disposed of off-Post in accordance with local, state, and Federal regulations, to include OSHA Regulation 29 CFR 1926.62, *Lead Exposure in Construction; Interim Final Rule: Inspection and Compliance Procedures*. Troop labor is not approved for work with LBP. LBP removal is not required prior to demolition of buildings on FSGA as all previous demolition containing LBP has passed the toxicity characteristic leaching procedure (TCLP) and qualified for off-Post Municipal Solid Waste Landfill disposal. The LBP transport and disposal manifest for all LBP removal and the TCLP results for demolition work shall be provided to the FSGA POC within 10 days of transport. FSGA maintains copies of all disposal manifests and surveys in the offices of the DPW Environmental Division. No impact to facilities is proposed as a part of this proposed action and there is no potential to impact LBP.

Polychlorinated Biphenyls (PCBs). The presence of PCBs is often associated with older electrical system components and FSGA/HAAF has conducted extensive surveys to identify and remove PCB-containing components. However, fluorescent light ballasts (FLB) containing PCBs may be present in buildings demolished to support future construction on FSGA and surveys would be conducted to identify and properly remove and dispose of these items. Although PCBs in FLB are not regulated under the TSCA, the State of Georgia does regulate these PCBs and they are accordingly managed as PCB waste on FSGA

through the HAZMAT Program. No impact to facilities, light systems, or any other items with the potential to contain PCBS is proposed as a part of this proposed action and there is no potential to impact PCBs.

Underground Storage Tanks (USTs) and Aboveground Storage Tanks (ASTs). FSGA/HAAF has removed or closed in place the majority of its historic USTs, and currently maintains only active UST sites, which are used for storage of used oil, used hydraulic fluid, used antifreeze, motor gasoline, and aviation fuels. All USTs and ASTs must have appropriate secondary containment and be installed, inspected, managed, maintained, and monitored in accordance with local, state, and federal law. There are no USTs/ASTs in the vicinity of existing borrow pits, proposed new borrow pits, hose proposed for expansion, or those proposed for closure, and there is no potential to impact USTs/ASTs.

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAs). On September 4, 2018, the Army issued guidance for addressing releases of per- and polyfluoroalkyl substances (PFAs) on Army lands (DA, 2018). This guidance applies to Active Army Installations, BRAC Installations, Army National Guard facilities, and Army Reserve facilities, and its intent was to provide a consistent framework within which to address historic releases of these substances on Army lands, to include identifying sites where PFAs releases may have occurred, prioritizing release sites for future investigations and potential response, and well as providing guidelines for applying risk-based criteria during potential cleanup, sampling, and analysis.

In May 2016, the U.S. EPA issued a Lifetime Health Advisory (LHA) for PFOS and PFOA, singly or combined, of 0.07 micrograms per liter (µg/L) or 70 nanograms per liter (ng/L) or 70 parts per trillion (ppt) in drinking water. In addition to the EPA LHA, some states are issuing regulatory standards of their own in multiple media, not just for PFOS and PFOA but other PFAS as well. PFAS are a diverse group of compounds resistant to heat, water, and oil, and have been used for decades in hundreds of industrial applications and consumer products such as carpeting, apparel, upholstery, food paper wrappings, fire-fighting foams, and metal plating. PFAS have been detected both in the environment and in the blood samples of the general U.S. population. These chemicals are persistent, and resist degradation in the environment. Their concentration increases over time in the blood and organs and, at high concentrations, certain PFAS have been linked to adverse health effects in laboratory animals that may reflect associations between exposure to these chemicals to include health problems such as low birth weight, delayed puberty onset, elevated cholesterol levels, and reduced immunologic responses to vaccination.

At Army Installations, the primary mechanism for releases of PFAS is through the historic use (post-1972) of Aqueous Film Forming Foam (AFFF), a product applied during firefighting and firefighting-related training. AFFF for firefighting was, and is, generally used in areas where fuel- or petroleum-based fires may have occurred, such as in the vicinity of aviation assets, fuel farms, or aircraft crash sites. The Army's current practice is not to use AFFF for petroleum-based training fires. Other known sources of environmental releases of PFAS include mist suppressants for chrome plating operations and landfills and wastewater treatment plants that have inadvertently accepted PFAS containing materials.

The Army has begun conducting historic records searches to identify locations where there is a potential for a release of PFAs, and those with the greatest likelihood include fire training areas, AFFF storage locations, aircraft crash sites, fuel farms, and sites associated with aviation assets. In accordance with this guidance, FSGA/HAAF conducted sampling to identify potential PFAs sites on the Installation, to include its airfield and its associated fuel farm on HAAF; however, as of 2022, no actual PFAs sites have been identified and no mitigation or additional sampling is planned at this time. Accordingly, this resource is not carried forward for detailed review.

Hazardous Materials and Wastes Management. The Installation Restoration Program (IRP) for FSGA is outlined in the Installation Action Plan (IAP), which identifies environmental cleanup requirements at each site, or area of concern, and proposes a comprehensive approach to conduct investigations and necessary remedial actions. There are no Headquarters Army Environmental System (HQAES) sites at or

adjacent to the existing borrow pits, the locations of the proposed new borrow pits, or those proposed for closure and no impacts are anticipated. Should contamination be inadvertently encountered, the contaminated materials must be handled by trained and certified personnel and sent to an approved disposal facility off-HAAF. Likewise, all personnel units, contractors, and others conducting work on the installation are briefed and required to handle hazardous materials and wastes in accordance with accordance with federal, state, and local laws and regulations. No changes to this policy are proposed as a part of this action. Accordingly, no impacts are anticipated.

APPENDIX E

Greenhouse Gas Data

ADDENDUM

FORT STEWART
2021 GREENHOUSE GAS EMISSIONS SUMMARY

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May 2022

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EXECUTIVE SUMMARY

Fort Stewart conducts an annual Air Emissions Inventory that summarizes the emissions of criteria pollutants (particulate matter, carbon monoxide, nitrogen oxides, and sulfur dioxide) and hazardous air pollutants (HAP) from the facility. Additionally, Fort Stewart quantifies its emissions of Greenhouse Gas (GHG) Emissions. This document quantifies Fort Stewart's 2021 GHG emissions and serves as an addendum to Fort Stewart's 2021 AEI.

The GHG emissions were calculated for stationary fuel combustion sources. The 2021 GHG emissions were calculated to be **73,088.92 metric tons (MT)** of carbon dioxide equivalent (CO_2e). Mobile sources and indirect sources of GHG emissions such as offsite energy production are not included in the estimate. The majority of the emissions were from the landfills and due to natural gas combustion at the Central Energy Plant (CEP). Overall fuel combustion sources produced 39,947.34 MT of CO_2e. The landfills were responsible for 33,141.58 MT of CO_2e. Section 3.0 provides a more detailed breakdown of the results. A summary of the data used and the emission calculation methodologies are given in Section 2.0.

1.0 OVERVIEW

Man-made emissions of greenhouse gases (GHG) are believed to be responsible for global warming and thus they have become subject to worldwide regulatory oversight. In the United States, the U.S. Environmental Protection Agency (USEPA) and a number of States have implemented rules and programs to track, quantify, and reduce GHG emissions. In 2009, the USEPA published a rule (40 CFR Part 98) for the mandatory reporting of GHG from facilities that:

1) Have an aggregate maximum rated heat input capacity from stationary combustion units that is thirty (30) MMBtu/hr or greater and
2) Emit 25,000 metric tons or more of carbon dioxide equivalent (CO_2e).

The GHG emission data collected by the USEPA will be used develop policies and programs to reduce GHG emissions.

Combustion sources considered in the rule applicability determination includes boilers, stationary internal combustion engines, process heaters, combustion turbines, and other stationary fuel combustion equipment. Portable combustion equipment, emergency equipment/generators, agricultural irrigation pumps, hazardous waste combustors (except for co-fired fossil fuels), and flares are exempt and are not included towards 30 MMBtu/hr heat input capacity determination.

Fort Stewart exceeds the 30 MMBtu/hr threshold and through past GHG inventories it was determined that Fort Stewart exceeded the 25,000 metric tons of CO_2e. Therefore, Fort Stewart is required to report the GHG emissions to the USEPA using the Electronic Greenhouse Gas Reporting Tool (e-GRRT). The results in this report are used to complete e-GGRT. In addition, Fort Stewart occasionally is required to report GHG as a result of Department of Defense and Army data calls. This report quantifies the GHG emissions in terms of CO_2e for Fort Stewart for calendar year 2021.

2.0 DATA AND CALCULATION METHODOLOGIES

Fort Stewart generates emissions of carbon dioxide (CO_2), nitrous oxide (N_2O), and methane (CH_4). The emission sources consist almost exclusively of boilers, emergency generators*, pumps and landfills. Other sources of GHG emissions such as purchased electricity usage, emissions from mobile sources/vehicles and process/fugitive sources are not covered in this report, since they are not required to be reported under the USEPA Mandatory Reporting Rule (MRR).

*: Under the USEPA Reporting Rule GHG emissions from emergency generators are exempt from reporting. Thus, in this report the emissions given in the Results Section (Section 3.0) are shown with and without the emergency generator emissions.

2.1 Fuel Consumption Data

The data that is needed to calculate GHG emissions is the total fuel usage (by fuel type) for all stationary fuel combustion sources combined. For reporting, 40 CFR Part 98.36 (C) (1) allows aggregation of boilers with heat input capacities that are less than 250 MMBtu/hr. For this reason, we will use total fuel usage (not individual boiler fuel use) when estimating GHG emissions as described in Section 2.2.

During 2021, Fort Stewart maintained logs that recorded the quantities of fuel used by the individual boilers at the Central Energy Plant (CEP) and for the hospital and clinic boilers. Total natural gas and propane/liquid petroleum gas (LPG) records were available for the distributed boilers; however, there were no fuel oil usage records for individual units for 2021. Fuel oil for distributed boilers was extracted from various tanks on base, not linked to an active boiler, and was delivered to locations where fuel was needed. Fuel oil usage was averaged from 2009 to 2012 to estimate boiler fuel oil consumption in 2021.

Diesel fuel was burned in the emergency generators. The amount of fuel consumed was based on the generator operating hours per year provided then multiplied by the maximum hourly fuel rate of each generator.

Table 1 below summarizes the 2021 fuel usage at Fort Stewart.

Table 1
2021 Fuel Consumption

Fuel Type	CEP	GANG	Clinic*	Post-wide (non-CEP)	Total
Wood (short tons)	0	-	-	-	0
Natural Gas (cuft)	308,389,497	19,774,510	3,541,540	386,751,000	718,456,547
LPG (gal)	-	-	-	57,811	57,811
Fuel Oil (gal)	-	-	-	3,099 (est)**	3,099
Diesel (gal)	-	-	-	42,298	42,298

*Clinic includes Bldg. 350, 440 and 2115; est.: estimated; GANG: Georgia Air National Guard

**Estimated as fuel oil was extracted from tanks on base and delivered to locations needed

2.2 Calculation Methodology

Direct emissions of Greenhouse Gases (CO_2, CH_4, and/or N_2O) from general stationary fuel combustion are quantified using the methods, emission factors, and conversion factors established by the USEPA in 40 CFR 98.

Global warming potential (GWP) values are used to convert emissions of non-CO_2 gases to CO_2e. Global warming potentials indicate the degree of warming to the atmosphere that would result from the emission of one unit of a given GHG compared to one unit of CO_2. Carbon dioxide equivalents represent the universal unit for comparing emissions of the various GHGs to one unit of CO_2 based upon their GWP value. The GWP values for the GHGs at Fort Stewart are summarized in **Table 2** below.

Table 2
Greenhouse Gas Global Warming Potentials

Name	CAS Number	Chemical Formula	100-Yr Global Warming Potential (GWP)
Carbon Dioxide	124-38-9	CO_2	1
Methane	74-82-8	CH_4	21
Nitrous Oxide	10024-97-2	N_2O	310

Reference: Table A-1 of 40 CFR 98 Subpart A

The following describes the methodologies used for calculating direct GHG emissions from Fort Stewart.

Stationary Combustion Sources

The data used to calculate GHG emissions is based on the methods outlined in 40 CFR 98 Subpart C consists of:

- Unit maximum rated heat input capacity;
- Fuel type(s) by unit;
- Monthly fuel usage by fuel type;
- Monthly high heat content values by fuel type, or
- Monthly carbon content values by fuel type

40 CFR 98 Subpart C guidelines for quantifying general stationary combustion fuel source emissions follow a tiered approach. Higher-tier emission estimates require more detailed data and typically generate emission estimates with better accuracy. The GHG MRR allows for different Tier approaches based on the maximum rated heat input capacity of the unit and fuel source combusted in the unit. A summary of the requirements for using the tier methodologies is presented in **Table 3**.

Table 3
General Stationary Combustion Source Quantification Method Tiers

USEPA Tier Method	Equipment Capacity and Fuel Type Specifications
Tier 1- Default High Heat Value (HHV) and Default CO_2 Emission Factor	• May be used for any fuel listed in Table C-1 found in the MRR* that is combusted in a unit with a maximum rated heat input capacity of 250 MMBtu/hr or less. • May be used for solid, gaseous, or liquid biomass fuels in a unit of any size provided that the fuel is listed in Table C-1 • May be used for a unit of any size that burns municipal solid waste (MSW), but does not produce steam, if the use of Tier 4 is not required • May not be used if reporter routinely performs fuel sampling and analysis for the fuel HHV or routinely receives the results of HHV sampling and analysis from the fuel supplier at the minimum frequency specified or at a greater frequency. In such cases, Tier 2 shall be used.
Tier 2 - Measured HHV and Default CO_2 Emission Factor	• May be used for the combustion of any type of fuel in a unit with a maximum rated heat input capacity of 250 MMBtu/hr or less provided that the fuel is listed in Table C-1. • May be used in a unit with a maximum rated heat input capacity greater than 250 MMBtu/hr, if pipeline quality natural gas and/or distillate fuel oil are the only fossil fuels combusted in the unit. • May be used for a unit that combusts MSW and produces steam, if the use of Tier 4 is not required.
Tier 3 – Measured HHV and Carbon Content	• May be used for a unit of any size that combusts any type of fuel listed in Table C-1, unless the use of Tier 4 is required. • Shall be used for a unit with a maximum rated heat input capacity greater than 250 MMBtu/hr that combusts any type of fuel listed in Table C-1, unless either of the following conditions apply: (A) The use of Tier 1 or 2 is permitted (B) The use of Tier 4 is required; • Shall be used for a unit with a maximum rated heat input capacity greater than 250 MMBtu/hr that combusts any type of fuel that is **not** listed in Table C-1 provided that both of the following conditions apply: (A) The use of Tier 4 is not required. (B) The fuels provide 10% or more of the annual heat input to the unit or to a group of units served by common supply pipe.
Tier 4- Continuous Emission Monitoring System (CEMS)	• May be used for a unit of any size, combusting any type of fuel. • Shall be used for larger units if the unit meets all six of the following conditions: ▪ Unit has CEMS that is required by regulation or permit ▪ Unit > 250 MMBtu/hr, or > 250 tons/day MSW ▪ Solid fossil fuel or MSW is primary or secondary fuel ▪ Unit operated > 1,000 hours in any calendar year since 2005 ▪ CEMS has a gas monitor of any kind or a stack gas volumetric flow rate monitor ▪ Monitors undergo periodic QA testing under Part 75, Part 60, or State program • Shall be used for smaller units if the unit meets all six of the following conditions: ▪ Unit has CEMS that is required by regulation or permit ▪ Unit < 250 MMBtu/hr, or < 250 tons/day MSW ▪ Solid fossil fuel or MSW is primary or secondary fuel ▪ Unit operated > 1,000 hours in any calendar year since 2005 ▪ CEMS has a CO_2 monitor and a stack gas volumetric flow rate monitor ▪ Monitors undergo periodic QA testing under Part 75, Part 60, or State program

*Table C-1 is found in Subpart C of the Mandatory Reporting Rule and presents the emission factors and high heating values for all fuel types.

Based on the details of the data available Fort Stewart GHG emissions are calculated using the Tier 1 methodology. If Fort Stewart had measured High Heat Values (HHV) for the fuel used, then Fort Stewart could use Tier 2 approach. Tier 3 and Tier 4 approaches are not applicable for Fort Stewart. The Tier 3 approach is not used because it requires more detailed data which with current work practices is not available. The Tier 4 approach was also not used because it is applicable for facilities that have continuous emission monitoring systems (CEM). The following are the equations that were used.

Tier 1

Eq. 1: CO_2 Mass Emissions Rate = annual mass or volume of fuel combusted x default high heat value of the fuel x fuel-specific default CO_2 emission factor x conversion factor from kg to metric tons

Eq. 2: CH_4 or N_2O Mass Emissions Rate = annual mass or volume of fuel combusted x default high heat value x default CH_4 or N_2O emission factor x conversion factor from kg to metric tons x GWP

The emission factors relevant to the fuels used at Fort Stewart are shown in **Table 4** below.

Table 4
General Stationary Fuel Combustion Source Emission Factors

Fuel Type	Default HHV	Units	CO_2 Emission Factor (kg/MMBtu)	CH_4 Emission Factor (kg/MMBtu)	N_2O Emission Factor (kg/MMBtu)
Natural Gas	0.001026	MMBtu/scf	53.06	0.0010	0.0001
Distillate Fuel Oil #2	0.138	MMBtu/gal	73.96	0.0030	0.0006
Liquefied Petroleum Gas (LPG)	0.092	MMBtu/gal	61.71	0.0030	0.0006
Wood	15.38	MMBtu/ton	93.80	0.0320	0.0042

Reference: Tables C-1 and C-2 of 40 CFR Part 98 Subpart C

The following illustrates the calculation methodology used for natural gas consumption using the Tier I approach described above. [Total may not match because of rounding.]

Sample Fuel Combustion Calculation

2021 Natural Gas Consumption: 718,456,547 scf/yr
Emission Factor: 53.06 kg/MMBtu
HHV: 1.026E-03 MMBtu/scf
Conversion Factor: 0.001kg/MT

CO_2 Emissions = 718,456,547 scf/yr *1.026E-03 MMBtu/scf * 53.06 kg/MMBtu * 0.001
CO_2 Emissions = 39,112.46 Metric Tons (MT) / yr

CH_4 Emissions = 718,456,547 scf/yr *1.026E-03 MMBtu/scf * 1.00E-03 kg/MMBtu * 0.001
CH_4 Emissions = 0.737 * 25
CO_2e = 18.43 MT /yr

N_2O Emissions = 718,456,547 scf/yr *1.026E-03 MMBtu/scf * 1.00E-04 kg/MMBtu * 0.001
N_2O Emissions = 0.0737 * 298
CO_2e = 21.97 MT /yr

Total CO_2e = 39,112.46 MT + 18.43 MT + 21.97 MT
CO_2e = 39,152.85 MT /yr

Landfills

Fort Stewart has one active landfill that qualifies as a Municipal Solid Waste (MSW) landfill and four inactive landfills.

EPA's Landfill Air Emissions Estimation Model was used to estimate methane gas emissions from the inactive and active landfills. The following parameters were required in order to estimate emissions: the date the landfill opened, the date the landfill closed, current date, the capacity, the average refuse acceptance rate, the methane generation rate, and the potential methane generation capacity. Please refer to the 2021 AEI for more details.

The model provided the CH_4 emissions (Mega grams/yr). These emissions were converted to CO_2e (MT/yr) by multiplying the emissions by the GWP (21). The results are shown in **Table 5** below.

Table 5
Landfill Details and Emissions

Unit ID	Landfill Name	Year Opened	Year Closed	CH4 (MT/yr)	CO2e (MT/yr)
L101-S	South Central Landfill	1983	Active	1,225.02	30,625.49
L102-S	SCL-Closed 1	1970	1982	54.74	1,368.55
L103-S	SCL-Closed 2	1940	1970	22.01	550.30
L104-S	Camp Oliver	1970	1979	16.40	410.06
L105-S	TAC-X	1970	1979	7.49	187.17
Total				**1,325.66**	**33,141.58**

Sample Landfill Calculation

CH_4 = 1,225.02 mg/yr
1 mg = 1 MT
GWP = 25

CH_4 Emissions = 1,225.02 MT/yr *25
CO_2e = 30,625.5 MT/yr

3.0 Results

The results of the 2021 greenhouse gas emissions are shown in **Table 6** below. As shown in the Table Fort Stewart clearly exceeds the 25,000 MT/yr USEPA mandatory reporting threshold. The vast majority of the emissions are due to combustion of wood at the CEP and emissions from the landfills. The emergency diesel generators and fuel oil boilers made a relatively insignificant impact to the overall emissions. Also provided in **Tables 7 through 9** is a breakdown of the emissions by month for wood, natural gas and LPG combustion. Monthly data was not available for diesel or fuel oil emissions.

Table 6
2021 GHG (CO_2e) Emissions Estimates

Source Category	Type of Fuel	Fuel Used for CY 2021	GHG Emissions CO_2e (MT)
External Combustion Units	Wood	0 short tons	0.00
	Natural Gas	718,456,547 cubic feet	39,152.85
	No.2 Fuel Oil	3,099 gallons	31.73
	LPG	57,811 gallons	329.56
Landfills	N/A	N/A	33,141.58
Internal Combustion Engines (emergency)	Diesel	42,298 gallons	433.20
Total CO_2e (minus exempt Emergency Diesel Generators)			**72,655.73**
Total CO_2e (including exempt Emergency Diesel Generators)			**73,088.92**

Table 7
2021 Monthly Wood Consumption and Emissions

Month	Wood Consumption (short tons)	CO_2 (MT)	CH_4 (MT CO_2e)	N_2O (MT CO_2e)	Total (MT CO_2e)
Jan-21	0	0.00	0.00	0.00	0.00
Feb-21	0	0.00	0.00	0.00	0.00
Mar-21	0	0.00	0.00	0.00	0.00
Apr-21	0	0.00	0.00	0.00	0.00
May-21	0	0.00	0.00	0.00	0.00
Jun-21	0	0.00	0.00	0.00	0.00
Jul-21	0	0.00	0.00	0.00	0.00
Aug-21	0	0.00	0.00	0.00	0.00
Sep-21	0	0.00	0.00	0.00	0.00
Oct-21	0	0.00	0.00	0.00	0.00
Nov-21	0	0.00	0.00	0.00	0.00
Dec-21	0	0.00	0.00	0.00	0.00
TOTAL	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table 8
2021 Monthly Natural Gas Consumption and Emissions

Month	NG Usage (scf)	CO_2 (MT)	CH_4 (MT CO_2e)	N_2O (MT CO_2e)	Total (MT CO_2e)
Jan-21	79,012,724	4,301.42	2.03	2.42	4,305.86
Feb-21	65,816,572	3,583.03	1.69	2.01	3,586.73
Mar-21	74,665,049	4,064.73	1.92	2.28	4,068.93
Apr-21	61,485,172	3,347.23	1.58	1.88	3,350.68
May-21	46,470,172	2,529.82	1.19	1.42	2,532.43
Jun-21	45,645,483	2,484.92	1.17	1.40	2,487.49
Jul-21	49,444,704	2,691.75	1.27	1.51	2,694.53
Aug-21	52,189,932	2,841.20	1.34	1.60	2,844.13
Sep-21	51,734,538	2,816.41	1.33	1.58	2,819.31
Oct-21	54,126,384	2,946.62	1.39	1.65	2,949.66
Nov-21	63,083,445	3,434.23	1.62	1.93	3,437.78
Dec-21	74,782,372	4,071.12	1.92	2.29	4,075.32
TOTAL	**718,456,547**	**39,112.46**	**18.43**	**21.97**	**39,152.85**

Table 9
2021 Monthly LPG Consumption and Emissions

Month	LPG Usage (gallons)	CO_2 (MT)	CH_4 (MT CO_2e)	N_2O (MT CO_2e)	Total (MT CO_2e)
Jan-21	9,496	53.91	0.07	0.16	54.13
Feb-21	16,992	96.47	0.12	0.28	96.87
Mar-21	3,180	18.05	0.02	0.05	18.13
Apr-21	4,595	26.09	0.03	0.08	26.19
May-21	1,100	6.25	7.6E-03	0.02	6.27
Jun-21	1,456	8.27	0.01	0.02	8.30
Jul-21	325	1.85	2.2E-03	5.3E-03	1.85
Aug-21	3,157	17.92	0.02	0.05	18.00
Sep-21	540	3.07	0.00	0.01	3.08
Oct-21	1,550	8.80	0.01	0.03	8.84
Nov-21	4,120	23.39	0.03	0.07	23.49
Dec-21	11,300	64.15	0.08	0.19	64.42
TOTAL	**57,811**	**328.21**	**0.40**	**0.95**	**329.56**

APPENDIX F

Climate Change and Extreme Weather, Fort Stewart and Hunter Army Airfield

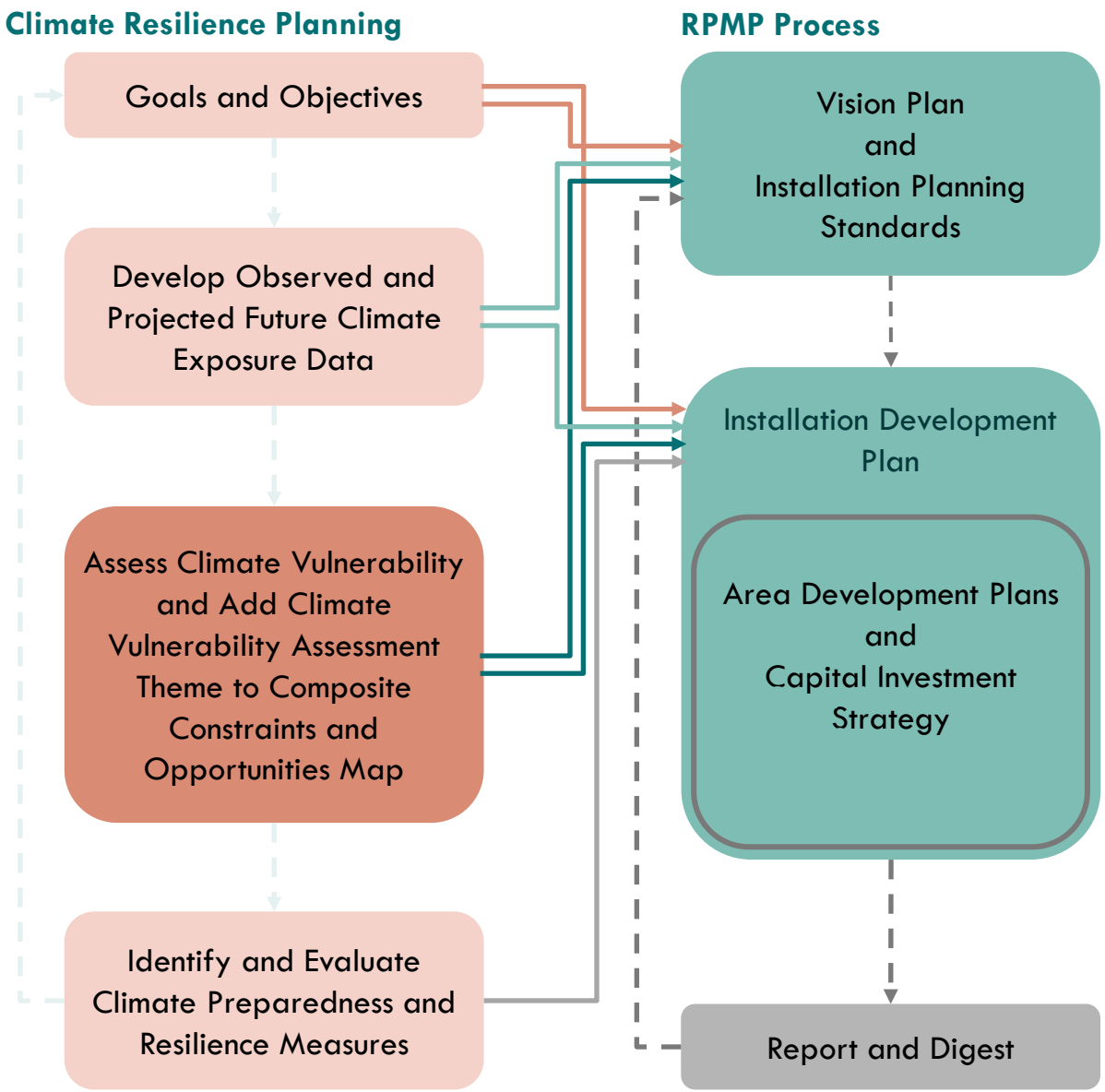
CLIMATE CHANGE RESILIENCE

The Army Climate Resilience Handbook (ACRH) guides Army planners through a systematic assessment of climate exposure impact risk and incorporation in the master planning process.

The 2019 NDAA Section 2805 defines climate resilience as the "anticipation, preparation for, and adaptation to utility disruptions and changing environmental conditions..." The ACRH provides a framework for the master planner to develop a Climate Vulnerability Assessment that:

1. Identifies the installation's climate resilience goals and objectives
2. Identifies how exposed the installation is to current nuisance and extreme weather events and to projected future climate impacts
3. Identifies how sensitive infrastructure, assets, mission, and readiness are to these impacts and how difficult adapting to these threats may be
4. Identifies a list of potential measures that can be used to improve an installation's preparedness and resilience

Fort Stewart has progressed toward energy resilience through development of 30 megawatt solar panels with a future 10-megawatt plant proposed. Diesel generators for natural gas are being considered at the installation, and details are being worked out. Personnel at Fort Stewart have worked diligently to assess how to combat storm water's affects through holistic, systematic approaches. Rain, wind, lightning, and flooding from hurricanes and tornadoes. Rains can last for a week and warning time for some storms is very short.



The Climate Resilience Planning Process in Relation to the RPMP Process
Source: Army Climate Resilience Handbook

FORT STEWART ARMY CLIMATE ASSESSMENT TOOL

Army staff can gain better awareness of current and projected climate impacts to weather events in 2050 and 2085 through the Army Climate Resilience Handbook published in August 2020 and the Army Climate Assessment Tool (ACAT). The ACAT provides a comparative assessment of how vulnerable each installation is to the impacts of climate change. It includes heat impacts, drought, wildfire, energy demand for heating and cooling, land degradation, riverine flooding, coastal flooding, and historic extremes. The ACAT data sources include:

- National Oceanic and Atmospheric Administration (NOAA)
- Federal Emergency Management Agency (FEMA)
- U.S. Geological Survey (USGS)
- Fourth National Climate Assessment (NCA4)

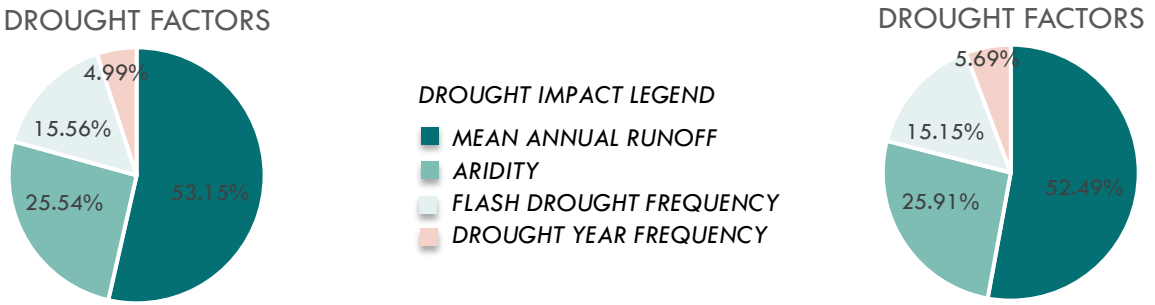
The climate change impacts are analyzed in context of four scenarios, shown to the right. These future climate scenarios are defined by a high or low emissions pathway and an epoch, or the time period of indicator data.

LOOKING AHEAD TO 2050: FORT STEWART

LOWER EMISSIONS SCENARIO | *HIGHER EMISSIONS SCENARIO*

DOMINANT IMPACT: DROUGHT 2050 ANALYSIS

LOWER EMISSIONS SCENARIO | *HIGHER EMISSIONS SCENARIO*



BEHIND THE NUMBERS: PREVAILING CLIMATE IMPACTS

While DROUGHT was the dominant impact in both emissions scenarios in 2050, all impacts should be considered when considering planning for the future.

- The greatest factor contributing to WILDFIRE is fuel abundance in 2050.
- The greatest contributing factor to RIVERINE FLOODING is flood riverine flooding extent, which decreases slightly from 2050 to 2085.
- The greatest factor contributing to HEAT impacts is 5-day max temperature in 2050 emissions scenarios.
- The greatest factor contributing to ENERGY DEMAND 2050 scenarios is the 5-day maximum temperature.
- The greatest factor contributing to HISTORICAL EXTREME CONDITIONS is ice storm occurrence.
- Aridty is the greatest factor contributing to LAND DEGRADATION in 2050 scenarios.

CLIMATE SCENARIOS	EPOCH: FUTURE 1: 2035-2065, CENTERED ON 2050
LOWER EMISSIONS	2050 LOWER
HIGHER EMISSIONS	2085 HIGHER

FORT STEWART RESILIENCY PLANNING

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Operation Security.

HAAF ARMY CLIMATE ASSESSMENT TOOL

DROUGHT FACTORS DEFINED

MEAN ANNUAL RUNOFF - Mean Annual Runoff is the average annual discharge (volume of water) from the entire watershed upstream of the downstream-most boundary of the installation for the largest river in this watershed.

ARIDITY - Aridity is the average aridity of the climate based on the Aridity Index. The Aridity Index is precipitation divided by potential evapotranspiration (P/PET), where PET is estimated using the Thornthwaite method.

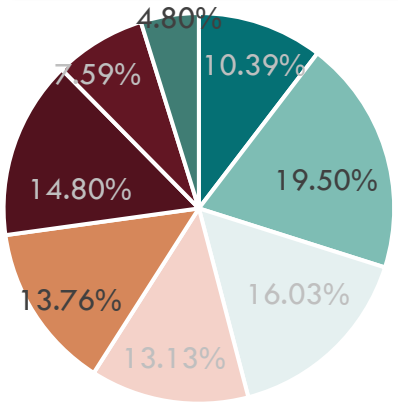
FLASH FROUGHT FREQUENCY - Flash Drought Frequency is the average number of times per year in which the 1-month Standardized Precipitation Evaporation Index (SPEI) drops from above -1 to below -1.5 in a 3-month window.

DROUGHT YEAR FREQUENCY - Drought Year Frequency is the average percentage of years in which the 12-month SPEI is < -1 (moderate or more extreme drought). Units are Percentage.

Extended indicator definitions are defined on the ACAT website.

LOOKING AHEAD TO 2050: HAAF

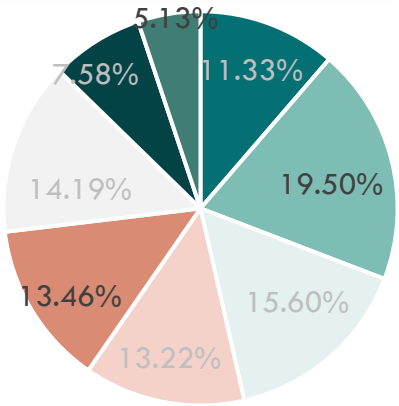
LOWER EMISSIONS SCENARIO



EMISSIONS LEGEND

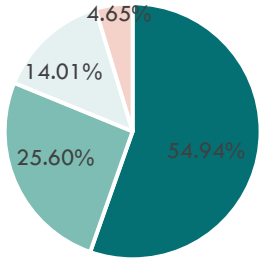
- *WILDFIRE*
- *DROUGHT*
- *RIVERINE FLOODING*
- *HEAT*
- *ENERGY DEMAND*
- *HISTORICAL EXTREME CONDITIONS*
- *LAND DEGRADATION*
- *COASTAL FLOODING*

HIGHER EMISSIONS SCENARIO



HIGHER EMISSIONS SCENARIO

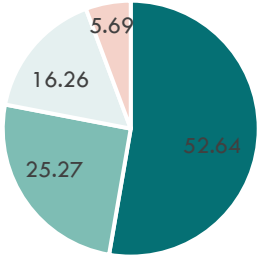
DROUGHT FACTORS



DROUGHT IMPACT LEGEND

- *MEAN ANNUAL RUNOFF*
- *ARIDITY*
- *FLASH DROUGHT FREQUENCY*
- *DROUGHT YEAR FREQUENCY*

DROUGHT FACTORS



BEHIND THE NUMBERS: PREVAILING CLIMATE IMPACTS

While DROUGHT was the dominant impact in both emissions scenarios in 2050, all impacts should be considered when considering planning for the future.

- The greatest contributing factor to WILDFIRE is flash drought frequency in 2050 and increases in both scenarios.
- The greatest contributing factor to RIVERINE FLOODING is flood magnification factor, which decreases slightly from 2050 the higher emissions scenario.
- The greatest factor contributing to HEAT impacts is 5-day max temperature in 2050 emissions scenarios.
- The greatest factor contributing to ENERGY DEMAND 2050 scenarios is the 5-day maximum temperature.
- The greatest factor contributing to HISTORICAL EXTREME CONDITIONS is ice storm occurrence.
- Aridty is the greatest factor contributing to LAND DEGRADATION in 2050 scenarios.
- Coastal flood extent is the prevailing factor in COASTAL FLOODING.

CLIMATE SCENARIOS	EPOCH: FUTURE 1: 2035-2065, CENTERED ON 2050
LOWER EMISSIONS	2050 LOWER
HIGHER EMISSIONS	2085 HIGHER

HAAF RESILIENCY PLANNING

Image Redacted for
Operation Security.

RESILIENCY PLANNING MEASURES

ANTICIPATING CLIMATE CONDITIONS AT FORT STEWART AND HAAF

In response to NDAA 2018 and 2019, Fort Stewart and HAAF stakeholders sited and identified resilience measures that could be taken during the area development planning process. Measures were sited at each site and can work as a compliment to ACAT data. Stakeholders prioritized energy redundancy and resilience to extreme climate events. Below is a summary of the resiliency measures sited by stakeholders during the charrette.

FORT STEWART AND HAAF RESILIENCY MEASURES

The following items represent existing resiliency mitigation areas or actions taken on the installation:

- Facilities built to withstand extreme weather conditions including, but not limited to, hurricanes or tornadoes
- Utilize PV arrays and battery storage to provide redundant electricity generation
- Incorporation of permeable pavement where suitable to improve stormwater management
- Lightning protection systems to protect against surge or other damage at Wright Army Airfield
- Scheduling controlled burns to mitigate wildfire damage
- Stormwater management along roadways and buildings
- Utilize LID strategies for roadways and buildings to channel stormwater at Fort Stewart and HAAF
- Install electric vehicle charging stations to comply with DOD requirements
- Utility redundancy – investment in communications
- Provide redundancy to promote cybersecurity and mission critical facilities
- Enhance natural gas regeneration and water reuse systems to withstand utility outages
- Protect mission activities and wildlife by having a robust fence line
- Tide gate is planned for FY22 (southwest)

Stakeholders site locations during resiliency discussion

APPENDIX G

Supplementary Information

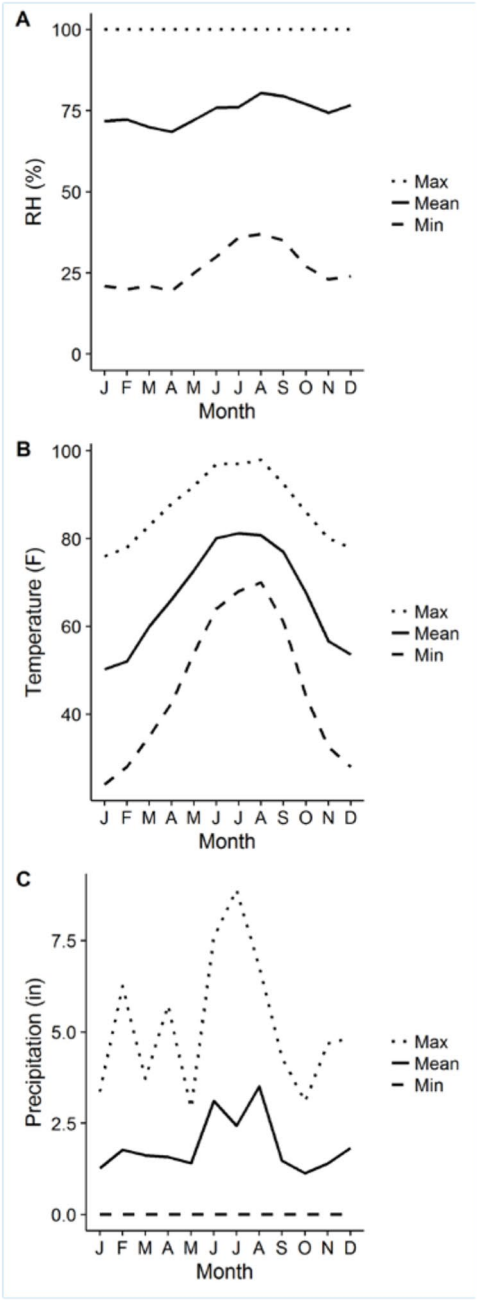
APPENDIX G

Supplementary Information from Chapter 3.0 of PEA

G-1. Climate Change and Extreme Weather Risks on FSGA/HAAF

Drought. Drought is a reduction in the amount of water available for use and can lead to water shortages in all sectors (municipal, agricultural, industrial, energy, and environment). Over even short periods of time, drought can contribute to increased wildfire risk in the forested environment, heat stress of flora, fauna, and persons who reside in that environment (because temperatures are higher during drought), and other overall issues of concerns. The Floridan is the principal artesian aquifer in the region and provides most of the fresh water for cities and communities throughout southeastern Georgia, to include FSGA/HAAF. The surface aquifer is composed of a relatively thin layer of sands, gravels, and clays and is recharged directly from rainfall percolating through sediments in the region. Groundwater levels are typically high on the FSGA and HAAF and dewatering is a factor in most borrow pit operations. This groundwater resource is recognized as one of the most productive in North America (discussed in more detail in PEA Section 3.4.3, Water Quality).

Figure G-1: Weather Associated with Wildfire (WFSC, 2019).



Warmer springs, longer dry seasons, and drier soils and vegetation have created the potential for drought in the Study Area. Drought can't be measured based on lack of/abundance of rainfall alone, as the counties within the Study area had an extremely wet September (2022) but also the driest period on record in the past 128 years (January – August 2022) (NIDIS, 2022), highlighting the complexity of drought analysis. Federal agencies are charting historical, current, and potential future drought conditions to try and effect positive change in their communities. For example, the U.S. Drought Monitor (NIDIS, 2022) releases a national map every Thursday showing parts of the U.S. that are in conditions ranging from abnormally dry to exceptionally draught, synthesizing the best available data and working with local observers to interpret the information. It incorporates a network of more than 450 observers across the country, including state climatologists, NWS staff, county extension agents, and hydrologists. At the time of this analysis, the Study Area was not in an area affected by drought (NIDIS, 2022); however, more than four million Georgians across the state were affected by drought.

Wildfire. Wildfires often go hand-in-hand with drought in many ecosystems, as dry vegetation is highly susceptible to ignition. Vegetation at FSGA/HAAF s dominated by fire-adapted plant communities, such as wiregrass and palmetto-gallberry, sustained by a very active prescribed fire program.

United States Department of the Interior

Fish and Wildlife Service
RG Stephens, Jr. Federal Building
355 East Hancock Avenue, Room 320
Athens, Georgia 30601

West Georgia Sub Office
P.O. Box 52560
Ft. Benning, Georgia 31995-2560

Coastal Sub Office
4980 Wildlife Drive
Townsend, Georgia 31331

July 19, 2022

Thomas Fry, Chief
Environmental
Division Directorate of
Public Works 1616
Veterans Parkway Fort
Stewart, GA 31314

Re: FWS Log No. 2022-0033391

Dear Mr. Fry:

The U.S. Fish and Wildlife Service (Service) has received your June 13, 2022, biological assessment on a proposal to excavate 12 new borrow pits and expand 36 existing borrow pits on Ft. Stewart (FS), Georgia. The project areas total 145.56 acres and encompass 83.98 acres of existing red-cockaded woodpecker (RCW) (*Dryobates borealis*) Habitat Management Unit (HMU), 0.05 acres of lowland hardwood habitat, 6.72 acres of upland hardwood habitat, and 54.82 acres of non-forested area as identified in FS's Integrated Natural Resources Management Plan (INRMP). The project will also impact 24.57 acres of frosted flatwoods salamander (FFS) (*Ambystoma cingulatum*) HMU, and 44.81 acres of eastern indigo snake (EIS) (*Drymarchon couperi*) HMU as identified in FS's Integrated Natural Resources Management Plan (INRMP). The proposed project will include tree cutting, grubbing, raking, excavation and removal of soil, and will ensure that sufficient amounts of suitable, site-appropriate fill material are readily available to support road maintenance actions implemented on FS. We submit the following comments on this project under provisions of the Endangered Species Act of 1973 (Act) as amended (16 U.S.C. 1531 *et seq*.).

Fish and Wildlife Branch personnel surveyed the project area for RCW's and RCW cavity trees. No new cavity trees were found in the project area. The project will impact 83.98 acres of existing red-cockaded woodpecker (RCW) Habitat Management Unit (HMU), 0.05 acres of lowland hardwood habitat, 6.72 acres of upland hardwood habitat, and 54.82 acres of non-forested area as in identified in FS's INRMP (Directorate of Public Works 2001). The project will impact 34.54 acres of foraging partition in 29 RCW clusters. Due to the small amount of habitat removed per foraging partition (ranging from 0.01 to 10 acres) by the proposed actions, any negative effects to the foraging partitions of impacted clusters will be insignificant. The proposed project will impact 44.81 acres of the eastern indigo snake (EIS) HMU. No EIS have ever been detected in the project area. The nearest known occurrences of EIS to the action area locations range from < 1.0 mile to > 5.0 miles. EIS often use gopher tortoise burrows as winter refugia. Twelve active burrows in 5 proposed burrow pit sites were discovered during surveys by

July 19, 2022

Fish and Wildlife Branch personnel. Prior to construction, gopher tortoises in these sites will be trapped and re-located to appropriate habitat. Because of the distances between the proposed action areas and no documented EIS sightings in project action area, the small number of affected burrows, and the widely scattered locations of the proposed borrow pits, impacts are not likely to occur to EIS. Portions of the proposed project lie within the FFS HMU and will impact 2.88 acres of secondary buffer for a potential breeding site, as well as 14.22 acres of FFS HMU not within pond buffers. Project design will incorporate delineation of wetland areas and protection measures as required by the Clean Water Act and the Georgia Erosion and Sedimentation Control Act to ensure appropriate wetland protection. Due to the small amount of pond buffer impacted and the abovementioned protective measures, impacts are not likely to occur to FFS. Additional species considered included the eastern black rail (*Laterallus jamaicensis jamaicensis*), wood stork (*Mycteria americana*), Atlantic (*Acipenser oxyrinchus*) and shortnose sturgeon (*Acipenser brevirostrum*), and the smooth coneflower (*Echinacea laevigata*). These species were not observed or no suitable habitat was present within the proposed project area.

Based on the information provided in the biological assessment, we concur with your determination that this action "may affect, but not likely to adversely affect" the red-cockaded woodpecker, eastern indigo snake and frosted flatwoods salamander. We also concur with your determination of "no effect" for the wood stork, smooth coneflower, eastern black rail, Atlantic and shortnose sturgeon. In view of this, we believe that the requirements of section 7 of the Act have been satisfied. However, obligations under section 7 of the Act must be reconsidered if (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner which was not considered in this assessment, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

Thank you for the opportunity to provide comments on the proposed project. If you require additional assistance, please contact John Doresky at our West Georgia Sub Office at (706)544-6030 or at John_Doresky@fws.gov.

Sincerely,

(for) Peter Maholland
Acting Field Supervisor

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART/HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY BUILDING 1101
FORT STEWART GEORGIA 31314-5602

Office of the Directorate

U.S. Department of the Interior
Fish and Wildlife Service
ATTN: John Doresky
P.O. Box 52560
Fort Benning, GA 31995-2560

Dear Mr. Doresky:

Fort Stewart proposes to construct 12 new borrow pits and expand 36 existing borrow pits. The proposed project will ensure the availability of fill material for future actions on the installation.

A Biological Assessment (BA) has been prepared in accordance with the requirements of the Endangered Species Act. The conclusion reached in this BA is that the proposed action may affect, but is not likely to adversely affect, the red-cockaded woodpecker, the eastern indigo snake, or the frosted flatwoods salamander, and will not affect the wood stork, eastern black rail, Atlantic sturgeon, shortnose sturgeon, or smooth coneflower. Fort Stewart reached its red-cockaded woodpecker recovery goal of 350 potential breeding groups during the breeding season of 2012 and has enough suitable or potentially suitable habitat to support 657 red-cockaded woodpecker clusters post project. Fort Stewart had 595 potential breeding groups at the end of the 2021 breeding season.

If additional information is needed, please contact Mr. Lawrence Carlile, DPW, Fish and Wildlife Branch at telephone (912) 767-8241. Your continued cooperation and assistance are appreciated.

Sincerely,

FOR James Heidle
Director, Public Works

Enclosures

BIOLOGICAL ASSESSMENT

Borrow Pit Construction and Expansion Project

Fort Stewart, Georgia

Prepared By:

_____
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Wildlife Biologist
Fish and Wildlife Branch
Environmental Division
Directorate of Public Works
Fort Stewart, GA

Reviewed By:

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Submitted By:

_____
LAWRENCE D. CARLILE
Chief, Fish and Wildlife Branch
Environmental Division
Directorate of Public Works
Fort Stewart, GA

Approved By:

_____
THOMAS C. FRY
Chief, Environmental Division
Directorate of Public Works
Fort Stewart, GA

PROJECT DESCRIPTION

Fort Stewart (FS) proposes to excavate 12 new borrow pits and expand 36 existing borrow pits (Figure 1). The project areas total 145.56 acres and encompass 83.98 acres of existing red-cockaded woodpecker (RCW) Habitat Management Unit (HMU), 0.05 acres of lowland hardwood habitat, 6.72 acres of upland hardwood habitat, and 54.82 acres of non-forested area as identified in FS's Integrated Natural Resources Management Plan (INRMP; Directorate of Public Works 2001). The project will also impact 24.57 acres of frosted flatwoods salamander (FFS) HMU as identified in a FFS habitat review project (Palis 2002), and 44.81 acres of eastern indigo snake (EIS) HMU as identified in FS's Integrated Natural Resources Management Plan (INRMP; Directorate of Public Works 2001). The proposed project will include tree cutting, grubbing, raking, excavation and removal of soil, and will ensure that sufficient amounts of suitable, site-appropriate fill material are readily available to support road maintenance actions implemented on FS.

SITE DESCRIPTIONS

Forested habitat within the proposed project comprises a canopy of longleaf pine (*Pinus palustris*), slash pine (*P. elliotti*), and loblolly pine (*P. taeda*) with a midstory of sweetgum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), live oak (*Q. virginiana*), wax myrtle (*Morella cerifera*), and red bay (*Persea borbonia*). The groundcover is characterized by saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), shiny blueberry (*Vaccinium myrsinites*), huckleberry (*Gaylusaccia frondosa*), runner oak (*Q. pumila*), and rusty lyonia (*Lyonia ferruginea*). Wetland systems within, and adjacent to, the proposed project are dominated by pond cypress (*Taxodium ascendens*), blackgum (*Nyssa sylvatica*), pond pine (*P. serotina*), red maple (*Acer rubrum*), and red bay.

SPECIES CONSIDERED

The following species occur, or may occur, in the proposed action area and were considered in this assessment:

Red-cockaded woodpecker (*Dryobates borealis*) – Endangered
Eastern indigo snake (*Drymarchon couperi*) – Threatened
Frosted flatwoods salamander (*Ambystoma cingulatum*) – Threatened
Wood stork (*Mycteria americana*) – Threatened
Eastern black rail (*Laterallus jamaicensus jamaicensus*) – Threatened
Atlantic sturgeon (*Acipenser oxyrinchus*) – Endangered
Shortnose sturgeon (*Acipenser brevirostrum*) – Endangered
Smooth coneflower (*Echinacea laevigata*) – Endangered

DISCUSSION

Red-cockaded Woodpecker

Fish and Wildlife Branch personnel surveyed the proposed project action areas for RCWs and RCW cavity trees. No new RCW cavity trees were found in the action areas. The project will impact 83.98 acres of existing red-cockaded woodpecker (RCW) Habitat Management Unit (HMU), 0.05 acres of lowland hardwood habitat, 6.72 acres of upland hardwood habitat, and 54.82 acres of non-forested area as in identified in FS's INRMP (Directorate of Public Works 2001). The project will impact 34.54 acres of foraging partition in 29 RCW clusters (Table 1).

BP-A1.4-01
The proposed project action area lies within the RCW HMU and will impact 4.64 acres (Figure 2).

BP-A5.2-01
The proposed project action area lies within the foraging partition of cluster 587 and will impact 1.84 acres (Figure 3).

BP-A16.1-01
The proposed project action area lies within the RCW HMU and will impact 3.01 acres (Figure 4).

BP-A17.1-01
The proposed project action area lies within the foraging partitions of clusters 249 and 402 and will impact 5.74 and 0.22 acres of foraging partitions, respectively (Figure 5).

BP-B8.1-01
The proposed project action area lies within the RCW HMU and will impact 3.01 acres (Figure 6).

BP-B8.3-01
The proposed project action area lies within the foraging partition of cluster 305 and will impact 1.25 acres (Figure 7).

BP-B15.4-01
The proposed project action area lies within the foraging partitions of clusters 526 and 549 and will impact 0.40 and 0.75 acres of foraging partitions, respectively (Figure 8).

BP-B16.1-01
The proposed project action area lies within the foraging partition of cluster 606 and will impact 0.19 acres (Figure 9).

BP-B17.2-01
The proposed project action area lies within the foraging partition of cluster 36 and will

impact 2.66 acres (Figure 10).

BP-18.2-01
The proposed project action area lies within the foraging partition of cluster 583 and will impact 2.67 acres (Figure 11).

BP-B19.2-01
The proposed project action area lies within the foraging partition of cluster 414 and will impact 1.99 acres (Figure 12).

BP-B20.2-01
The proposed project action area lies within the RCW HMU and will impact 8.92 acres (Figure 13).

BP-B24.4-01
The proposed project action area lies within the RCW HMU and will impact 3.56 acres (Figure 14).

BP-BEQA2-01
The proposed project action area lies within the RCW HMU and will impact 10.00 acres (Figure 15).

BP-C1.3-01
A portion of the proposed project action area lies within the foraging partition of cluster 20 and will impact 1.31 acres (Figure 16).

BP-C1.5-01
The proposed project action area lies within the RCW HMU and will impact 0.19 acres (Figure 17).

BP-C9.1-01
The proposed project action area lies within the RCW HMU and will impact 1.02 acres (Figure 18).

BP-C9.3-01
The proposed project action area lies within the foraging partition of cluster 245 and will impact 1.62 acres (Figure 19).

BP-C11.2-01
The proposed project action area lies within the RCW HMU and will impact 0.27 acres (Figure 20).

BP-C15.2-01
The proposed project action area lies within the foraging partition of cluster 250 and will impact 1.51 acres (Figure 21).

BP-C16.4-01
The proposed project action area lies within the foraging partition of cluster 94 and will impact 2.14 acres (Figure 22).

BP-C18.1-01
The proposed project action area lies within the RCW HMU and will impact 1.27 acres (Figure 23).

BP-D1.1-01
The proposed project action area lies within the foraging partition of cluster 391 and will impact 1.12 acres (Figure 24).

BP-D12.1-01
The proposed project action area lies within the RCW HMU and will impact 2.88 acres (Figure 25).

BP-D14.1-01
The proposed project action area lies within the foraging partitions of clusters 122, 171, and 350 and will impact 1.11, 0.59, and 0.02 acres of foraging partitions, respectively (Figure 26).

BP-E4.2-01
The proposed project action area lies within the RCW HMU and will impact 1.62 acres (Figure 27).

BP-E4.3-01
The proposed project action area lies within the RCW HMU and will impact 0.68 acres (Figure 28).

BP-E7.3-01
The proposed project action area lies within the foraging partition of cluster 456 and will impact 0.82 acres (Figure 29).

BP-E7.4-01
The proposed project action area lies within the RCW HMU and will impact 3.04 acres (Figure 30).

BP-E8.3-01
The proposed project action area lies within the foraging partitions of clusters 396 and 508 and will impact 0.42 and 0.09 acres of existing RCW HMU (Figure 31).

BP-E12.3-01
The proposed project action area lies within the foraging partitions of clusters 372, 399, and 531. Construction activities will impact 2.69 acres of foraging partition, respectively (Figure 32).

BP-E21.3-01
The proposed project action area lies within the RCW HMU and will impact 1.99 acres (Figure 33).

BP-E22.4-01
The proposed project action area lies within the foraging partitions of clusters 163 and 442 and will impact 0.06 and 1.01 acres of foraging partition, respectively (Figure 34).

BP-F10.1-01
The proposed project action area lies within the RCW HMU and will impact 0.29 acres (Figure 35).

BP-F15.1-01
A portion of the proposed project action area lies within the foraging partition of cluster 485 and will impact 1.95 acres (Figure 36).

BP-F15.4-01
The proposed project action area lies within the foraging partitions of clusters 599 and 633 and will impact 1.27 and 0.35 acres of foraging partition, respectively (Figure 37).

BP-F17.1-01
The proposed project action area lies within the RCW HMU and will impact 1.58 acres (Figure 38).

A May 2005 memorandum from Noreen Walsh, Assistant Regional Director, Ecological Services, U.S. Fish and Wildlife Service, Atlanta, GA describes parameters and concepts to be considered when federal properties analyze projects that may affect RCWs. There are potentially 5 levels of analysis to consider in the preparation of biological assessments, with the analyses conducted in the following order: 1) foraging partition, 2) group, 3) neighborhood, 4) population, and 5) recovery unit. The results of each level of analysis predicates the necessity to conduct subsequent analyses.

Due to the small amount of habitat removed per foraging partition by the proposed actions, any negative effects to the foraging partitions of impacted clusters will be insignificant (Table 1). Therefore, the proposed action may affect, but is not likely to adversely affect, the RCW and the group, neighborhood, population, and recovery unit analyses are not warranted.

Eastern Indigo Snake

The proposed project will impact 44.81 acres of the EIS HMU (Figure 39). No EIS have ever been detected in the project action areas. The nearest known occurrences of EIS to the action area locations range from < 1.0 mile to > 5.0 miles (Table 2). EIS often use gopher tortoise burrows as winter refugia and portions of the proposed project intersect with potential gopher tortoise habitat. Fish and Wildlife Branch personnel surveyed the proposed project action areas for gopher tortoise burrows and found 12 active burrows

in 5 proposed borrow pit sites. Prior to construction, gopher tortoises in these sites will be trapped and re-located to appropriate habitat. Because of the distances between the proposed action areas and documented EIS sightings, the small number of affected burrows, and the widely scattered locations of the proposed borrow pits, we conclude that the proposed project may affect, but is not likely to adversely affect, the EIS.

Frosted Flatwoods Salamander

Portions of the proposed project lie within the FFS HMU (Table 3). Construction activities will impact 2.88 acres of secondary buffer for a potential breeding site, as well as 14.22 acres of FFS HMU not within pond buffers, as identified in a FFS habitat review project (Palis 2002). Project design will incorporate delineation of wetland areas and protection measures as required by the Clean Water Act and the Georgia Erosion and Sedimentation Control Act to ensure appropriate wetland protection. Due to the small amount of pond buffer impacted and the abovementioned protective measures, we conclude that the proposed project may affect, but is not likely to adversely affect, the FFS.

BP-D12.1-01
The proposed action area lies within the FFS HMU and will impact 2.88 acres of secondary buffer for a potential breeding site in NRMU D-12.1. No FFS have ever been detected in the proposed project action area. The nearest known FFS occurrence is 1.00 mile west of the action area in NRMU D-12.1 (Figure 40).

Wood Stork

No wood storks (WS) were observed, nor have they ever been observed, foraging in the proposed project action areas (Figure 41). The nearest occurrences of WS to the proposed project action areas range from < 1.0 mile to > 12.0 miles. Because of the action area distances from confirmed WS sightings and the implementation of erosion and sedimentation control measures, the proposed project will not affect the WS.

Eastern Black Rail

No eastern black rails (EBR) have ever been observed in the proposed project area, nor have they ever been observed on the installation, though they may migrate through FS. The nearest confirmed sighting of EBR was in Greene County, Georgia, > 150 miles northwest of the installation. Due to unsuitable habitat in the project action areas and the distance between the proposed project areas and documented EBR sightings, this project will not affect the EBR.

Atlantic and Shortnose Sturgeon

Telemetry and capture data, which was collected as part of FS's shortnose sturgeon monitoring program (1991-2000), indicate that these fish do not travel >2 miles up the Canoochee River or 20 miles up the Ogeechee River from the Canoochee/Ogeechee.

River confluence. The Canoochee River flows diagonally through the Installation while the Ogeechee River forms much of the Installation's eastern boundary. Critical habitat has been designated for the Atlantic sturgeon on the Ogeechee River along FS's eastern boundary (Figure 42). The proposed project action areas range from < 0.5 miles to >30 miles from the Atlantic sturgeon critical habitat and shortnose sturgeon occurrence on the Canoochee River. Due to unsuitable habitat in the project action areas and the distance between the proposed action areas and documented sturgeon sightings, this project will not affect Atlantic and shortnose sturgeons.

Smooth Coneflower

No smooth coneflowers (SC) were observed in the proposed project areas (Figure 43). The nearest population of the SC is located in NRMU F-11.1, and the proposed action areas range from < 1 mile to > 27 miles from the SC population. Because of the action area distances from the confirmed SC population and the unsuitable environmental conditions in the project action areas, the proposed project will not affect the SC.

CUMULATIVE EFFECTS

There are no foreseeable state, local, tribal, or private actions that would have a cumulative adverse effect when combined with impacts associated with the proposed action.

CONCLUSION

The proposed action may affect, but is not likely to adversely affect, the RCW, the EIS, and the FFS due to the small acreages of the impacts. The proposed action will not affect the WS, EBR, Atlantic and shortnose sturgeons, or SC because habitat in the action area is not suitable for these species. Critical habitat has been designated for the FFS and the Atlantic Sturgeon, but no FFS critical habitat was designated on FS. Aquatic habitats of a portion of the Ogeechee River were designated as critical habitat for the Atlantic Sturgeon. The Ogeechee River forms much of FS's eastern boundary, but no critical habitat will be destroyed or modified adversely (Figure 42). Other listed species that occur on FS have no critical habitat designated, so no critical habitat will be destroyed or modified adversely. The Army did not draw on the regulatory definition of destruction or adverse modification of critical habitat at 50 Code of Federal Regulation 402.02 with respect to the conclusions and analysis made in this BA. Instead, the Army has incorporated into the critical habitat effects analysis the conservation of species principals found in the statutory provisions of the Endangered Species Act.

Table 1. Red-cockaded Woodpecker HMU and Foraging Partitions Impacted by the Proposed Project.

RCW Cluster Locations			RCW Foraging Partition Acreage Impacts			HMU Impacts
NRMU	BP Code	RCW Cluster #	Pre-Project	RCW Partition Impact	Post-Project	Acres
A1.4	BP-A1.4-01					4.64
A16.1	BP-A16.1-01					3.01
A17.1	BP-A17.1-01	249	139.29	5.74	133.55	
		402	163.06	0.22	162.84	
A5.2	BP-A5.2-01	587	212.59	1.84	210.75	
B15.4	BP-B15.4-01	526	136.46	0.40	136.06	
		549	150.10	0.75	149.35	
B16.1	BP-B16.1-01	606	207.82	0.19	207.63	
B17.2	BP-B17.2-01	36	185.84	2.66	183.18	
B18.2	BP-B18.2-01	583	190.23	2.67	187.56	
B19.2	BP-B19.2-01	414	285.30	1.99	283.31	
B20.2	BP-B20.2-01					8.92
B24.4	BP-B24.4-01					3.56
B8.1	BP-B8.1-01					3.01
B8.3	BP-B8.3-01	305	179.85	1.25	178.60	
BEQA2	BP-BEQA2-01					10.00
C1.3	BP-C1.3-01	20	260.76	0.29	260.47	
C1.3	BP-C1.3-01					1.02
C1.5	BP-C1.5-01					0.19
C11.2	BP-C11.2-01					0.27
C15.2	BP-C15.2-01	250	286.93	1.51	285.42	
C16.4	BP-C16.4-01	94	180.07	2.14	177.93	
C18.1	BP-C18.1-01					1.27
C9.1	BP-C9.1-01					1.02
C9.3	BP-C9.3-01	245	115.29	1.62	113.67	
D1.1	BP-D1.1-01	391	281.75	1.12	280.63	
D12.1	BP-D12.1-01					2.88
D14.1	BP-D14.1-01	171	175.50	0.59	174.91	
		122	148.11	1.11	147.00	
		350	145.94	0.02	145.92	
E12.3	BP-E12.3-01	372	138.37	0.76	137.61	
		399	155.26	1.66	153.60	
		531	138.95	0.27	138.68	
E21.3	BP-E21.3-01					1.99
E22.4	BP-E22.4-01	163	236.92	0.06	236.86	
		442	320.44	1.01	319.43	
						0.64
E4.2	BP-E4.2-01					1.62
E4.3	BP-E4.3-01					0.68
E7.3	BP-E7.3-01	456	134.78	0.82	133.96	
E7.4	BP-E7.4-01					3.04
E8.3	BP-E8.3-01	396	202.67	0.42	202.25	
		508	200.73	0.09	200.64	
F10.1	BP-F10.1-01					0.29
F15.1	BP-F15.1-01	485	189.83	1.72	188.11	
						0.23
F15.4	BP-F15.4-01	599	273.93	1.27	272.66	
		633	215.98	0.35	215.63	
F17.1	BP-F17.1-01					1.58

Table 2. Eastern Indigo Snake Sightings near the Proposed Project Action Areas.

Borrow Pit Location		Sightings near Action Areas		EIS HMU
BP Code	NRMU	EIS (mi)	GT Burrows (mi)	Impact (Ac)
BP-A1.4-01	A1.4	3.80	0.49	
BP-A16.1-01	A16.1	1.22	0.12	
BP-A16.2-01	A16.2	2.87	0.07	
BP-A17.1-01	A17.1	1.73	1.00	
BP-A3.2-01	A3.2	2.41	1.96	
BP-A5.2-01	A5.2	2.83	2.10	
BP-B1.3-01	B1.3	0.30	0.08	
BP-B15.4-01	B15.4	2.00	1.49	
BP-B16.1-01	B16.1	1.37	1.33	
BP-B17.2-01	B17.2	0.80	0.48	2.67
BP-B18.2-01	B18.2	2.17	0.21	1.74
BP-B19.2-01	B19.2	3.08	1.57	1.99
BP-B20.2-01	B20.2	1.52	0.00	
BP-B24.4-01	B24.4	2.24	1.81	
BP-B8.1-01	B8.1	1.43	0.49	3.06
BP-B8.3-01	B8.3	1.58	0.22	2.91
BP-BEQA2-01	BEQA2	1.11	1.01	10.00
BP-C1.3-01	C1.3	2.02	2.20	
BP-C1.5-01	C1.5	1.68	2.89	
BP-C11.2-01	C11.2	0.49	1.14	2.96
BP-C15.2-01	C15.2	2.58	1.03	1.51
BP-C16.4-01	C16.4	5.03	1.51	2.14
BP-C18.1-01	C18.1	4.09	0.18	
BP-C18.6-01	C18.6	4.10	0.00	
BP-C4.2-01	C4.2	2.17	1.53	
BP-C7.4-01	C7.4	2.54	1.39	
BP-C9.1-01	C9.1	2.80	1.42	1.02
BP-C9.3-01	C9.3	2.09	0.35	1.62
BP-D1.1-01	D1.1	4.60	4.46	
BP-D1.3-01	D1.3	5.32	3.41	
BP-D12.1-01	D12.1	2.65	1.50	
BP-D14.1-01	D14.1	0.51	0.31	2.20
BP-E11.6-01	E11.6	1.52	0.23	
BP-E12.3-01	E12.3	1.67	0.15	2.69
BP-E21.3-01	E21.3	0.60	0.44	1.99
BP-E22.4-01	E22.4	0.41	0.13	1.71
BP-E3.4-01	E3.4	1.81	1.20	
BP-E4.2-01	E4.2	3.91	1.07	
BP-E4.3-01	E4.3	1.65	0.44	
BP-E7.3-01	E7.3	1.23	0.00	
BP-E7.4-01	E7.4	2.78	0.91	
BP-E8.3-01	E8.3	3.80	0.59	
BP-F10.1-01	F10.1	1.14	0.79	0.29
BP-F11.1-01	F11.1	0.37	0.27	
BP-F15.1-01	F15.1	1.41	0.24	1.27
BP-F15.4-01	F15.4	0.80	0.00	1.66
BP-F17.1-01	F17.1	1.12	0.99	1.42
BP-F7.2-01	F7.2	1.49	1.49	

Table 3. Frosted Flatwoods Salamander Breeding Habitat Impacted and Capture Sites near the Project Action Areas.

Borrow Pit Location		Sightings near Action Areas	Impacts to FFS Pond Buffers and HMU (Acres)			
BP Code	NRMU	FFS (mi)	HMU	Pond Code	Primary	Secondary
BP-A1.4-01	A1.4	5.08				
BP-A16.1-01	A16.1	1.37				
BP-A16.2-01	A16.2	2.36				
BP-A17.1-01	A17.1	1.17				
BP-A3.2-01	A3.2	1.48				
BP-A5.2-01	A5.2	1.60	1.84			
BP-B1.3-01	B1.3	1.32				
BP-B15.4-01	B15.4	8.39	0.14			
BP-B16.1-01	B16.1	7.16	1.95			
BP-B17.2-01	B17.2	4.70				
BP-B18.2-01	B18.2	2.64				
BP-B19.2-01	B19.2	1.80				
BP-B20.2-01	B20.2	0.66	8.81			
BP-B24.4-01	B24.4	3.73				
BP-B8.1-01	B8.1	2.78				
BP-B8.3-01	B8.3	2.99	0.18			
BP-BEQA2-01	BEQA2	2.50				
BP-C1.3-01	C1.3	7.39				
BP-C1.5-01	C1.5	7.55				
BP-C11.2-01	C11.2	3.00	1.06			
BP-C15.2-01	C15.2	5.04				
BP-C16.4-01	C16.4	6.04				
BP-C18.1-01	C18.1	5.48				
BP-C18.6-01	C18.6	5.50				
BP-C7.4-01	C7.4	2.84				
BP-C9.1-01	C9.1	5.56				
BP-C9.3-01	C9.3	3.79				
BP-D1.1-01	D1.1	3.83				
BP-D1.3-01	D1.3	4.08				
BP-D1.3-02	D1.3	3.96				
BP-D12.1-01	D12.1	1.00		D12.1-01		2.88
BP-D14.1-01	D14.1	2.79				
BP-E11.6-01	E11.6	0.27				
BP-E12.3-01	E12.3	1.79				
BP-E21.3-01	E21.3	5.66				
BP-E22.4-01	E22.4	4.26				
BP-E3.4-01	E3.4	1.95				
BP-E4.2-01	E4.2	2.20				
BP-E4.3-01	E4.3	3.01				
BP-E7.3-01	E7.3	1.14				
BP-E7.4-01	E7.4	1.45				
BP-E8.3-01	E8.3	2.54				
BP-F10.1-01	F10.1	2.77				
BP-F11.1-01	F11.1	2.63				
BP-F15.1-01	F15.1	1.13				
BP-F15.4-01	F15.4	1.50				
BP-F17.1-01	F17.1	4.14				
BP-F7.2-01	F7.2	0.38	0.27			

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The FSGA/HAAF Forestry Branch conducts more than 200 prescribed burns per year on FSGA for the purpose of ecosystem management, which includes reducing the potential for wildfires. On average, the installation burns 115,000 acres per year on FSGA. No prescribed burns are conducted on HAAF, as this property is surrounded by the city of Savannah and would pose a safety hazard to the city and the main airfield located in the center of HAAF. The composition of the forest at HAAF actually limits the potential for wildfire ignition, as it consists predominantly of a mature, hardwood, closed canopy structure, not pines. This reduces the potential for wildfires, as the closed canopy blocks sunlight from reaching the forest floor, allowing the hardwood leaf litter to maintain a higher fuel moisture content. This minimizes the potential for forest floor fuels to ignite and cause wildfires.

In 2019, an U.S. Army Installation Management Command (IMCOM) Wildfire Risk Assessment (WRA) was conducted for FSGA that utilized historical data, current conditions, and computer modeling for the purpose of identifying current and future wildfire potential for this region, including on-Post and off-Post data from 2007-2014. Climate can influence fire behavior by (1) affecting the moisture content of the fuels based on the humidity in the air (relative humidity, RH), (2) the amount of sunlight available to dry the fuels, (3) wind speed), and (4) wind direction. Fire in southern fuels burn poorly above 60% RH (Figure C-1, top left) (WFSC, 2019). Although the mean RH across all hours and all months at FSGA is 75% - typically above the ideal burning conditions – monthly minimum RH often falls within the range that is needed to support fires.

Temperatures in the region peak in the summer months – June through August - with highs that can approach 100°F (Figure C-1). These months also have an increased monthly rainfall (Figure C-1) and an associated increase in minimum RH. Historically, installation records identify the greatest threat from wildfires to be March-May and October-November, when the average rainfall is lower, RH ranges between 40-60%, and temperatures still reach mid 80's to 90 degrees. The likelihood of a large wildfire in the summer is low unless severe drought conditions persist. However, if fuels dry during the day, temperatures climb to 90-100, and RH drops below 60% in the late evening, wildfires are still possible during the summer months (WFSC, 2019).

FSGA Forestry Branch utilizes three means to limit the extent of wildfires: firebreaks, early detection, and fuel reduction via prescribed burning. The firebreak system primarily parallels public roads and encompasses ranges, where fires often start. Most firebreaks are 6-8 feet wide, but in some cases, they are wider, particularly along the installation's boundaries. Firebreaks are maintained with a harrow or fire plow, and most firebreak maintenance is in the fall. Firebreaks paralleling public roads are generally about 100 yards from roads and act to keep smoke from obscuring driver vision during prescribed burning operations. In many cases tank trails along highways act as firebreaks. Firebreak maintenance is accomplished by the Forestry Branch and is funded from Operations and Maintenance funds on ranges and from forestry funds in areas where commercial forestry is the primary objective of forest management. Reported fires are responded to in various ways. The Forestry Branch suppresses some fires immediately if they are near sensitive areas, while allowing other fires to burn out naturally ("let burn"), sometimes enhancing them with more ignition to either connect the fire with an already burned-out area or one that is scheduled for a burn in the near future. Soldiers often put out small fires without Forestry assistance, following coordination with Range Division. Environmental Compliance Officers (ECO) are embedded within every military unit and are trained how to respond to and report wildfires. The procedures to report a wildfire are located in the Post Range Guide and the Sustainable Range Field Card, which is given to every ECO during their ECO training, and which is to be brought with that ECO into the field during a training event. Soldiers report all wildfires to the Range Division and the Forestry Branch is notified when they determine the wildfire is threatening the safety of people/property or is interrupting military training.

Severe Weather. Severe weather encompasses a variety of meteorological events; these events produce hazardous conditions, such as thunderstorms, damaging winds, tornadoes, large hail, flooding and flash

flooding, and winter storms associated with freezing rain, sleet, snow, and strong winds. The intensity of weather events may be influenced by other climate hazards, such as heat, which result si n warmer temperatures and increased precipitation. The DCAT identifies the following indicators for severe weather: hurricane frequency, hurricane maximum average precipitation, tornado frequency, hurricane wind > 50 knots, wildland urban interface, ice storm occurrence, ice jam occurrence, and historical drought frequency.

The Southeast's climate has been warming since the mid-20th century. Both average daily minimum temperatures and average daily maximum temperatures are increasing. For example, average daily minimums are three times the rate of average daily maximums. Additionally, over the past 25 years, rates of precipitation have been higher than ever. Between the 1990s to the 2010s, however, the number of days with 3 or more inches of precipitation has not steadily increased. The 1990 decade ranks first for highest number of events, followed by the 2010 decade, and then the 2000 decade. While these model outputs diverge across the emissions scenarios, they point to a generally warming climate; this climate introduces an atmospheric instability that can facilitate volatile weather, such as more frequent and intense severe thunderstorms (i.e., hail, lightning and extreme wind). Hurricane season typically occurs between June and November and can result in a range of weather, including tropical disturbances, tropical depressions, tropical storms, hurricanes, and major hurricanes. Fort Stewart/Hunter Army Airfield use the hurricane condition (HURCON) alert scale to evaluate hurricane threat and response. During a hurricane or other severe weather event, Soldiers and their Families are required to evacuate once an order has been issued; however, Soldiers who are deemed mission-essential personnel are not authorized to leave.[6] Soldiers will be compensated for vehicle mileage, per diem and lodging during an emergency evacuation.[6] In the event of an evacuation, it may be up to 10 days before return announcements are made and everyone is allowed to come home. Fort Stewart/Hunter Army Airfield experiences severe thunderstorms, hail, lightning, tornadoes, and hurricanes. Winter weather is also a concern; ice and snow completely shut down the Installation.

Riverine and Coastal Flooding. Global sea level rise is a direct effect of climate change, resulting from a combination of thermal expansion of warming ocean waters and the addition of water mass into the ocean, largely associated with the loss of ice from glaciers and ice sheets (Sweet et al, 2022). Congress has recognized the need to consider future trends in sea level rise and coastal flooding and now requires a National Climate Assessment every four years to evaluate ocean measurements. This requirement was enacted by the Global Change Research Act and provides scenarios to help communities plan for events pertaining to sea level rise/coastal flooding in the future. Currently, there is no coordinated, interagency effort in the U.S. to identify an agreed-upon global average for sea level rise estimates; however, according to National Oceanic and Atmospheric Administration (NOAA), identifying these estimates is an important step in assessing coastal impacts and vulnerabilities. NOAA estimates that the global sea level will rise between eight inches and 6.6 feet by 2100. Higher sea levels amplify the impacts of storm surge, high tides, coastal erosion, and wetland loss, even absent of changes in storm frequency and intensity (Sweet et al, 2022). Coastal areas in the Study Area also feed directly into riverine areas due to the presence of the Atlantic Ocean along the coast of Georgia.

HAAF lies approximately 25 miles from the Atlantic Ocean and is subject to occasion coastal flooding. FSGA is also subject to coastal flooding, although less often, as its eastern boundary is 65 miles away from the Atlantic Ocean. Hurricanes are common in the area, the most recent of which is Hurricane Matthew, which struck the Southeast coast of the United States in 2018. Although it downgraded to a Category 1 hurricane by the time it made landfall in Savannah, the heavy rain and winds (60-100mph) associated with this system scattered trees and power lines, created storm surges of two feet and five feet (some locations as high as eight feet along the coast), and resulted in widespread power outages and damage to homes and other infrastructure. Strong winds with these coastal storms are some of the primary causes of damage to electric networks and buildings, especially to utility distribution systems. Although most wind-related damage is aboveground, there is a potential for strong winds to topple a tree, causing the tree's root system

to pull up and damage buried cables and pipes. The most common consequences of these hazards include fallen and uprooted trees and/or tree limbs that down power lines or block areas of traffic.

There are extensive riverine systems in the Study Area. The Little Ogeechee River forms the southwestern boundary of HAAF and drains most of the installation, although the Savannah River and the Atlantic Ocean both lie just a few miles further to the west. Due to the large area of impervious surface associated with the airfield at its center, large volumes of runoff are directed to the Little Ogeechee salt marsh/river system to the south. The Canoochee River bisects FSGA, merging with the Ogeechee River about 35 miles inland from Ossabaw Sound. Although most of the post is drained by the Canoochee, part of the northeast quadrant of the installation drains directly into the Ogeechee, and the southwestern quadrant is drained by the Altamaha River. FSGA contains 98,000 acres of wetlands and 120,000 acres of the 100-year floodplain, and HAAF contains 1,400 acres of wetlands and 1,400 acres of the 100-year floodplain. This extensive surface water network provides ample opportunities for riverine flooding. Flood waters can result in substantial damage to buildings and infrastructure and can shut down power to utility systems vital to the proper functioning of utility systems on the installation. For example, wastewater treatment plants in the vicinity of surface water sources are more vulnerable to flooding during extreme weather events. Communications switches and backup generators can also be at risk, especially if they are in a basement or low-lying area. For electric power systems, flood waters can damage electrical equipment such as meters, disconnect switches, and transformers. Flooded roadways can cause ingress and egress problems, causing delays to repair and recovery efforts if there are infrastructure outages.

The NWS-CPC-Charleston uses river forecast models to estimate the amount/level of water flowing through the rivers in the U.S. and these models estimate the amount of runoff a precipitation event generates, computes how the water will move downstream, and then predicts the flow of water at a given location throughout the forecast period (every six hours, three-to-five-day time-period in many locations). As the precipitation event unfolds and actual data is available, the forecasted data is replaced with actual data observed during the precipitation event. In addition to precipitation, some other factors the NWS River Models account for are snowmelt, base flow/groundwater, reservoir operations, and routed water from upstream. The forecasts are sent to the NWS Weather Forecast Offices, such as in Charleston, who in turn issue flood watches or warnings to the public. As of May 2018, all 13 NWS River Forecast Centers were routinely generating, consistently issuing, and disseminating information onto the Advanced Hydrologic Prediction Service webpages.

G-2. Protected Species on FSGA/HAAF

Red-cockaded Woodpecker (RCW). The RCW is federally listed as endangered by the USFWS due to habitat loss. The RCW is a non-migratory, territorial, cooperative breeder, and form social groups that consist of either a solitary territorial male, a mated pair, or a pair with their helpers (usually male offspring from previous years). RCWs live in clusters, defined as the area which contains a collection of cavity starts and cavities (roost, nest, and inactive) habitually used by a group, plus a 200-foot buffer zone. There may be numerous cavities within a cluster, but there is only 1 breeding pair per group. The RCW differs from other woodpeckers in that it excavates cavities for roosting and nesting in live pine trees rather than dead ones. The quality of RCW foraging habitat varies depending upon vegetation in the understory, weather, soils, season, and fire frequency and intensity, with the highest populations of RCWs occurring in areas with active prescribed burning programs that control hardwoods (frequency every 2-3 years).

Fort Stewart contains Georgia's largest remaining forest of longleaf pine, which is essential habitat for the RCW, and has surpassed its recovery goal of 350 potential breeding groups. It has enough suitable or potentially suitable habitat to support 657 RCW clusters and regularly contributes RCWs to a regional cooperative translocation program, through which adult RCWs are translocated from FSGA to other populations that are not yet fully recovered. The RCW is not managed on HAAF due to the lack of any sitings of this species on HAAF, the installation's small size (and associated amount of suitable habitat), and the inability to conduct specific activities required for the management of this species (cannot conduct prescribed burns due to adjacency to City of Savannah).

Wood Stork. The wood stork (WS) is listed as threatened by the USFWS due to habitat loss. The WS use a variety of freshwater and estuaries/wetlands for nesting, feeding, and roosting sites, and their nesting sites are located either in standing water or on islands surrounded by broad expanses of open water. Freshwater breeding sites may be used for many years and are most often dominated by cypress and gum species (*Nyssa*). The WS may feed in a wide variety of calm, shallow wetlands where the water column is uncluttered by dense patches of vegetation. Roosting sites may be used for a period of years or days, depending on the availability of food. Based on all available data, WS are not known to nest on FSGA; however, they are known to occasionally forage on the installation in shallow wetlands and swamps as they dry out during the summer months. There are no known WS on HAAF, although isolated sightings have occurred on HAAF when water levels were sufficient to concentrate their prey.

Eastern Indigo Snake (EIS). The EIS is federally listed as threatened by the USFWS due to habitat loss and its collection for the pet trade. It is a large, robust snake, and is iridescent bluish black in color, except for the chin and sides of the head, which may be red, coral, or white. Activity and surface movements are greatest from spring-fall, with individuals having territories of up to 125-250 acres or more during this time. During the winter months individuals may appear on the surface to bask, but seldom wander far from a favored retreat. This species searches actively for prey, and often forages along the margins of wetlands. The eastern indigo snake breeds fall-late winter and lays its eggs (average nine per clutch) in gopher tortoise burrows, stump holes or other underground burrows. Suitable habitat on FSGA has been designated for the EIS, but they are not known to occur on HAAF.

Gopher Tortoise. The Gopher Tortoise is not federally protected by the USFWS but is State threatened in much of its range. It is also Georgia's official state reptile. It is a large land tortoise that inhabits well-drained, sandy soils that are associated with fire-maintained longleaf pine habitats and dry oak sandhill habitats. Gopher tortoises are long-lived (over 50 years in the wild) herbivores, grazing opportunistically on low-growing plants like wiregrass and gopher apple. Gopher tortoises dig deep burrows for shelter and protection, often identifiable by the mound of excavated sand at the burrow entrance (called the burrow apron). These burrows are used by hundreds of animal species, many of which are federally, or state,

protected, such as the EIS. The importance of their burrows in providing protection from extreme temperatures, drought, and fire in the sandy habitats where it is found makes the Gopher tortoise a keystone species – critically important to the health of the ecosystem. In cooperation with the Gopher Tortoise Candidate Conservation Agreement (GTCCA), Fort Stewart conducts annual surveys for this species and their burrows. The installation is divided into five zones for purposes of the Gopher tortoise, with one zone surveyed each year and a base-wide population analysis performed every 5 years.

Eastern Black Rail (EBR). The EBRail is federally listed as threatened by the USFWS and is a year-round resident along the GA coastline, where it prefers salt, brackish, and freshwater marshes. Adults are generally pale to blackish gray, with a small blackish bill and bright red eyes. The wings are dark gray with small white spots. Little is known about EBR during migration, including migratory stopover habitat, but individuals seem to appear more frequently in wet prairies, wet meadows, or hay fields during migration than during the breeding and wintering seasons. Foraging for small aquatic and terrestrial invertebrates (and perhaps seeds) most likely occurs on or near the edges of stands of emerging vegetation, both above and below the high-water line. EBR are not known to occur on FSGA or HAAF but could transition through the installation without being seen or heard.

***Frosted Flatwoods Salamander (FFS)*.** The FFS is listed as threatened by the USFWS because of loss and degradation of native mesic flatwoods habitat and isolated ephemeral wetlands used for breeding. The flatwoods salamander has 2 life stages that occupy 2 distinct habitats. Adult flatwoods salamanders are terrestrial, and the larvae are aquatic. Adults inhabit mesic, fire-maintained pine flatwoods and savannas that surround ephemeral pond breeding sites. Flatwoods habitats where this species occurs may be described as flat to gently rolling with an open-canopied overstory of scattered longleaf and slash pine. Accordingly, their habitat is widespread on FSGA and includes many areas not heavily used or impacted by mechanized training activities. Salamander breeding sites are small ponds, often less than one acre, which receive surface water runoff from adjacent pine habitat. Terrestrial adult FFS inhabit low areas in pine flatwoods, where they live in underground burrows that they excavate, or in crayfish tunnels. FSGA have been found more than one mile from their breeding ponds; accordingly, once a potential breeding pool is identified, a protective buffer of 492 yards from its edge is recommended by USFWS and implemented by FSGA/HAAF. Fort Stewart has identified potential breeding ponds and ranked them according to their suitability as FFS breeding sites, including establishing protective buffers. The primary conservation goal for the flatwoods salamander is to manage sites supporting salamander populations or potential salamander habitat to encourage long-term survival of the species on the installation. Suitable habitat for this species is widespread on the installation and has been promoted through past and current management practices, especially prescribed burning. This habitat on FSGA has been designated FFS Habitat Management Unit (HMU). No FFS are known to occur on HAAF.

Atlantic and Shortnose Sturgeon. The Atlantic and shortnose sturgeons are federally listed as endangered by the USFWS. These fish have long bodies and are distinguished from other sturgeon by their wide mouths and individual coloration. These fish are "freshwater amphidromous," where adults spawn in freshwater, then remain in either the river's estuary or in the river itself, and only periodically visit saltwater at the river's mouth, to include the Canoochee River system in GA. In the Ogeechee River, sturgeon have been located approximately eight kilometers upstream of the installation's northern boundary. Although regions upriver contain sufficient spawning and overwintering habitats, sturgeon have not been found there. Habitat degradation by eutrophication of the river, reduction or absence of thermal refuges, and/or bycatch mortalities in the shad fishery are the three most likely limiting factors in the Ogeechee River. The Canoochee River is too shallow to provide suitable summer thermal refuges but may be deep enough to allow the fish passage on spawning migrations during fall and winter. Aquatic habitats of a portion of the Ogeechee River were designated as critical habitat for the Atlantic Sturgeon; however, none are known to occur in any of the river or stream systems on HAAF.

Smooth Coneflower. The smooth coneflower is a perennial herb in the Aster family that was federally listed as endangered by the USFWS in 1992, with a smooth stem and large pink or purple petals. The plant loses all its leaves in the fall but remains alive underground until the leaves reemerge in March. The plant grows up to 3 feet tall and depends on periodic fire to reduce competition for sunlight. Fort Stewart has a single population of the smooth coneflower with 45 individuals in the northwestern corner of the installation, and none are known to occur on HAAF. It is found in only two or three counties in Georgia, with scattered populations in the Carolinas and Virginia.

West Indian Manatee (*WIM)*. *The WIM is listed as threatened by the USFWS. Often called sea cows, these* large, aquatic mammals forage on aquatic plants and spend most of their time underwater, returning to the surface to breathe, often remaining just below the surface with only their snout exposed. They have large, heavy, seal-shaped bodies with paired flippers, and a round, paddle-shaped tail. The WIM prefer shallow, slow-moving waters of rivers, estuaries, saltwater bays, canals, and coastal areas, and they can move easily between freshwater and saltwater but prefer freshwater. They have no natural predators, and the primary threats to manatee survival are collisions with boats and loss of warm water springs that provide wintering habitat. Manatees have been observed on FSGA in the lower Canoochee River, upstream from its confluence with the Ogeechee River. However, there is no critical habitat identified for the manatee on FSGA or HAAF, and due to the distance between the proposed action areas and documented manatee sightings, this project will not affect the West Indian manatee.

Bald Eagle. The Bald eagle is listed as not listed by the USFWS but is protected by the Bald and Golden Eagle Act. It is a large, predatory raptor seen near all types of water habitats. These birds are opportunistic predators, and when fish aren't available, will eat many prey items, to include scavenging on carrion. Breeding pairs build a platform nest in the top of a large tree and return to the same nest as long as it is suitable, and egg laying generally occurs in the winter months here. There are two known bald eagle nests on FSGA, but there is no critical habitat identified for the bald eagle on the installation. No Bald eagles are known to occur on HAAF, and due to the distance between the proposed action areas and documented eagle nests, this project will not affect the bald eagle.

G-3. Socioeconomic Environment on FSGA/HAAF, GA.

As discussed in Section 3.4.7 of the PEA, in 2021, FSGA/HAAF commissioned an Economic Impact and Contribution Analysis (EICA) through the Center for Business Analytics and Economic Research (CBAER), a component of the Business Innovation Group at Georgia Southern University. The study is a comprehensive analysis of the economic contribution the installation makes to the Savannah-Hinesville-Statesboro Combined Statistical Area (SHSCSA), which includes Bulloch, Bryan, Effingham, Chatham, Liberty, Long and Wayne Counties and includes the entirety of FSGA and HAAF. Although part of FSGA's northwestern boundary lies within Tattnall County, it was not included in this specific economic analysis and no explanation was provided for it not being included in the 2021 EICA; however, economic impacts are anticipated to be similar to those in the other counties discussed in this EICA.

Population. The SHSCSA is the second largest population center in Georgia, outside of Atlanta and has experienced consistent growth over the past 20 plus years (Figure C-2). The largest urban center in the immediate vicinity of Fort Stewart is Hinesville, located just south of the installation's cantonment area in Liberty County. Other substantial municipalities outside the boundary include Richmond Hill (southeast, in Chatham County), Glennville (southwest, in Tattnall County), and Pembroke (North, in Bryan County), as well as several smaller communities through the multi-county area. HAAF is surrounded on its north, east, and south by the City of Savannah, the largest urban center in its vicinity, and the smaller communities of Pooler (northwest) and Garden City (north), all located in Chatham County. As of 2019, there were 708,061 people living in the AHSCS (CBAER, 2021).

Data collected in 2019 by the U.S. Census Bureau and CRC show growth trends increasing in Bryan, Chatham, Effingham, and Long counties and decreasing in Evans, Liberty, and Tattnall counties (Figure C-2) (CRC, 2019). Many persons who work on FSGA reside in communities located within these counties. Although Chatham County has experienced more modest growth by percentage, the total number of persons added since 2010 exceeds Bryan and Long Counties combined. Growth in Chatham County is partially attributable to the City of Savannah, which is the fifth overall largest city in Georgia; however, many other small-to-midsize cities in the area, such as Pooler and Richmond Hill, have seen considerably high growth rates during the last few years. Growth trends are anticipated to continue in a study conducted by the Coastal Regional Commission in 2020, based on consistent existing and anticipated future economic opportunities in the region (CRC, 2020).

Figure G-2: Population Growth in the Study Area

Total Population					
Geography	2000	2010	2019	2030 (Est)	2040 (Est)
Bryan County	23,417	30,233	37,063	51,025	61,808
Bulloch County	55,983	70,217	76,120	93,233	105,549
Camden County	43,664	50,513	53,231	59,056	62,037
Chatham County	232,048	265,128	288,496	315,524	335,211
Effingham County	37,535	52,250	60,477	85,054	103,498
Glynn County	67,568	79,626	84,470	96,110	98,151
Liberty County	61,610	63,453	61,349	62,286	61,727
Long County	10,304	14,464	18,692	23,327	26,607
McIntosh County	10,847	14,333	14,174	17,234	17,361
Screven County	15,374	14,593	13,989	14,095	13,810
Region	558,350	654,810	708,061	802,849	871,949
Georgia	8,186,453	9,687,653	10,617,423	11,979,787	13,006,562

Source: U.S. Census Bureau Decennial Census, American Community Survey, GA Governor's Office of Planning and Budget

There are an estimated 21,000 Soldiers and 37,000 associated Family members residing on and off-Post in the overall SHSCSA, and an additional 3,200 unaccompanied Soldiers residing on-Post. Approximately 5,000 military retirees and their dependents live within a 40-mile radius of FSGA/HAAF, and an additional 65,000 military retirees/dependents live outside that 40-mile radius, many of whom make use of the facilities on-Post. Population density (per square mile) tends to be highest around Savannah and Hinesville, and HAAF and FSGA by association. No regional data was available for percentage male or female in the SHSCSA; however, state data for 2019 was 51% female and 49% male and is anticipated to be commensurate in the Study Area (CBAER, 2021).

Employment. In 2019, the SHSCSA was identified as a $27.8 billion component of a $616 billion state economy (GA) with 358,721 individuals in the SHSCSA workforce (Figure C-3). In 2021, the unemployment rate in the SHSCSA was 2.4 percent, less than that of the state of Georgia at 3.1 percent for the same period, indicating a strong local economy (EIA, 2021). The EISA indicates that the installation supports a combined 39,293 jobs within the region, which includes 28,615 individuals whose work is directly linked to the installation and the 10,678 people who are employed by businesses that provide products or services that support base operations. However, the most significant single contributing factor to the regional economy was determined to be personnel, including active-duty Soldiers, Civilian employees, and civilian contractors, accounting for approximately 14.9 percent of the total employment opportunities in the region (CBAER, 2021).

Figure G-3: Total Persons in Work Force.

Total in Work Force (16 and older)	
Geography	**Total in Labor Force**
Bryan County	18,689
Bulloch County	37,345
Camden County	27,104
Chatham County	152,956
Effingham County	30,323
Glynn County	41,073
Liberty County	30,546
Long County	8,165
McIntosh County	6,524
Screven County	5,996
Region	358,721

Source: American Community Survey 2015-2019

In 2019 alone, FSGA/HAAF contributed $1.27 billion in military salaries, $210 million in Civilian salaries, and $164 million in retiree's pensions; in addition, $31 million dollars was spent on construction projects in the region (CBAER, 2021). During federal fiscal year 2018, total defense spending in Georgia was 13th in the nation, based on contractor and payroll spending, and based on work done by defense contractors and defense personnel. Statewide contract figures included funds spent on supplies and equipment (53%), services (38%), research and development (5%), and construction (4%). Personnel payroll spending included active duty (52%), Civilian employees (27%), National Guard (11%), and reserves (10%). About two-thirds of these funds were spent on Army personnel due to the location of three military installations in Georgia. There are also 46 active farms in SHSCSA, comprising just over 6,000 total acres of land. Top crop items by acre included forage-land used for hay, silage, and greenchop; corn for grain; soybeans; pecans; and cut Christmas trees. In 2019, the median household income was $50,411 in Liberty County and $57,739 and Chatham County, which was not far from the Georgia mean household income of $56,000.

Housing. Military personnel stationed on FSGA/HAAF live in on-Post AFHAs and military barracks, as well as in off-Post housing. There are 3,268 Family housing units, 334 unaccompanied housing units, and 6,177 barracks spaces (FSGA/HAAF, 2022). In 2003, FSGA transferred responsibility for providing AFHAs services and ancillary supporting facilities, to include unaccompanied personnel housing (barracks) to a private entity, in accordance with the Residential Communities Initiative (RCI). Accordingly, the Army's RCI partner, Balfour Beatty Communities, has all ownership, maintenance, and repair responsibilities for these properties. Both married Soldiers and single Soldiers with Family members who are enrolled in the Defense Enrollment Eligibility Reporting System (DEERS) are authorized a Basic

Allowance for Housing (BAH) based on their pay grade and is issued monthly to cover the cost of housing (FSGA/HAAF, 2022).

As of 2019, the median housing value in Liberty County was $124,500 and the median housing value for Chatham County was $194,500, both lower than the state of Georgia's median value of $306,113. The larger value of homes in Chatham County is likely due to the presence of the city of Savannah within Chatham County, which drives up the cost of housing in that market. This is not the case in Liberty County, in which the predominant community is Hinesville, which is not the size or composition of Savannah. Age of housing available in the SHSCSA tends to be newer and trends at 21% constructed between 2000-2009, 20% constructed between 1990-1999, 15% constructed between 1980-1989, and 12% constructed between 1970-1979 (CBAER, 2021). Newer housing tends to require less upkeep for the renter or owner. As of 2019, there were more units rented (19,768) county-wide than properties whose owners reside in the property as their primary residence (19,092). Due to continuous transition of military personnel arriving to the community and leaving, it is often easier for military Families to rent property as opposed to purchasing a home. Mean rent in the region is $1009, which is in line with the state of Georgia median rent of $1006 (CBAER, 2021).

Schools. The U.S. Department of Education provides federal impact aid to school districts that have federal lands within their jurisdiction. This federal impact aid is authorized under Public Law 103-382 as payment in lieu of taxes that would have been paid if the land was not held by the federal government. School districts receive federal funding for each student whose parent or parents live on or work on federal property. The amount of federal aid a school district receives is dependent on the number of "federal" students the district supports in relation to the total district student population. Schools receive more funding for students whose parents both live and work on federal property, although total funding varies annually according to congressional appropriations for the program. Funding has ranged from $200 to $3,000 per pupil. There are elementary and middle schools located on FSGA and HAAF, as well as Child Development Centers (CDCs) and these facilities are utilized by the Post's pre-school aged children. High-school-aged children on-Post attend Liberty and Chatham County public school district schools or private schools within the Study Area.

The FSGA Army Education Centers provide adult and continuing education services to active-duty Soldiers and their Family members, Army Civilians, reserve personnel, and retired personnel. The center provides counseling, an English as a second language program, high school completion preparation, on-duty performance enhancement programs, and testing and professional development programs. Associate's, Bachelor's, and Master's degrees programs are offered on-Post through a consortium of area colleges and universities offering a variety of degree programs. Armstrong Atlantic State University, Coastal Georgia Community College, Georgia Southern University, East Georgia College, and Savannah State University are the institutions that compose the Liberty Center. There are a number of universities and colleges in the ROI and nearby Savannah, including the Brewton-Parker College Hinesville campus, St. Leo College in Savannah, the Savannah College of Art and Design, South College in Savannah, Altamaha Technical Institute in Jessup in Wayne County, and the Savannah Technical Institute.

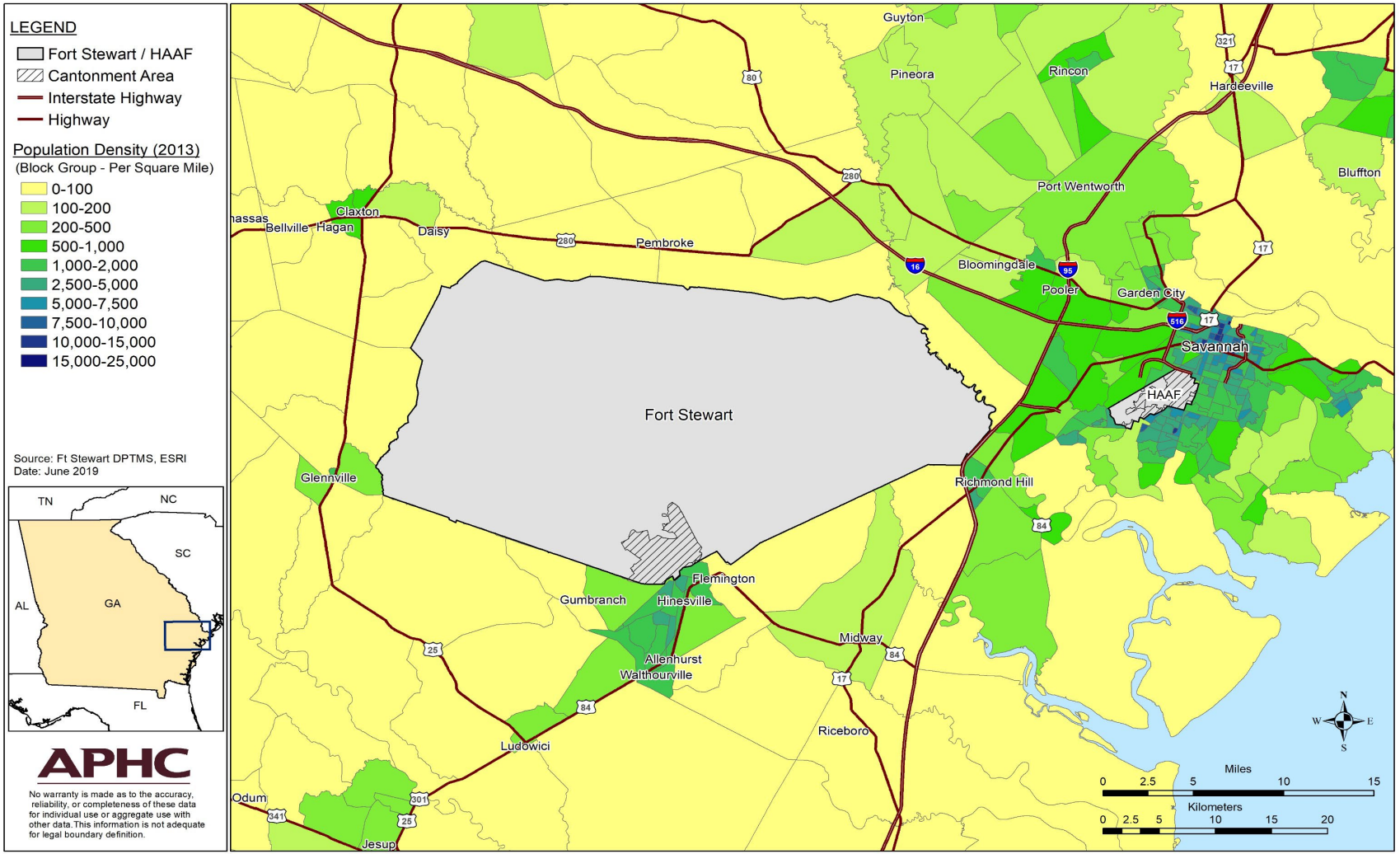

Figure G-4: Population Density in the Study Area (APHC, 2020).

Environmental Justice (EJ). On February 11, 1994, President Clinton issued EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*. The EO is designed to focus the attention of federal agencies on the human health and environmental conditions in minority communities and low-income communities. EJ analyses are performed to identify the disproportionate placement of high and adverse environmental or health effects from proposed federal actions on minority or low-income populations and to identify alternatives that could mitigate these effects. Title VI of the Civil Rights Act of 1964 states that "no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Title VI further states that EJ "is the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."

Federal agencies are legally mandated to identify and address disproportionally high or adverse human health or environmental impacts of programs, policies, and activities on minority or low-income populations. EJ is an important aspect of the transportation planning process and must be addressed, specifically as it relates to public involvement, project funding priorities, and disproportionate impacts to protected populations. Through a thoughtful NEPA analysis, the Army seeks to avoid, minimize, or otherwise mitigate any disproportionately high and/or adverse environmental effect from its proposed action, which may include social and/or economic effects on minority and low-income populations. This process can be assisted via a full and fair participation by all potentially affected communities in the NEPA process.

Race and Ethnicity. To assess the potential impacts to EJ communities, FSGA/HAAF is utilizing the *50% Analysis* in combination with the *Meaningfully Greater Analysis (MGA)*. The *50% Analysis* is used in areas where more than half the residents and/or potentially affected persons are defined as minorities. This analysis is often used in combination with the MGA, where more people in the affected area (such as 10-20%) are minorities than in the general population or in other areas used as a reference area (such as the state). Even if a *Fifty-Percent Analysis* shows a majority-minority population justifying an EJ analysis, conducting the *MGA* can add additional important information, as it could show a large difference between the affected community and the reference community and help ensure a meaningful analysis of potential impacts.

In 2020, the racial/ethnicity composition in the Study Area was 61% Caucasian/White and 39% persons of color (POC), where POC is defined as individuals who list their racial status as a race other than white alone and/or list their ethnicity as Hispanic or Latino (EJ, 2022) (Figure C-5). However, when examined on a county-by-county basis Liberty County (in which much of FSGA is located) is 45% Caucasian/White and 55% POC and Chatham County (in which all of HAAF is located) is 52% Caucasian/White and 48% POC. In 2022, utilization of the EPA EJ Screening Tool identified a racial/ethnicity composition of 50% Caucasian/White and 50% POC (FSGA, 2020; EJ, 2022; CRC, 2019).

Analysis of available materials and data did not identify EJ communities within the boundaries of FSGA or HAAF; however, EJ Communities have been identified within the Study Area adjacent to the installation and have been highlighted on Figures C-6 and C-7 for the purposes of this discussion. There is one MGA population located approximately three miles southeast of FSGA (Figure C-6) that is 76% POC, 8% unemployed, 9% less-than-high-school graduates, and 8% persons over the age of 64. Another MGM population is located to the north, west, and slightly east of HAAF (Figure C-7), and this community is 71% POC, 13% unemployed, 13% less-than-high-school graduates, and 17% over the age of 64.

Figure G-5: Race/Ethnicity in the Study Area.

Race/Ethnicity									
Geography	Total Pop	White	Black or African American	American Indian and Alaska Native	Asian Alone	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races	Hispanic/ Latino (Any Race)
Bryan County	37,063	77.0%	14.4%	0.4%	1.4%	0.1%	2.4%	4.3%	7.1%
Bulloch County	76,120	65.1%	27.9%	0.4%	1.3%	0.3%	1.5%	3.5%	4.0%
Camden County	53,231	73.0%	18.8%	0.7%	2.2%	0.1%	1.7%	3.5%	6.7%
Chatham County	288,496	52.7%	39.9%	0.3%	2.6%	0.1%	1.5%	2.9%	6.4%
Effingham County	60,477	81.6%	13.3%	0.2%	0.9%	0.0%	1.2%	2.8%	4.4%
Glynn County	84,470	68.5%	26.3%	0.4%	1.3%	0.1%	1.0%	2.4%	6.6%
Liberty County	61,349	45.8%	41.2%	0.5%	2.1%	0.5%	3.4%	6.6%	12.6%
Long County	18,692	63.9%	24.9%	0.2%	1.1%	0.4%	4.2%	5.3%	11.3%
McIntosh County	14,174	62.3%	35.5%	0.1%	1.3%	0.1%	0.0%	0.6%	0.3%
Screven County	**13,989**	55.6%	41.6%	0.2%	0.7%	0.0%	0.7%	1.1%	2.2%
Region	708,061	61.1%	31.4%	0.4%	1.9%	0.2%	1.7%	3.3%	6.5%

Source: American Community Survey 2019

Figure G-6: EJ-MGM Population Southeast of Fort Stewart, Georgia.

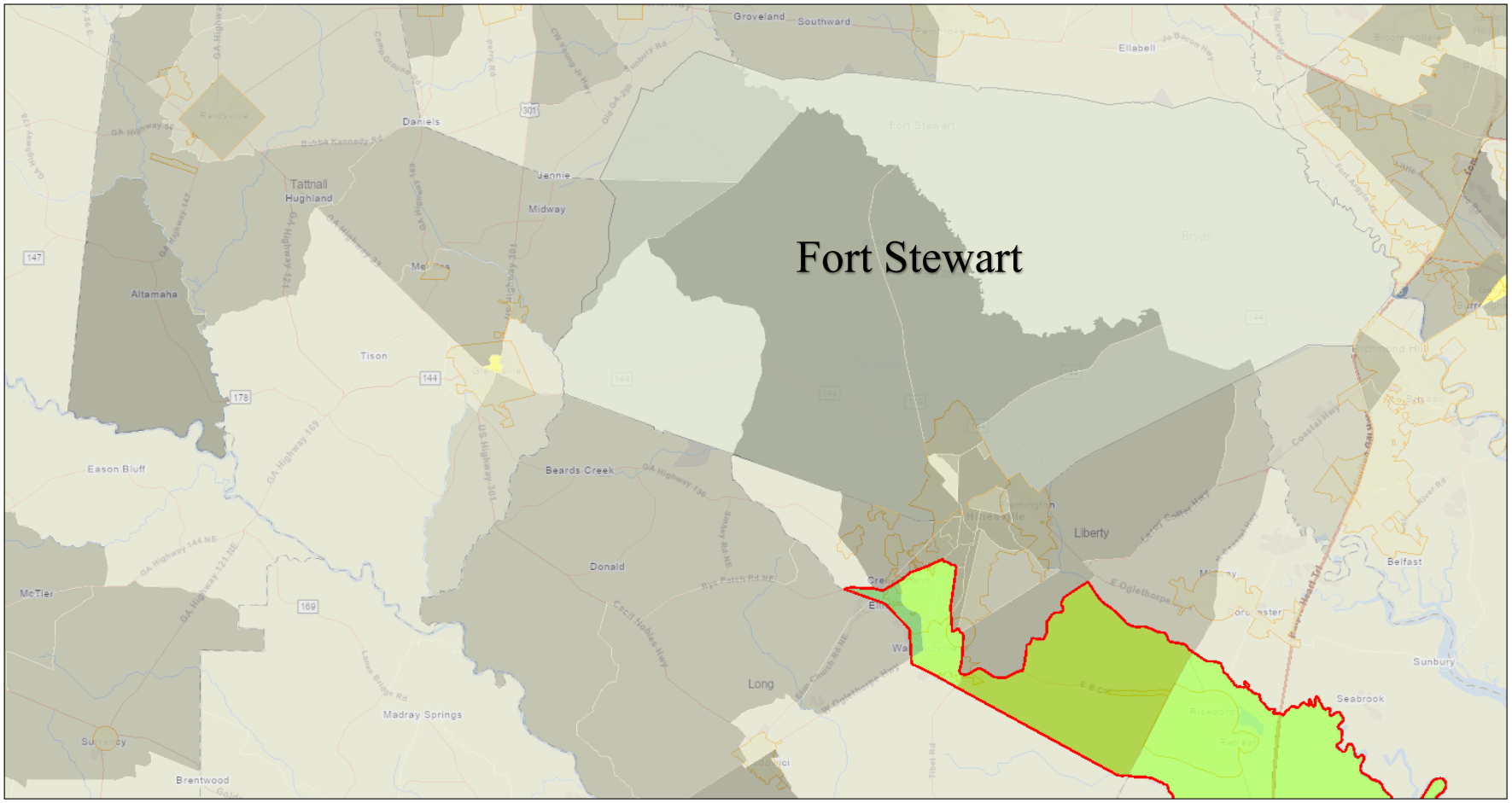

Figure G-7: EJ-MGM Population North of Hunter Army Airfield, Georgia

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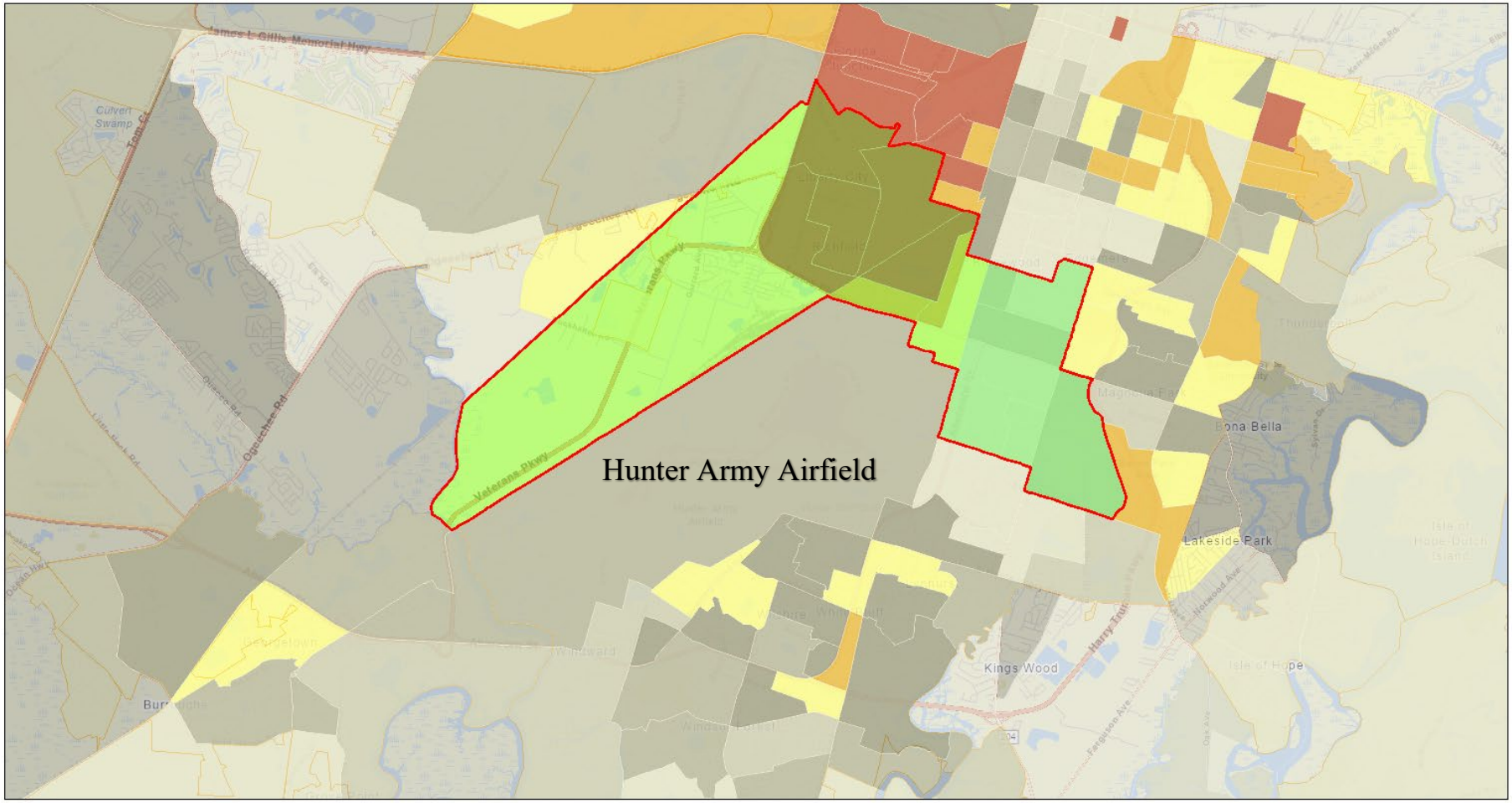

Provision for the Handicapped. The Americans with Disabilities Act (ADA) guarantees equal opportunity for individuals with disabilities in public accommodations, employment, transportation, state and local government services, and telecommunications. All actions on FSGA/HAAF, and the surrounding communities, occur in accordance with the ADA, unless there is a specific exclusion, such as (on FSGA/HAAF) for ranges and other areas where the disabled are not reasonably anticipated to be present.

Persons without Transportation. The Coastal Georgia Region contains the state's largest urbanized area (Savannah) that is located outside of the metropolitan Atlanta (CRC, 2020). The counties in this region consist of several cities and communities and three urbanized areas, Savannah in Chatham County, Brunswick in Glynn County, and Hinesville in Liberty County. The development of mobility options, connecting rural communities to urbanized areas, and properly addressing rural growth factors must occur to ensure public transportation service needs are met in rural Coastal Georgia. The time and/or distances involved for Georgia's rural coastal residents to reach services such as healthcare, education, retailers and other destinations that affect quality of life can be significant. This is especially true for the elderly, individuals with special needs, low-income families, and those with limited access to personal vehicles where public transportation is not available. The further development and improvement of rural public transportation services in Coastal Georgia is critical in addressing the rural region's population (CRC, 2020).

Based on the U.S. Census, 13.9 percent of Georgia residents between the ages of 5 and 64 have one or more disabilities; therefore, many of them rely heavily on transportation assistance in order to be a functioning member of society. For Coastal Georgia, the highest percentage of disabled persons is in the Study Area is Chatham County at 13.5%, followed by Liberty County at 13.4%. There is continued growth within the Coastal Region area and connectivity is necessary in order to provide support to major business centers. This requires planning by local governments to accommodate the needs of its citizens, particularly because rural communities are extended within the region (CRC, 2020).

A small percentage of the persons residing and/or working within the SHSCSA do not have access to vehicles, as shown in Figure C-8, ranging from 5.36% in Liberty County to 8.16% in Chatham County (CBAER, 2021). There is an existing public transportation network available to assist those without vehicles. The Liberty Transit System is a regional, urban, transportation service in the Hinesville/FSGA area, operating three fixed routes via a fleet of nine buses, each equipped with ADA compliant wheelchair lifts and tie downs, as well as bicycle racks for multimodal passengers. Curb-to-curb service is available, including a limited number of stops on FSGA. In the Savannah/HAAF area, similar services are provided by the Chatham County Area Transit System (Catch a CAT). Although it does not come onto HAAF itself, the CAT routes terminate adjacent to the installation's Access Control Point located at Montgomery Street (CAT, 2019). Hinesville, Savannah, and their neighboring communities are also investing in bicycle and pedestrian infrastructure to provide greater network connectivity in the event persons within transportation in the community prefer to bike or walk to their destination of choice.

Elderly. In 2019, the largest age group in the SHSCSA were those 65 and older, who made up 13.9% of the population, followed by those aged 20-24, at 8.4% of the population, and those aged 25-29 at 8.2%. This is consistent with the EJ Screen data from 2022, which identified 13% of the population in the EJ ROI as over 65 years or older. This is roughly comparable to the State of Georgia, in which roughly 14.7% are over the age of 65 (CBAER, 2021). In recent years, census reports that indicated that the population has been slowly growing older over the past five years, and this trend is projected to continue for at least the next 20 years; accordingly, this should be planned for at the local level as the aging population lives longer and requires services (U.S. Census, 2019). In the year 2030, an estimated one in six (17%) of Georgia residents will be at least 65 years of age of older. This portion of the population will require consistent transportation access to the services vital to their quality of life (CRC, 2020).

As indicated earlier, approximately 5,000 military retirees and their dependents live within a 40-mile radius of FSGA/HAAF, and an additional 65,000 military retirees/dependents live outside that 40-mile radius. Many of these retirees and their dependents make use of the facilities on-Post (medical clinics, physicians, pharmacies, physical therapy, etc.), Winn Army Community Hospital on FSGA, and the Veterans Administration facilities within the local community (FSGA, 2022).

Figure G-8: Households in the Study Area without Access to Vehicles.

Households without Vehicles			
Households without vehicles	**Total households**	**No vehicle**	**No vehicle %**
Bryan	13,048	631	4.84%
Bulloch	27,375	1,367	4.99%
Camden	19,338	854	4.42%
Chatham	108,568	8,861	8.16%
Effingham	21,172	605	2.86%
Glynn	34,119	2,480	7.27%
Liberty	23,485	1,258	5.36%
Long	5,695	204	3.58%
McIntosh	6,042	303	5.01%
Screven	5,098	473	9.28%
Source: American Community Survey 2015-2019			

Poverty, Help for the Homeless, and Protection of Children. There are several shelters and assistance programs in the SHSCSA for individuals and Families in need of temporary placement due to lack of fixed, regular income, or an adequate residence. A mixture of government and private funding supports these programs, to include the FSGA/HAAF Family Advocacy Program, which provides shelter and referral information in the Study Area. In 2019, approximately 16.3% of the population in the Study Area lived below the poverty line, slightly more than the state average, which was 15.1% at that time (CBAER, 2021; CRC, 2019). No discussion was provided for the decrease noted poverty numbers from 2017-2019; however, this region has a strong economy and diverse employment opportunities and that may contribute to the relatively lower and decreasing trend in poverty. Some residents in this region are on fixed incomes and receive assistance via Social Security, retirement, public assistance, and/or food stamps (CRC, 2019; FSGA, 2022).

In January 2020, the U.S. Department of Housing and Urban Development (HUD) reported that Georgia had an estimated 10,234 persons experiencing homelessness on any given day United States Interagency Council on Homelessness (USICH, 2022), higher than its immediate neighbors to the west (Alabama at 3,351), to the north (Tennessee at 7,256), and to the east (South Carolina at 4,207), but lower than its neighbor to the south (Florida at 27,487). SHSCSA data from 2019 indicated that 5,044 persons identified as homeless in the SHSCSA (Figure C-10, for numbers per county) (CBAER, 2021). Within the Study Area, the highest homeless rate was identified in Chatham County, with 4,641 persons identified as experiencing homelessness during that period.

Figure G-9: Poverty Levels in the Study Area.

Poverty Status: Percent Below Poverty Line				
Geography	2017	2018	2019	3-Year Change
Bryan County	14.1%	14.1%	12.4%	-6.8%
Bulloch County	30.4%	28.7%	26.4%	-11.3%
Camden County	12.7%	12.9%	15.5%	24.1%
Chatham County	17.3%	15.8%	15.1%	-11.9%
Effingham County	9.6%	8.6%	8.5%	-6.1%
Glynn County	19.2%	18.3%	18.1%	-4.3%
Liberty County	16.6%	16.8%	15.9%	-5.2%
Long County	20.0%	20.0%	18.9%	-1.4%
McIntosh County	22.6%	22.3%	22.5%	-1.6%
Screven County	22.6%	22.3%	22.5%	-1.6%
Average	17.8%	16.8%	16.3%	-7.3%
Georgia	16.9%	16.0%	15.1%	-9.0%

Source: American Community Survey 2015-2019

HAAF lies within Chatham County. The Chatham-Savannah Authority for the Homeless (CSAH) provides support for the Homeless Continuum of Care (CoC) in Chatham County and is led by a community board, although nonprofit agencies providing supportive services to homeless individuals and Families are also members of the Homeless CoC. Services offered include emergency shelter, supportive housing, food, clothing, health care, and case management. CSAH also writes and secures an annual HUD funding request for the CoC. The relatively higher cost of housing in the Chatham-Savannah area is identified as one reason homeless numbers are higher in this portion of the Study Area as compared to others (CSAH, 2022). More than 4,000 individuals' access CSAH services each year and the most recent point-in-time count identified more than 600 individuals living unsheltered, mostly in one of the several unregulated homeless camps throughout the county (CSAH, 2022). Walk-in resources in this portion of the Study Area for those in need of shelter include the Inner-City Night Shelter, Old Savannah City Mission, and the CSAH itself.

CSAH staff go into the community where individuals experiencing homelessness live and congregate to offer assistance, supplies, and referrals. Outreach occurs in homeless camps, under bridges, in abandoned buildings, and on the street. CSAH provides case management, referrals to supportive services, and rental assistance to residents living in housing units across the City of Savannah. The SCAH has initiated a Tiny House Project dedicated to reducing veteran homelessness in Chatham County. The project will provide 46 affordable, permanent homes and support services for veterans. The housing community, called The Cove at Dundee, also includes two clubhouses and a medical clinic. As of February 2022, 23 homes, one medical clinic, and one clubhouse have been built as a part of this project and all homes are occupied.

FSGA lies within portions of several counties; however, as Hinesville is the largest community within this portion of the Study Area, and it lies entirely within Liberty County, that will be the focus of this discussion. During 2019, there were 24 individuals identified as homeless in Liberty County. The City of Hinesville provides support for the homeless via a CoC, all of which is detailed in the City of Hinesville Consolidated

Plan (COH, 2014). The city established the Liberty County Homeless Coalition, a collaborative entity comprised of representatives from multiple agencies and nonprofits in the county. The Coalition serves as a referral agency that utilizes a central, coordinated assessment system that helps the community (service providers, agencies, churches and other organizations) to systematically assess the needs of persons seeking assistance, and link them with the appropriate resources. Additionally, the city formed a Homeless Prevention and Fair Housing Advisory Board for the purpose of collaboration and recommendations in homeless efforts (COH, 2014). Information regarding potential available services may also be obtained from the COH Homeless Prevention Office and these services are available to all citizens within the county, not only those within the COH (COH, 2022).

Hinesville has also implemented the Kirk Healing Center, a non-profit organization whose long-term goal is to construct a facility adequate to accommodate at least 100 single persons. The Center maintains facilities in Hinesville to provide transitional and emergency housing and food for single homeless people who are divorced, widowed, abandoned, at risk, and disadvantaged, with no job or employment experience. The Center presently has facilities with the capacity to separately accommodate single homeless women and single homeless men. Walk-in resources in this portion of the Study Area for those in need of shelter include Liberty County Manna House, United Way of Liberty County, and Liberty County Re-Entry Coalition in Liberty County (COH, 2022). There are no homeless populations on FSGA or HAAF.

Figure G-10: Persons Experiencing Homelessness in the Study Area.

Individual Experiencing Homelessness (2019)	
Geography	Number (PIT 2019)
Bryan County	4
Bulloch County	20
Camden County	5
Chatham County	4641
Effingham County	25
Glynn County	324
Liberty County	24
Long County	0
McIntosh County	0
Screven County	1
Total Region	5044

Source: Georgia Balance of State Continuum of Care, Chatham Savannah Authority for the Homeless

EO 13045, *Protection of Children from Environmental Health and Safety Risks*, requires federal agencies, to the extent permitted by law and mission, to identify and assess environmental health and safety risks that might disproportionately affect children. Children are present at FSGA/HAAF as residents in the AFHAs and as visitors to the CDCs and recreational facilities. The Army takes precautions for their safety through a number of means, including, but not limited to, the use of fencing, limitations on access to certain areas, and provision of adult supervision. The Family Advocacy Program at FSGA/HAAF provides classes on child abuse prevention and personal safety for children. A curfew is enforced for children on Fort Stewart. Children under the age of 14 must be inside between the hours of 9 p.m. and 6 a.m., and children aged 14

to 17 years must be inside between 11 p.m. and 5:30 a.m. unless accompanied by a parent, guardian, or responsible adult 21 years of age or older. Public school data reported to the U.S. Department of Education during the 2018-2019 school year shows that an estimated 38,891 public school students experienced homelessness over the course of the year. Of that total, 642 students were unsheltered, 2,675 were in shelters, 7,632 were in hotels/motels, and 27,942 were doubled up (FSGA, 2022).

FINAL PRELIMINARY ASSESSMENT AND SITE INSPECTION OF PER- AND POLYFLUOROALKYL SUBSTANCES

Fort Stewart, Georgia

Prepared For:
U.S. Army Corps of Engineers, Baltimore District
2 Hopkins Plaza
Baltimore, Maryland 21201

July 2022

EXECUTIVE SUMMARY

The United States Army (Army) is performing preliminary assessments (PAs) and site inspections (SIs) on the current or potential historical use of per- and polyfluoroalkyl substances (PFAS) with a focus on perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS), at Army installations (installations) nationwide. The PA identifies areas of potential interest (AOPIs) where PFAS-containing materials were used, stored, and/or disposed, or areas where known or suspected releases to the environment occurred. The SI includes multi-media sampling at AOPIs to determine whether or not a release has occurred. The SI may conclude further investigation is warranted, a removal action is required to address immediate threats, or no further action is required. This Fort Stewart (FST) PA/SI was completed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), National Oil and Hazardous Substances Pollution Contingency Plan, and Army/Department of Defense (DoD) policy and guidance.

FST encompasses approximately 280,000 acres and is located north of Hinesville, Georgia, approximately 40 miles southwest of Savannah, Georgia. The installation is the largest Army installation east of the Mississippi River, spanning portions of Bryan, Evans, Liberty, Long and Tattnall counties and can accommodate training for 50,000 Reserve Component soldiers annually. Tank, field artillery, helicopter gunnery, and small arms ranges are used simultaneously throughout the year.

The FST PA identified 13 AOPIs for investigation during the SI phase. SI sampling results from the 13 AOPIs were compared to risk-based screening levels calculated by the Office of the Secretary of Defense (OSD) for PFOS, PFOA, and PFBS. PFOS, PFOA, and/or PFBS were detected in soil and/or groundwater at 12 AOPIs; 9 of the 13 AOPIs had PFOS, PFOA, and/or PFBS present at concentrations greater than the risk-based screening levels in samples collected. The FST PA/SI identified the need for further study in a CERCLA remedial investigation. Table ES-1 below summarizes the PA/SI sampling results and provides recommendations for further study in a remedial investigation or no action at this time at each AOPI.

Table ES-1. Summary of AOPIs Identified during the PA, PFOS, PFOA, and PFBS Sampling at FST and Recommendations

AOPI Name	PFOS, PFOA, and/or PFBS detected greater than OSD Risk Screening Levels? (Yes/No/ND/NS)			Recommendation
	GW	SO	SW	
Fire Station 01	No	ND	NS	No action at this time
Fire Station 03	Yes	Yes	NS	Further study in a remedial investigation
Current AFFF Storage	Yes	No	NS	Further study in a remedial investigation
Fire Station 05	Yes	No	NS	Further study in a remedial investigation
Quarterly Crash Drill Area	Yes	Yes	NS	Further study in a remedial investigation

AOPI Name	PFOS, PFOA, and/or PFBS detected greater than OSD Risk Screening Levels? (Yes/No/ND/NS)			Recommendation
	GW	SO	SW	
Taxiway E	Yes	No	NS	Further study in a remedial investigation
Wright Army Airfield FTA (FST-013)	Yes	No	NS	Further study in a remedial investigation
33R Approach	Yes	ND	NS	Further study in a remedial investigation
Former AFFF Storage	Yes	ND	NS	Further study in a remedial investigation
Post South Central Landfill	ND	NS	NS	No action at this time
Vehicle Fire 01	No	ND	NS	No action at this time
Vehicle Fire 02	No	ND	ND	No action at this time
Building 1838	Yes	No	NS	Further study in a remedial investigation

Notes:

Light gray shading – detection greater than the OSD risk screening level
GW – groundwater
ND – non-detect
NS – not sampled
SO – soil
SW – surface water

N

Image Redacted for Operation Security.

0 1,000 2,000
Feet

0 2 4
Miles

USAEC PFAS
Preliminary Assessment / Site Inspection
Fort Stewart, GA

ARCADIS

Figure 5-2 (Revised)
Aerial Photo of AOPIs for Remedial Investigation

Legend

- Installation Boundary
- AOPI Location
- River/Stream (Perennial)
- Stream (Intermittent)
- Water Body
- Surface Water Flow Direction
- Shallow Groundwater Flow Direction
- Installation Drinking Water Well
- Public Water Supply System Well
- Other Public Supply Well
- Domestic Well
- Other Designated Use Water Well

AFFF = aqueous film-forming form
AOPI = area of potential interest
FTA = fire training area

Notes:

Other public supply wells include institutional and municipal wells.

Other designated use wells include irrigation wells, as well as wells with unknown use.

Data Sources:
USAEC, GIS Data, 2005
Fort Stewart, Well Data, 2018
EDR, Well Data, 2018
USGS, NHD Data, 2019
ESRI ArcGIS Online, StreetMap Data

Coordinate System:
WGS 1984, UTM Zone 17 North

FINAL PRELIMINARY ASSESSMENT AND SITE INSPECTION OF PER- AND POLYFLUOROALKYL SUBSTANCES

Hunter Army Airfield, Georgia

Prepared For:
U.S. Army Corps of Engineers, Baltimore District
2 Hopkins Plaza
Baltimore, Maryland 21201

July 2022

EXECUTIVE SUMMARY

The United States Army (Army) is performing preliminary assessments (PAs) and site inspections (SIs) on the current or potential historical use of per- and polyfluoroalkyl substances (PFAS) with a focus on perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS), at Army installations (installations) nationwide. The PA identifies areas of potential interest (AOPIs) where PFAS-containing materials were used, stored, and/or disposed, or areas where known or suspected releases to the environment occurred. The SI includes multi-media sampling at AOPIs to determine whether or not a release has occurred. The SI may conclude further investigation is warranted, a removal action is required to address immediate threats, or no further action is required. This Hunter Army Airfield (HAAF) PA/SI was completed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), National Oil and Hazardous Substances Pollution Contingency Plan, and Army/Department of Defense (DoD) policy and guidance.

HAAF encompasses 5,414 acres, 2,341 acres are utilized for 12 different training areas (including one amphibious training area). There are four operational live fire ranges, as follows:

- HAAF Small Arms Range that consists of 0.5 acres and 10 firing points (used since September 11, 2003.
- Live Fire Shoothouse that consists of 0.11 acres (used since September 11, 2003).
- Live Fire Breach (used since September 11, 2003).
- H9 Flat Range (used since April 1, 2021).

The HAAF PA identified 13 AOPIs for investigation during the SI phase. The AOPIs included were areas identified by the Army that had current or potential historical use of PFAS-containing materials. The PA conducted by the Army National Guard included AOPIs identified on parcels of land owned by the US Army and leased indefinitely to the Georgia Army National Guard. The Army National Guard PA resulted in the identification of one additional AOPI, resulting in a total of 14 AOPIs. SI sampling was completed at HAAF for all 14 identified AOPIs, which included the Army National Guard AOPI in addition to the AOPIs identified by the Army, to evaluate whether PFOS, PFOA, and/or PFBS were present at concentrations that exceed the OSD risk screening levels. SI sampling results from the 14 AOPIs were compared to risk-based screening levels calculated by the Office of the Secretary of Defense (OSD) for PFOS, PFOA, and PFBS. PFOS, PFOA, and/or PFBS were detected in soil, groundwater, surface water and/or sediment at 13 AOPIs; 12 of the 13 AOPIs had PFOS, PFOA, and/or PFBS present at concentrations greater than the risk-based screening levels. The HAAF PA/SI identified the need for further study in a CERCLA remedial investigation. **Table ES-1** below summarizes the PA/SI sampling results and provides recommendations for further study in a remedial investigation or no action at this time at each AOPI.

Table ES-1. Summary of AOPIs Identified during the PA, PFOS, PFOA, and PFBS Sampling at HAAF, and Recommendations

AOPI Name	PFOS, PFOA, and/or PFBS detected greater than OSD Risk Screening Levels? (Yes/No/ND/NS)				Recommendation
	GW	SO	SW	SE	
Fire Training Site (HAA-01)	Yes	Yes	Yes	NS	Further study in a remedial investigation
Fire Station 04	Yes	Yes	NS	NS	Further study in a remedial investigation
Sleepy Hollow FTA	Yes	ND	NS	NS	Further study in a remedial investigation
Fire Station 02	Yes	No	NS	NS	Further study in a remedial investigation
Vehicle Fire 03	Yes	No	NS	NS	Further study in a remedial investigation
Nozzle Testing Area	Yes	No	NS	NS	Further study in a remedial investigation
Hangar 830	Yes	No	NS	NS	Further study in a remedial investigation
Hangars 7901 and 7902	Yes	No	Yes	No	Further study in a remedial investigation
Hangar 7911	Yes	NS	Yes	No	Further study in a remedial investigation
HAAF WWTP	Yes	NS	NS	NS	Further study in a remedial investigation
Vehicle Fire 02	No	ND	NS	NS	No action at this time
Vehicle Fire 04	Yes	ND	NS	NS	Further study in a remedial investigation
Vehicle Fire 05	ND	ND	NS	NS	No action at this time
Hangar 805	Yes	NS	NS	NS	Further study in a remedial investigation

Notes:
Light gray shading – detection greater than the OSD risk screening level
FTA – Fire Training Area
GW – groundwater
ND – not detected
NS – not sampled
SE – sediment
SO – soil
SW – surface water
WWTP – wastewater treatment plant

N

Image Redacted for Operation Security.

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Miles

USAEC PFAS
Preliminary Assessment / Site Inspection
Hunter Army Airfield, GA

ARCADIS

Figure 5-2 (Revised)
Aerial Photo of AOPIs for Remedial Investigation

Legend

- Installation Boundary
- AOPI Location
- River/Stream (Perennial)
- Stream (Intermittent)
- Canal/Ditch
- Water Body
- Installation Drinking Water Well
- Installation Drinking Water Well (Abandoned)

AOPI = area of potential interest
FTA = Fire Training Area
HAA/HAAF = Hunter Army Airfield
WWTP = Wastewater Treatment Plant

Data Sources:
USAEC, GIS Data, 2002
Fort Stewart, Wells, 2018
USGS, NHD Data, 2019
ESRI ArcGIS Online, Aerial Imagery

Coordinate System:
WGS 1984, UTM Zone 17 North

APPENDIX G

Fort Stewart and Hunter Army Airfield

USFWS Consultation Record

United States Department of the Interior

Fish and Wildlife Service
RG Stephens, Jr. Federal Building
355 East Hancock Avenue, Room 320
Athens, Georgia 30601

West Georgia Sub Office
P.O. Box 52560
Ft. Benning, Georgia 31995-2560

Coastal Sub Office
4980 Wildlife Drive
Townsend, Georgia 31331

July 19, 2022

Thomas Fry, Chief
Environmental
Division Directorate of
Public Works 1616
Veterans Parkway Fort
Stewart, GA 31314

Re: FWS Log No. 2022-0033391

Dear Mr. Fry:

The U.S. Fish and Wildlife Service (Service) has received your June 13, 2022, biological assessment on a proposal to excavate 12 new borrow pits and expand 36 existing borrow pits on Ft. Stewart (FS), Georgia. The project areas total 145.56 acres and encompass 83.98 acres of existing red-cockaded woodpecker (RCW) (*Dryobates borealis*) Habitat Management Unit (HMU), 0.05 acres of lowland hardwood habitat, 6.72 acres of upland hardwood habitat, and 54.82 acres of non-forested area as identified in FS's Integrated Natural Resources Management Plan (INRMP). The project will also impact 24.57 acres of frosted flatwoods salamander (FFS) (*Ambystoma cingulatum*) HMU, and 44.81 acres of eastern indigo snake (EIS) (*Drymarchon couperi*) HMU as identified in FS's Integrated Natural Resources Management Plan (INRMP). The proposed project will include tree cutting, grubbing, raking, excavation and removal of soil, and will ensure that sufficient amounts of suitable, site-appropriate fill material are readily available to support road maintenance actions implemented on FS. We submit the following comments on this project under provisions of the Endangered Species Act of 1973 (Act) as amended (16 U.S.C. 1531 *et seq*.).

Fish and Wildlife Branch personnel surveyed the project area for RCW's and RCW cavity trees. No new cavity trees were found in the project area. The project will impact 83.98 acres of existing red-cockaded woodpecker (RCW) Habitat Management Unit (HMU), 0.05 acres of lowland hardwood habitat, 6.72 acres of upland hardwood habitat, and 54.82 acres of non-forested area as in identified in FS's INRMP (Directorate of Public Works 2001). The project will impact 34.54 acres of foraging partition in 29 RCW clusters. Due to the small amount of habitat removed per foraging partition (ranging from 0.01 to 10 acres) by the proposed actions, any negative effects to the foraging partitions of impacted clusters will be insignificant. The proposed project will impact 44.81 acres of the eastern indigo snake (EIS) HMU. No EIS have ever been detected in the project area. The nearest known occurrences of EIS to the action area locations range from < 1.0 mile to > 5.0 miles. EIS often use gopher tortoise burrows as winter refugia. Twelve active burrows in 5 proposed burrow pit sites were discovered during surveys by

July 19, 2022

Fish and Wildlife Branch personnel. Prior to construction, gopher tortoises in these sites will be trapped and re-located to appropriate habitat. Because of the distances between the proposed action areas and no documented EIS sightings in project action area, the small number of affected burrows, and the widely scattered locations of the proposed borrow pits, impacts are not likely to occur to EIS. Portions of the proposed project lie within the FFS HMU and will impact 2.88 acres of secondary buffer for a potential breeding site, as well as 14.22 acres of FFS HMU not within pond buffers. Project design will incorporate delineation of wetland areas and protection measures as required by the Clean Water Act and the Georgia Erosion and Sedimentation Control Act to ensure appropriate wetland protection. Due to the small amount of pond buffer impacted and the abovementioned protective measures, impacts are not likely to occur to FFS. Additional species considered included the eastern black rail (*Laterallus jamaicensis jamaicensis*), wood stork (*Mycteria americana*), Atlantic (*Acipenser oxyrinchus*) and shortnose sturgeon (*Acipenser brevirostrum*), and the smooth coneflower (*Echinacea laevigata*). These species were not observed or no suitable habitat was present within the proposed project area.

Based on the information provided in the biological assessment, we concur with your determination that this action "may affect, but not likely to adversely affect" the red-cockaded woodpecker, eastern indigo snake and frosted flatwoods salamander. We also concur with your determination of "no effect" for the wood stork, smooth coneflower, eastern black rail, Atlantic and shortnose sturgeon. In view of this, we believe that the requirements of section 7 of the Act have been satisfied. However, obligations under section 7 of the Act must be reconsidered if (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner which was not considered in this assessment, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

Thank you for the opportunity to provide comments on the proposed project. If you require additional assistance, please contact John Doresky at our West Georgia Sub Office at (706)544-6030 or at John_Doresky@fws.gov.

Sincerely,

(for) Peter Maholland
Acting Field Supervisor