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**FINAL ENVIRONMENTAL ASSESSMENT**

**& FINDING OF NO SIGNIFICANT IMPACT**

**SHADOW UNMANNED AERIAL SYSTEM ACTIONS**

**AT**

**FORT STEWART, GEORGIA**



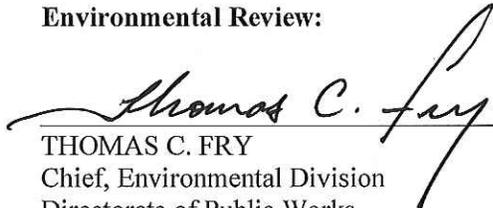
**JULY 2016**

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In compliance with the National Environmental Policy Act of 1969

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FINDING OF NO SIGNIFICANT IMPACT  
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AT FORT STEWART, GEORGIA**

**Environmental Review:**

  
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**Approval:**

  
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TOWNLEY R. HEDRICK  
Colonel, U.S. Army  
Commanding

Date: 8 AUG 16

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## **FINAL FINDING OF NO SIGNIFICANT IMPACT (FNSI)**

### **1.0 INTRODUCTION**

The primary mission of Fort Stewart, Georgia (FSGA), is to provide support for mission readiness and execution through extensive, effective training of Soldiers on the Installation. Its training lands support a diverse array of mission essential tasks such as mounted and dismounted maneuver, field artillery and tank gunnery, small arms ranges, and helicopter gunnery, as well as other aviation asset training tasks, many of which incorporate unmanned aerial systems (UAS). UAS are fixed or rotary winged aircraft capable of flight without utilization of an onboard crew and whose diversity allows the accommodation of a wide range of operational uses. UAS' currently operating on FSGA include the Raven, Shadow, Hunter, and Gray Eagle. All UAS operations occur within FSGA's Restricted Airspace (Mixon, 2016). Currently, Evans Army Airfield (EAAF) on FSGA is host to three Shadow UAS platoons, two assigned to the 3<sup>rd</sup> Infantry Division (3ID) and one assigned to the Georgia Army National Guard (GAArNG). In FY17, FSGA will receive an additional three UAS Shadow platoons, which will be assigned to 3ID's Combat Aviation Brigade (3CAB). Currently, all of the existing platoons operate out of temporary facilities at EAAF.

### **2.0 PURPOSE AND NEED**

Shadow UAS training on FSGA has grown rapidly over the years, resulting in a need to construct permanent facilities at an appropriate airfield within its boundaries. The permanent facilities will accommodate both the existing platoons currently operating out of temporary facilities at EAAF, and those inbound platoons that are scheduled to arrive in FY 2017. The purpose of this action is to select an airfield capable of supporting all current and inbound Shadow UAS platoons, as well as one capable of supporting the construction necessary to accommodate their permanent operations and training activities. This includes operational hangers, administrative buildings, and all other infrastructure necessary to train Shadow UAS platoons to Army standards and maintain their equipment.

### **3.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES**

The Army utilized screening criteria it developed specifically for this action to identify potential sites on FSGA capable of accommodating all Shadow UAS platoons at one location. The Screening Criteria used is discussed in more detail in Section 2.3 of the Final EA. Only two viable sites were identified and carried forward for a more detailed analysis in the EA. Sites dismissed from further consideration are identified and briefly discussed in Section 2.5 of the Final EA.

#### **ALTERNATIVE I: EVANS ARMY AIRFIELD (EAAF) (PREFERRED) (FIGURES 4-5 OF THE FINAL EA)**

Under this alternative, all current and inbound Shadow UAS platoons, both Army and GAArNG, would permanently bed down at EAAF in a combination of temporary and permanent facilities. This airfield is currently being used temporarily by the Shadow UAS platoons assigned to 3CAB and GAArNG, and can easily accommodate the inbound platoons in FY17. It is anticipated that permanent facilities may eventually replace temporary 3ID facilities should Congress appropriate military construction funds for the same. Until such time, temporary facilities will continue to be utilized. Funding has been secured for the GAArNG to build its permanent facilities, and that siting is analyzed in this EA.

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**ALTERNATIVE II: CAMP OLIVER (FIGURE 6 OF THE FINAL EA)**

Under this alternative, all current and inbound Shadow UAS platoons, both Army and GAARNG, would vacate their temporary facilities on EAAF and move approximately 25 miles northwest to Camp Oliver, a much less improved and more remote location. New temporary facilities and infrastructure would have to be built to accommodate all current and inbound platoons, and the airfield would need to be improved. As stated under Alternative I, funding for permanent facilities for the 3CAB facilities is dependent upon Congressional actions; however, GAARNG funding has been secured.

**ALTERNATIVE III: NO ACTION / STATUS QUO (NO FIGURES)**

Under this alternative, all current and inbound Shadow UAS platoons, both Army and GAARNG, would be bed down at either EAAF or Camp Oliver but no additional facilities, permanent or temporary, would be built. Platoons' equipment will be stored in existing motorpools and/or other existing facilities at either EAAF or Camp Oliver. Obviously, this would not meet the purpose and need of this action, but the CEQ regulations implementing NEPA require an analysis of baseline conditions to provide decision makers a better picture from which to more accurately consider the environmental impacts associated with each alternative. (40 CFR 1502.14[d]).

**4.0 ENVIRONMENTAL ANALYSIS**

Chapter 3 of the Final EA discusses the potential environmental consequences associated with implementing the proposed action and its alternatives, which have the potential to result in impacts to Water Quality and Resources, Biological Resources, Cultural Resources, Noise, and Health and Safety. No impact is anticipated to Groundwater, Land Use, Air Quality, Recreation and Visual Resources, Socioeconomics, Provision for the Handicapped/Environmental Justice/Protection of Children, and Transportation; accordingly, these resources are not discussed in detail in the main body of the Final EA, but are instead briefly summarized in its Appendix A.

Type of Impact	Alternative I (Preferred)	Alternative II	Alternative III (No Action/Status Quo)
<b>Water Quality and Resources</b>			
<b>Direct / Indirect</b>	Negligible Adverse	Minor Adverse	No Adverse Impact
<b>Cumulative</b>	Negligible Adverse	Negligible Adverse	No Adverse Impact
<b>Biological Resources</b>			
<b>Direct / Indirect</b>	No Adverse Impact	Negligible Adverse	No Adverse Impact
<b>Cumulative</b>	No Adverse Impact	Negligible Adverse	No Adverse Impact
<b>Cultural Resources</b>			

<b>Direct / Indirect</b>	No Adverse Impact	No Adverse Impact	No Adverse Impact
<b>Cumulative</b>	No Adverse Impact	No Adverse Impact	No Adverse Impact
<b>Noise</b>			
<b>Direct / Indirect</b>	Negligible Adverse	Negligible Adverse	No Adverse Impact
<b>Cumulative</b>	No Adverse Impact	Negligible Adverse	No Adverse Impact
<b>Health and Safety</b>			
<b>Direct / Indirect</b>	Negligible Adverse	Negligible Adverse	No Adverse Impact
<b>Cumulative</b>	No Adverse Impact	No Adverse Impact	No Adverse Impact

**FNSI Table: Summary of Environmental Impacts.**

## **5.0 PUBLIC REVIEW AND COMMENTS**

The *Draft EA for Shadow UAS Actions on Fort Stewart, Georgia* was available for a 30-day public review period (June 20-July 19, 2016) at the Live Oak and Oglethorpe Mall Branches of the Savannah Public Library, the Live Oak Public Library in Hinesville, and the Post Library on Fort Stewart. The Notice of Availability of the Draft EA/FNSI was published in the *Savannah Morning News*, *Coastal Courier*, and *The Frontline* in the Savannah/Fort Stewart area. Notification of the Draft EA/Draft FNSI's availability was also mailed to the members of the regulatory community and joint land use partners with whom the Installation consults, to include the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers (Wetland Regulatory Division), Georgia State Historic Preservation Office, and the Cities of Hinesville, Glennville, and Statesboro, Georgia, among others. Comments received on the draft documents were incorporated into the Final EA and are included at its Appendix D.

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## 6.0 CONCLUSIONS

The *Final EA for Shadow UAS Actions on Fort Stewart, Georgia*, was being prepared to analyze the potential environmental impacts associated with the construction, operations, and training associated with the permanent stationing of Shadow UAS platoons on FSGA. These actions will ensure that these platoons are trained safely, effectively, efficiently, and to DoD standards, that their equipment is housed, maintained and operated in accordance with all applicable standards and regulations, and ensure the mission readiness of the nation's present and future warfighting requirements. Implementation of the proposed action at the preferred location (Alternative I) was determined to not result in potentially significant impacts; therefore, an Environmental Impact Statement is not required and the preparation of a FNSI by the Army for the proposed action is appropriate.



TOWNLEY R. HEDRICK  
Colonel, U.S. Army  
Commanding

8 Aug 16  
Date

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**ENVIRONMENTAL ASSESSMENT**

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## 1.0 INTRODUCTION

The primary mission of Fort Stewart, Georgia (FSGA), is to provide support for mission readiness and execution through extensive, effective training of Soldiers on the Installation. To that end, its training lands support a diverse array of mission essential tasks such as mounted and dismounted maneuver, field artillery and tank gunnery, small arms ranges, and helicopter gunnery, as well as other aviation asset training tasks, many of which incorporate unmanned aerial systems (UAS). *Note: The UASs and their operational aspects discussed in this EA are those solely in use by the U.S. military.*

UAS are fixed or rotary winged aircraft capable of flight without utilization of an onboard crew (USUAS, 2010). Functional requirements vary per UAS and, accordingly, so does their size (Figure 1). The Raven UAS, which has a wingspan of 4.5 feet, is designed for aerial reconnaissance only and can be launched by hand; whereas the Gray Eagle UAS, with its 57-foot wingspan, is designed to drop a large munitions payload and requires an airstrip for launch and recovery (USUAS, 2010). This diversity allows each UAS to accommodate a wide range of operational uses, from routine training to special need operations such as humanitarian and disaster relief (DA, 2010; DA, 2009a). UAS' currently operating on FSGA include the Raven, Shadow, Hunter, and Gray Eagle, with all operations occurring within FSGA's Restricted Class D Airspace (Mixon, 2016).

All aviation activities on FSGA are managed by the Air Traffic Control (ATC) Tower at Wright Army Airfield (WAAF), which is within Class D controlled airspace (extending 2,500 feet above ground level) (AGL) (Figure 2). FSGA's restricted airspace (RA) (R3005) extends up to 29,000 feet AGL. UAS do not typically fly into the National Airspace System (NAS), where civilian aircraft fly, unless it is under a special circumstance, such as in support of local law enforcement or for purposes of national defense. For these exceptions, a Certificate of Waiver or Authorization (COA) is granted. Within the COA, the FAA works with the Army to ensure the UAS does not operate in a populated area and that it can be consistently observed, either by a manned aircraft or electronically by a ground observer (FAA, 2015), providing the same level of safety as a manned aircraft. FSGA currently maintains one COA due to WAAF's close proximity to the southeastern boundary of the Installation, where there is a potential for a UAS to inadvertently cross over into the NAS.

Currently, FSGA operates two Shadow UAS platoons, associated with the 1<sup>st</sup> Armored Brigade Combat Team and 2<sup>nd</sup> Infantry Brigade Combat Team of the 3<sup>rd</sup> Infantry Division (3ID). The platoons reside on FSGA and maintain, operate and train with their eight UAS (four per platoon) in Building 19118 on Evans Army Airfield (EAAF). In FY17, the Installation will receive an additional three UAS Shadow platoons and 12 UAS, who will realign into the 3ID's 3<sup>rd</sup> Combat Aviation Brigade (3CAB). The Army has determined that both EAAF and Camp Oliver on FSGA have sufficient existing facilities and infrastructure for their temporary equipment storage, maintenance, operational, and training requirements. However, new construction is required to accommodate the needs of both the existing and incoming platoons in the long term at either location. No decision has been made regarding where these platoons will reside (Wemett, 2016).

Launched/landed via improved runway; 57-foot wing span; 22-28 hour range; 120 kilometers/hour (kt/h) loiter/130kt dash; 25-29,000 feet above ground level (AGL) altitude; payload up to 2-4 hellfire missiles; total weight up to 2,600 pounds; Mission - provide dedicated support to the Brigade Combat Teams (BCTs), and other Army and Joint Force units based upon Division Commander's priorities

Gray Eagle



Launched/landed via unimproved (dirt) runway of 1,600 feet; 35 foot wingspan; 200 kilometer range; 62kt/h loiter/110kt/h dash; 18,000 feet AGL altitude; payload up to 275 pounds; total weight 1,950 pounds; Mission – provide Corps Level reconnaissance, surveillance, target acquisition, and battle damage assessment

Hunter



Launch/land via traditional gear or catapult; 14-foot wingspan; 126kt range; 60kt/h loiter/150kt/h dash; 14,000 feet AGL altitude; payload up to 60 pounds; total weight 380 pounds; Mission - provide BCT with tactical level reconnaissance, surveillance, target acquisition, and battle damage assessment. System can be transported on C-130, can coordinate with mounted/dismounted/airborne units.

Shadow



Hand launched; 4.5 foot wingspan; 10kt range; 27-60kt/h airspeed; 300 feet AGL altitude; payload infrared camera with laser illuminator; total weight approximately 14 pounds; Mission - provide Battalion with the organic capability to perform Beyond Visual Line-Of-Sight Reconnaissance, Surveillance, and Target Acquisition. Semi-autonomous operations but can be retasked in flight.

Raven



**Figure 1: The UAS Family of Systems Utilized on FSGA (DA, 2015; DA, 2010).**

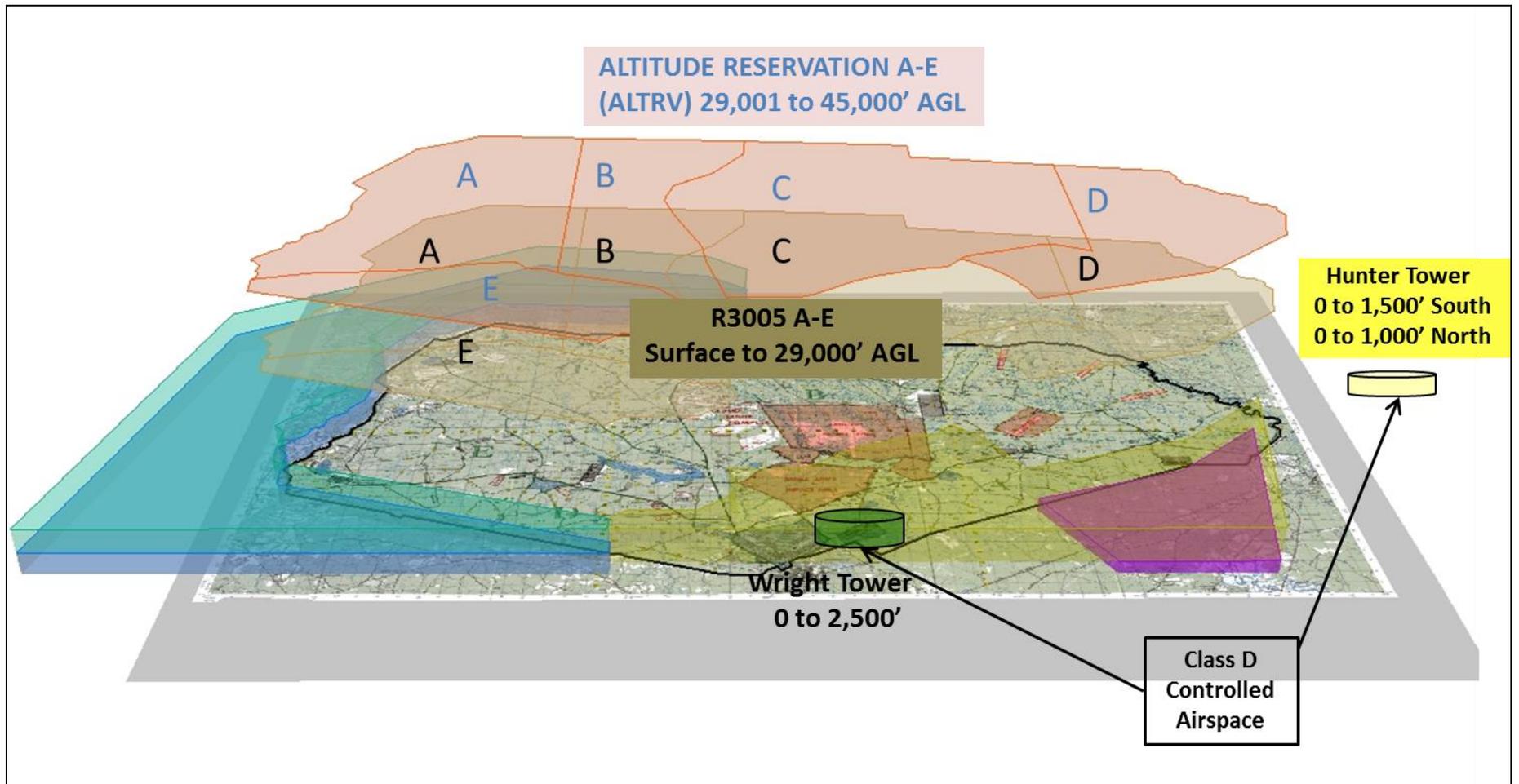


Figure 2: Fort Stewart Special Use Airspace.

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The Georgia Army National Guard (GAArNG) also maintains a full-time Shadow UAS platoon that resides on HAAF and maintains, operates, and trains on FSGA. Initially, Dobbins Air Reserve Base in Marietta, GA, and Robbins Air Force Base in Macon, GA were also considered for this mission; however, neither contain RA, and UAS training at those locations would have flown over populated areas - a violation of FAA regulations. Accordingly, both were determined unfeasible, and the platoon was assigned to FSGA. After analyzing potential stationing options at EAAF, Wright Army Airfield, or Camp Oliver, the GAArNG determined that EAAF alone met all siting requirements, which include access to RA, sufficient infrastructure to support the platoon's operational and training requirements (without substantial additional expenditure of funds), and compatibility of mission/programs (UAS functions already occurring at site). For these reasons, they chose to establish the Shadow UAS platoon at EAAF, and a temporary hangar was constructed in 2011 to support its fielding. In FY17, the GAArNG proposes to construct a permanent facility for this platoon on FSGA, and have also determined that EAAF and Camp Oliver meet the requirements for this facility.

## **1.1 INSTALLATION BACKGROUND**

FSGA is the largest Army Installation east of the Mississippi River, covering approximately 279,270 acres in parts of Liberty, Long, Bryan, Evans, and Tattnall counties (Figure 3). The Installation is approximately 39 miles across from east to west and approximately 19 miles from north to south. Fort Stewart was established in 1940 to train Soldiers inducted into the General Infantry by Regular Army in anticipation of the United States entering World War II. The Army named the new Post, Camp Stewart, in honor of Daniel Stewart, a local Revolutionary War veteran and state political leader who rose to the rank of Brigadier General in the Georgia Militia. After World War II ended, the Army deactivated Camp Stewart, but reopened it four years later during the early stages of the Korean Conflict.

In 1953, the Army authorized construction of tank unit firing ranges and maneuver areas. The following year, the Post was renamed Camp Stewart Anti-Aircraft Artillery and Tank Training Center. The Army decided that Camp Stewart will play an integral role in training that force, and in 1957, the Post became a permanent Army Installation and was renamed Fort Stewart. Many new developments happened at Fort Stewart in the 1970s, including the arrival of the 92nd Engineering Battalion on 26 July 1972, fresh from its assignment in Vietnam. The 1<sup>st</sup> Brigade, 24<sup>th</sup> Infantry Division was activated in 1974, and was reflagged the 3<sup>rd</sup> Infantry Division (Mechanized), also known as the Marne Division or "Rock of the Marne" in June of 1976. Fort Stewart and HAAF are currently the home of the 3<sup>rd</sup> Infantry Division and the Rock of the Marne. UAS have been operated and maintained on FSGA since the 1990s. In 2004, the first UAS were fielded at EAAF and WAAF, and these airfields would go on to become the centralized hubs of activity for the family of UAS on the Installation.

This Environmental Assessment analyzes the potential environmental impacts associated with the permanent stationing, operational, and training requirements of the Shadow UAS platoons and their equipment on FSGA, and is prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code Section [USC] 4321 *et seq.*); the Council on Environmental Quality (CEQ) regulations that implement NEPA (Title 40 Code of Federal Regulations [CFR], Parts 1500 to 1508); and Army Regulation 200-2, *Environmental Effects of Army Actions*, as promulgated in 32 CFR 651.

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## **1.2 PURPOSE AND NEED**

The growth of Shadow UAS training on FSGA has resulted in a need to construct permanent facilities at an appropriate airfield within its boundaries. The permanent facilities will accommodate both the existing platoons currently operating out of temporary facilities at EAAF, and those inbound platoons that are scheduled to arrive in FY 2017. The purpose of this action is to select an airfield capable of supporting all currently and inbound Shadow UAS platoons, as well as one capable of supporting the construction necessary to accommodate their permanent assignment. This includes operational hangers, administrative buildings, and all other infrastructure necessary to train Shadow UAS platoons to Army standards and maintain their equipment.

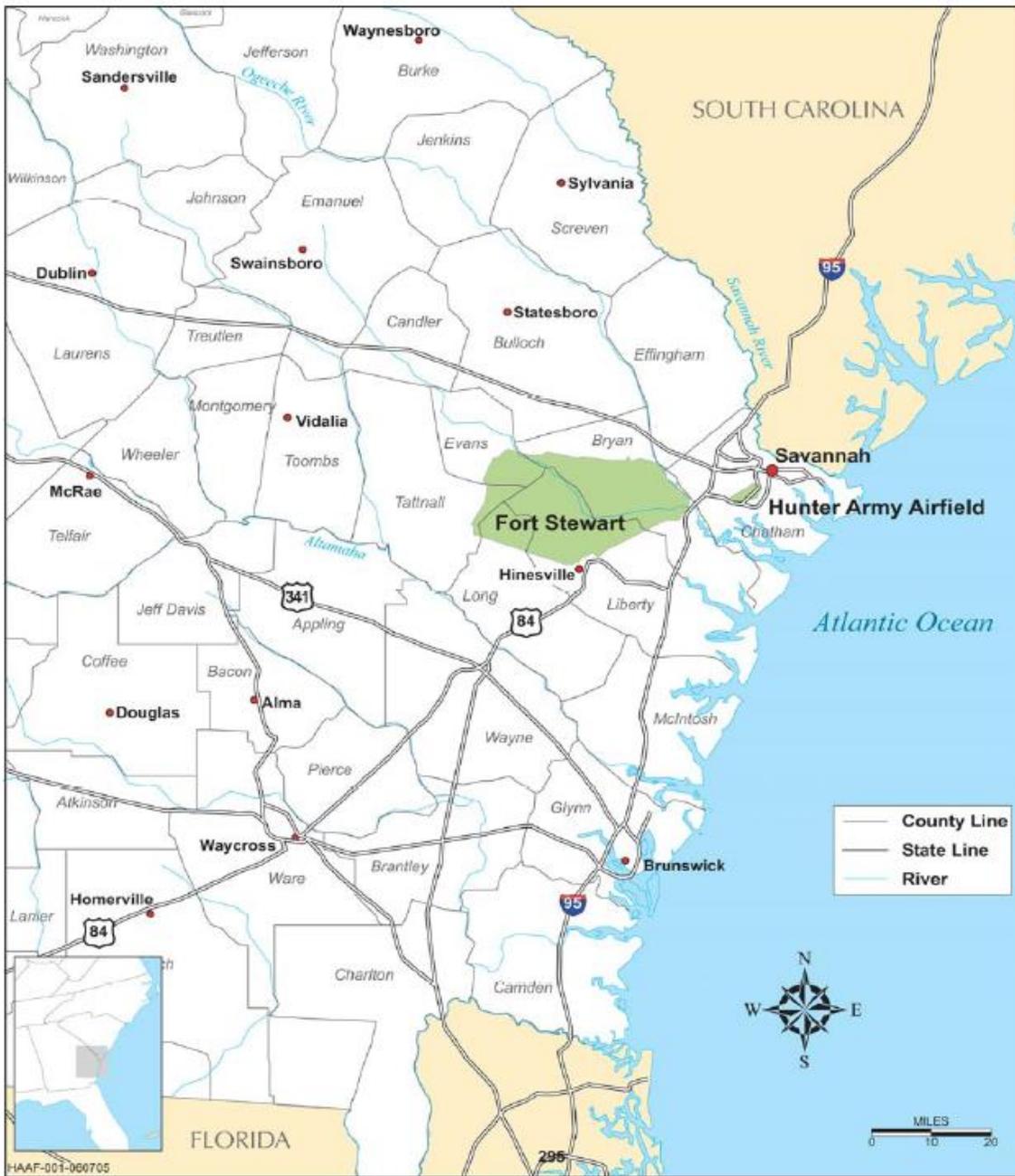


Figure 3. Location of Fort Stewart and Hunter Army Airfield, Georgia.

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## 2.0 DESCRIPTION OF THE PROPOSED ACTION & ALTERNATIVES

### 2.1 INTRODUCTION

Fort Stewart utilized a collaborative interdisciplinary team process to evaluate alternatives in order to meet the purpose and need of the proposed action. This collaborative process involved personnel from the Installation Directorate of Plans, Training, Mobilization, and Safety (DPTMS) Airfield Operations Division, the Installation Directorate of Public Works (DPW) Environmental Division, DPW Master Planning Division, and the Georgia Army National Guard (GAArNG). The team collected and evaluated information relevant to the proposed action.

### 2.2 PROPOSED ACTION

In FY17, the Army proposes to permanently station three new Shadow UAS Platoons at FSGA, resulting in the realignment of 475 Soldiers into the 3CAB 3-17<sup>th</sup> Attack Reconnaissance Squadron. Supporting construction at FSGA will consist of one 5,400 square foot (sf) hangar/administrative building, a fenced yard for parking wheeled support vehicles, access lanes to the adjacent airstrip for UAS launch/recovery, and three 1,800 sf storage buildings (one/platoon). Decisions regarding the living space for these platoons are pending. The GAArNG proposes to permanently station its 48<sup>th</sup> Brigade Special Troops Battalion (BSTB), Detachment 1, B Company, Shadow UAS Platoon at FSGA. This platoon resides at HAAF, but trains at FSGA. Supporting construction at FSGA consists of one 11,000 sf hangar/administrative building, parking area, airfield access path, and utility corridor. No determination has been made if the Army and GAArNG existing facilities will be reutilized or demolished upon completion of the permanent facilities.

### 2.3 SCREENING CRITERIA

The following screening criteria assisted in the determination of feasible action alternatives at which the purpose and need of the proposed actions could be met.

- **Support Army Training Doctrine.** Stationing of the Army's incoming UAS Shadow UAS platoons and construction of the GAArNG's new hangar must occur at alternative locations that support the capability to conduct UAS training in accordance with Army doctrinal standards. These standards are described in Army Regulation (AR) 95-23, *Unmanned Aircraft System Flight Regulations* (DA, 2010), and Field Manual 3-04.155, *Army Unmanned Aircraft System Operations* (DA, 2009a). Army training doctrine also includes the requirement to train to standard at these platoons' home station, as defined in AR 350-1, *Army Training and Leader Development* (DA, 2014). These regulations also apply to the GAArNG, who adhere to the regulations at the Installation where they work and train` (Brooks, 2016).
- **Located Within or Closely Adjacent to Restricted Airspace (RA).** Training for all DoD UAS must be conducted within RA. There is no requirement for the UAS training airfield to be located within the RA; however, it must be located closely adjacent to enable the UAS to enter the RA soon after departure from the airfield runway.

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- **Airspace Capacity.** There must be sufficient airspace available at the training location to safely support all DoD Shadow UAS operations as well as any existing military and civilian aircraft that operate out of a particular airfield.
  - **Availability of Existing Infrastructure.** Alternative locations for the Army action must contain existing utilities, runways/hangars, and other infrastructure suitable for use by Shadow UAS and platoon members until permanent facilities can be constructed.
  - **Potential for Expansion.** Alternative locations for both the Army and GAArNG actions must contain land sufficient for construction of required facilities, plus additional land capable of future expansion.
  - **Proximity to Major Road Network.** Alternative locations for both the Army and GAArNG actions must be located adjacent to a major road network (state, federal, etc.) that is in good working condition to enable the platoon access to the airfield, as platoons are housed non-adjacent to the airfield. However, it is preferable that the alternative location not be located close to and/or within the Installation cantonment area, as this will alleviate potential traffic congestion concerns associated with cantonment.
  - **Minimal Environmental Constraints.** Alternative locations for both the Army and GAArNG action must contain minimal environmental constraints, such as wetlands, protected species habitat, and cultural resources.

## 2.4 ALTERNATIVES

The Army utilized screening criteria it developed specifically for this action to identify potential sites on FSGA capable of accommodating all Shadow UAS platoons at one location. Only two viable sites were identified and carried forward for a more detailed analysis in the EA. Sites dismissed from further consideration are identified and briefly discussed in Section 2.5 of the Final EA.

### **ALTERNATIVE I: EVANS ARMY AIRFIELD (EAAF) (PREFERRED) (FIGURE 4-5)**

Under this alternative, all current and inbound Shadow UAS platoons, both Army and GAArNG, will permanently bed down at EAAF in a combination of temporary and permanent facilities. This airfield is currently being used as a temporary station by the Shadow UAS platoons assigned to 3CAB and GAArNG and can easily accommodate the inbound platoons in FY17 on a temporary basis due to existing utilities, runways/hangars, and infrastructure. Permanent facilities may eventually replace these temporary facilities, should Congress appropriate military construction funds at a later date. Accordingly, the space at EAAF for this future 3CAB facility construction will be set aside, but no construction will occur until funding has been secured. Environmental analysis for future 3CAB facilities will therefore cover a wide swathe of the landscape surrounding EAAF where construction could potentially occur (Figure 4).

Congress has appropriated military construction funds for the GAArNG to build its permanent facilities, and the siting of their permanent facilities is analyzed in this EA. The GAArNG's permanent hangar will be constructed on a 10-acre footprint as shown on Figure 5. Timber harvest will be conducted by the FSGA Forestry Branch, followed by secondary harvest and site cleanup by the construction contractor. Woody, non-contaminated debris shall be made available to the FSGA Forestry Branch for use as chipping into mulch and for use as fuel in the Installation's Central Energy Power Plant. Site development includes

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grubbing, grading, and site stabilization, installation and connection of required utilities, and (where applicable) establishment of access roads and/or fencing. Ongoing maintenance and repair of these facilities will occur following completion of construction, as will operations and training at EAAF by the UAS platoons.

#### **ALTERNATIVE II: CAMP OLIVER (FIGURE 6)**

Under this alternative, all current Shadow UAS platoons, both Army and GAARNG, would vacate their temporary facilities on EAAF and move approximately 25 miles northwest to permanently bed down at Camp Oliver, a much less improved and more remote location. New temporary facilities and infrastructure would have to be built to accommodate all current and inbound platoons, and the airfield would need to be improved. Inbound UAS platoons in FY17 would bed down at Camp Oliver upon arrival. As stated under Alternative I, permanent facilities for the 3CAB UAS platoons may be constructed once Congress appropriates military construction funds for this effort. Congress has already appropriated military construction funds to the GAARNG to build its permanent facilities, and this is analyzed in this EA. As with the EAAF alternative, facility placement for the 3CAB and GAARNG facilities is not fixed, so environmental analysis will cover a large area where construction could potentially occur. Timber harvest, site cleanup, and re-use of woody debris shall proceed as described under the EAAF alternative. Site development includes grubbing, grading, and site stabilization, installation and connection of required utilities, and (where applicable) establishment of access roads and/or fencing. Ongoing maintenance and repair of these facilities will follow completion of construction, as will operations and training at this location by the UAS platoons.

Although UAS have never operated out of Camp Oliver, this location was determined suitable due to its location within RA and the availability of suitable existing infrastructure to support the Shadow UAS until permanent facilities could be constructed. Minor upgrades and repairs will be required to bring the existing runway up to standards prior to initiating training. Specifically, grass must be removed from the runway and the lateral clearance must be re-established for safety reasons, which will consist of clearing, grubbing and grading approximately 200 acres of forested ground surrounding the airstrip.

#### **ALTERNATIVE III: NO ACTION / STATUS QUO**

Under this alternative, all current and inbound Shadow UAS platoons, both Army and GAARNG, would bed down at either EAAF or Camp Oliver but no additional facilities, permanent or temporary, would be built. Platoons' equipment will be stored in existing motorpools and/or other existing facilities at either EAAF or Camp Oliver. Obviously, this would not meet the purpose and need of this action, but the CEQ regulations implementing NEPA require an analysis of baseline conditions to provide decision makers a better picture from which to more accurately consider the environmental impacts associated with each alternative. (40 CFR 1502.14[d]).

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Figure Redacted

**Figure 4. Evans Army Airfield Alternative – 3CAB Facilities.**

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Figure Redacted

**Figure 5. Evans Army Airfield Alternative – GAARNG Facility.**

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Figure Redacted

**Figure 6. Camp Oliver Alternative – 3CAB and GAARNG Facilities.**

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## **2.5 ALTERNATIVES CONSIDERED BUT ELIMINATED**

### **WRIGHT ARMY AIRFIELD (WAAF) (FIGURE 7)**

Under this alternative, current and future Shadow UAS operations and training will transfer from EAAF to WAAF, and new facility construction will occur to permanently maintain the 20 Army and 4 GAARNG Shadow UAS. WAAF/Midcoast Regional Airport (MCRA) serves as a joint military and civilian use airfield, facilitating military training and civilian aircraft operations. UAS operations have occurred at WAAF since 2004, and it has served as the centralization point for Gray Eagle operations since 2010 as it is the only FSGA airfield that meets the Gray Eagle's launch/recovery requirement for a 5000-foot paved runway. Shadow UAS operations initially occurred at WAAF, but moved to EAAF in 2010, where they are now centralized. Hunter UAS operations are conducted out of WAAF, although they are being phased out during FY16 in lieu of the Gray Eagle. While FSGA has an FAA-approved COA to operate in Class D airspace and WAAF is adjacent to the RA, the "airspace capacity" is inadequate to support an additional UAS mission out of WAAF. Currently, a special provision is enacted during UAS training at WAAF that requires all civilian aircraft be grounded, i.e., the airspace is "sterilized." Correspondingly, when civilian aircraft are operational, no UAS are allowed in the airspace. Only two UAS train within the airspace at a time, and training must be scheduled to balance with the civilian air traffic demands of this joint use airfield. UAS training must therefore be coordinated carefully to get maximum use of training time available. This is a necessary safety measure; accordingly, assigning additional UAS missions to WAAF, when there are other airfields capable of taking on the mission, is an unnecessary safety risk. In addition, Shadow UAS must be launched via catapult, and there is inadequate space on or adjacent to the existing runways/taxiways to safely accomplish this type of UAS launch. Accordingly, adding the Shadow UAS mission to an already stressed-to-capacity airspace may result in an adverse impact to the Army's /GAARNG's ability to train to doctrinal standard. New permanent facility siting did not occur considering the airspace restrictions were enough to make this alternative inadequate; however, WAAF is also surrounded by wetlands and floodplains, making it an even more undesirable alternative due to the extensive avoidance and mitigation requirements associated with construction at this location.

### **Jaeck Airstrip / Other Airstrips (No Figure).**

Jaeck Airstrip is located within RA and does not have airspace capacity issues, as it does not currently support any regularly scheduled military aircraft activities. However, it contains none of the existing facilities and/or infrastructure conducive to support the sustained (year round/enduring) flight training operations necessary to execute a successful Shadow UAS program. It is sufficient for periodical training exercises, however, and is occasionally utilized for those purposes, as discussed in Chapter 1.0 of this Final EA. Accordingly, it did not meet the screening criteria for supporting Army training doctrine and existing infrastructure, two of the most vital criteria for the stationing of the Army UAS Shadow platoons. It is also not located adjacent to a major road network, hampering efficient access to the training site for UAS platoons. From the Army and GAARNG perspective, this location was determined not feasible and was eliminated from further review.

Other airstrips located on FSGA were analyzed but were eliminated for similar reasons. Although located within the Installation's RA, many lacked the required minimal infrastructure requirements, were surrounded by wetlands and/or protected species habitat (failing the minimal environmental constraints

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requirements, and/or were too remotely located/were not adjacent to a major road network and accessing them hamper the platoons' efficiency during training events. Collectively, failing to meet these criteria eliminated them from further review.

### **Hunter Army Airfield (HAAF) (No Figure)**

Under this alternative, all existing and incoming Shadow UAS platoons will transfer to and operate out of HAAF, which is located within complex Class C and D controlled airspace outside of RA. The primary purpose of HAAF is to operate as a Strategic Deployment Airfield, or Aerial Port of Entry and Departure, as well as provide aviation support for its tenant units, to include the 3ID. HAAF also supports General Support Aviation Missions, Joint Operations Support Airlift Command flights, and other DoD mission requirements to include contingency operations and aviation training. This results in a complex and at-times congested airspace environment. In addition, there are safety concerns raised by the commercial flights occurring adjacent to HAAF's airspace from the Savannah/Hilton Head International Airport (SAV). UAS operations at this location would require the sterilization, or grounding of all aircraft, within the transitional airspace between HAAF and the SAV during each UAS training event. This is neither practical nor logistically sound and would adversely impact the mission of HAAF as well as potentially disrupt community use of shared airspace. For these reasons, this alternative was determined unfeasible.

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Figure Redacted

**Figure 7. Wright Army Airfield Sensitive Resources.**

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### 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 or the no action alternative. Potential direct, indirect, and cumulative impacts to the affected environment are discussed as they relate to the action or no action alternatives. Direct impacts are those caused specifically by the proposed action or no action alternative and that occur at the same time and place. Indirect impacts are also caused by the proposed action or no action 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). Impacts occur within a specified region of influence (ROI). If an alternative will not result in direct or indirect impacts to an environmental resource within the ROI, it will not contribute to cumulative impacts to that resource. The levels of intensity of potential impacts are described as follows:

- *Adverse.* A negative net impact.
- *Beneficial.* A positive net impact.
- *Negligible.* No measurable impacts are expected. Any environmental impact would be barely perceptible, combined to a single location, or would not require a long recovery period (days to months).
- *Minor.* Short-term but measurable impacts are expected. The resource would recover in a relatively short period of time (days to months).
- *Moderate.* Measureable and long term impacts that may not remain localized. Recovery may require several years or decades.
- *Potentially Significant.* Identifies when an impact would result in substantial change or loss of resource.

#### 3.1 RESOURCES ANALYZED

Implementation of the Proposed Action has the potential to result in impacts to Water Quality and Resources, Biological Resources, Cultural Resources, Noise, and Health and Safety, and their analysis is presented in detail in the remainder of this chapter. The Proposed Action is not anticipated to result in impacts to Groundwater, Land Use, Air Quality, Recreation and Visual Resources, Socioeconomics, Provision for the Handicapped/Environmental Justice/Protection of Children, and Transportation; accordingly, these resources are not discussed in detail in the main body of the Final EA, but are instead briefly summarized in its Appendix A. The overall ROI for each alternative consists of its location and the lands immediately surrounding it, as depicted on Figures 8-9. Past, present, and reasonably foreseeable actions for each alternative’s ROI are briefly discussed below.

**EAAF (Figure 8).** Past actions within the ROI have consisted primarily of natural resource management and military training for more than 75 years. Military aviation training occurs at Burton Airstrip to the far west of the ROI and Canoochee Airstrip to its far east, while training on the many Small Arms (SA) Ranges occurs along FS Road 144, which runs along the center of the ROI. These ranges fire into the small arms impact area (SAIA), which is primarily forested. The ROI also includes several Firing Points (FPs) and

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Position Artillery Areas (PAAs), which host an array of live and non-live fire training. Aerial gunnery training also occurs in the ROI, all of which is aimed into the Artillery Impact Area (AIA), located to the north-northwest of the ROI, and the adjacent B-18 IA, located to the northeast. The majority of this land is forested and supports a diverse array of wildlife and protected species, seven of whom are federally protected. Other sensitive resources, to include wetlands and floodplains, are found within the ROI as well. Accordingly, prior to training on FSGA, all units are briefed on all pertinent environmental information, in accordance with Fort Stewart Post Range Regulation 385-14 (DA, 1997). Reasonably foreseeable future actions within the ROI consist of continued natural resource management activities and military training. Other than the proposed action, there are no other construction projects planned for this portion of the Installation in the immediate future (5-10 years).

**Camp Oliver (Figure 9).** Past actions within this ROI have also consisted primarily of natural resource management and military training for more than 75 years. The Installation boundary lies close and to the west of Camp Oliver and is the site of municipal and rural activities, including the City of Daisy. Military aviation training occurs at Cartwright and Remagen airstrips in the northwestern portion of the ROI, while wheeled and non-wheeled vehicular maneuver training occurs throughout this portion of the Installation, referred to as the Western Maneuver Corridor. There are no FPs, PAAs, or IAs within this ROI; however, military aircraft (to include the UAS and Apache) may maneuver through this airspace on their way to those training resources in other parts of the Installation. As with the prior ROI, the ecology within the ROI is diverse, and all units are briefed prior to conducting training at these locations to ensure the preservation of sensitive resources. Reasonably foreseeable future actions within the ROI consist of continued resource management activities and military training. In addition, there are also minor construction projects planned for this portion of the Installation in the next 5-10 years, which include upgrades to Remagen's dirt airstrip, repairs to Camp Oliver's rappel tower, and construction of concrete turn pads on the Installation's tank trails.

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Figure Redacted

**Figure 8. Evans Army Airfield ROI.**

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Figure Redacted

**Figure 9. Camp Oliver ROI.**

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## 3.2 WATER QUALITY AND RESOURCES

### 3.2.1 AFFECTED ENVIRONMENT

Analysis of water quality focuses on the physical, chemical, and biological characteristics of water resources. The Clean Water Act (CWA) (33 USC § 1251 et seq.) is the primary Federal law that protects the nation's water, including lakes, rivers, aquifers, and wetlands. Disturbance to Jurisdictional Waters of the U.S., including navigable waters, impoundments, tributary streams, and wetlands, is regulated and subject to federal permits under Section 404 of the CWA. Although the groundwater/water table is close to the surface at portions of the alternative locations, the ground disturbance proposed is temporary and not otherwise sufficient to result in adverse impacts to the aquifer systems in this area, which are protected by thick underlying layers of clay, and for which much more intrusive and long-lasting activities are required to cause adverse impacts. Therefore, groundwater is not carried forward for further analysis. The proposed action does have the potential to impact surface water sources, wetlands, and floodplains, and they are discussed in greater detail below.

FSGA occupies parts of four separate watersheds, with the majority of the Installation lying within the Canoochee and Ogeechee Coastal Watersheds. The FSGA Integrated Natural Resources Management Plan (INRMP)(FSGA, 2005) inventoried more than 265 miles of freshwater rivers, streams, and creeks; numerous ponds and lakes; and more than 12 miles of brackish streams. There are also approximately 90,000 acres of wetlands, based on the National Wetlands Inventory (NWI), a map-based planning tool first introduced by the U.S. Fish and Wildlife Service (USFWS) in 1974. The Federal Emergency Management Agency (FEMA) has also determined that approximately 120,000 acres of land on FSGA lies within the 100-year Floodplain.

The CWA, Georgia Water Quality Act (GWQA) (Official Code of Georgia [OCGA] § 12-5-20), and Georgia Erosion and Sedimentation Control Act (OCGA § 12-7-1) establish specific requirements for different levels of land disturbing activities to ensure minimization of soil erosion and associated sedimentation of surface waters. Specifically, FSGA has established standard requirements expected of site-disturbing projects.

For all projects that disturb more than 0.75 acres on FSGA, to include timber harvest and construction, fees in the amount of \$80.00/disturbed acre are paid to the Georgia Environmental Protection Division (EPD). A copy of the fee submission, draft Notice of Intent (NOI) for coverage under the Installation's National Pollutant Discharge Elimination System (NPDES) Permit, and the project-specific Erosion and Sedimentation Pollution Control (ESPC) Plan are submitted to the FSGA Environmental Division, who complete the NOI and submit it to the State. Land disturbance may not commence until 14 days from the date of certified mailing of the NOI packet. The total acreage of disturbance calculation must include material laydown areas, muck out/soil fill sites, stockpile and equipment storage areas, work-site entrance/exits, utility rights-of-way, demolition sites, and timber harvest sites.

E&S Control Best Management Practices (BMPs) are identified in the ESPC Plan and must be utilized by the project's site operator. The ESPC Plan includes requirements identified in the "Green Book" (*Manual for Erosion & Sedimentation Control for the State of Georgia*), the *Coastal Stormwater Supplement*, the Energy Independence and Security Act-Section 438, the US Environmental Protection Agency (EPA)

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Technical Guidance (EPA 841-B-09-001 December 2009), the United Facilities Criteria Manual for Low Impact Design, as well as additional applicable Federal and local requirements found at <http://www.stewart.army.mil/info/?id=515>. A summary of how these materials apply is provided below.

- The ESPC Plan must include flow calculations demonstrating concentrated runoff flows from peak rain events will not impact (a) any existing stream, (b) upstream systems and (c) downstream systems of the site as required for Total Maximum Daily Loads to maintain water quality standards by the removal of any potential pollutants.
- When preparing the ESPC Plan, DPW Policies #10 and #11 (Appendix B) must be utilized that require engineers / proponents to take a more holistic approach to stormwater management of individual construction projects. Specifically, engineers must use Low Impact Development (LID) and Green Infrastructure (GI) stormwater control practices along with water quantity management practices found in the *Georgia Stormwater Management Manual and the Coastal Stormwater Supplement*. This is necessary to completely satisfy aquatic resource protection, overbank flood protection, and extreme flood protection, which are criterion found in these documents for post-construction BMPs.
- Dry detention basins must be located downstream of other LID/GI structural controls. Hydraulic considerations are necessary to ensure dry detention basins are sized to store the entire water quality design volume or have adequate structural controls to meet the minimum criteria for a 1-year, 24-hour storm event. Wet retention ponds are not a BMP option for FSGA, as detailed in DPW Policy Letter #10.

The operator of a project (whether less than or greater than 0.75 acres) is required to continuously maintain all BMPs through the duration of land disturbing activities (or Notice of Termination). In order for the Army to accept the project as complete, the site must be stabilized to prevent silts and/or sediments from leaving the project site. The Army, through its Contracting Officer Representative, National Resource Conservation Service representative, and the FSGA Environmental Division, must agree that the site meets necessary site stabilization parameters (as required by the State of Georgia) prior to its acceptance by the Army.

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.” The Army has made avoidance and minimization of wetlands impacts on FSGA a top priority, and wetlands are one of the primary factors considered when siting any project on FSGA.

FEMA is responsible for mapping flood-prone areas and lands, including those lying within floodplains in FSGA. 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. The 100-year Floodplains are areas subject to a 1% or greater chance of flooding in any given year. To the greatest extent possible, FSGA avoids construction and other activities within these sensitive resources.

The Alternative I location, EAAF, is surrounded by a system of man-made stormwater drainages that ultimately discharge to an unnamed stream, as shown on Figure 10. This alternative’s ROI contains several wetlands that have been previously delineated, as shown on Figure 10. Wetlands north and northeast of the airfield were delineated in support of the recently-completed Battle Command Training Center; however,

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additional delineations to the east and south were not in association with any specific project. The ROI also contains non-delineated wetlands identified by the National Wetlands Inventory (NWI). This alternative is not located within the 100-year Floodplain, although portions of the ROI's northern border does lie within this sensitive resource.

The Alternative II location, Camp Oliver, contains a system of man-made stormwater drainages and is surrounded by a network of unnamed streams, as shown on Figure 11. This alternative contains one large delineated wetland, starting north of the airstrip, crossing the runway near its center, and crossing in front of the runway's westernmost extent. This delineation was conducted in advance of potential UAS operations being assigned to Camp Oliver in 2012, which would have required upgrades and construction at this location. There are also NWI identified wetlands in the overall ROI for this alternative located to its west, south, east and north, as shown on Figure 11. The alternative is located within the 100-year Floodplain, as is the northern-northeastern portion of its ROI.

Alternative III consists of stationing the new UAS platoons at either EAAF or Camp Oliver, although with no new construction to support them; accordingly, the existing environment will be the same as described under Alternatives I and II.

### **3.2.2 ENVIRONMENTAL CONSEQUENCES**

#### **Alternative I: EAAF**

Under this alternative, there will be negligible adverse impacts to water quality and resources as a result of the timber harvest of approximately 10 acres of upland forest.

**Wetlands and Surface Water Sources.** A clearcut of approximately 10 acres will occur to the north of the airfield to accommodate construction of the GAArNG permanent hangar facility, its access road, and its associated utility corridor, which will tie into existing utility systems on EAAF (Figure 5). The site footprint has been carefully aligned during the design process to avoid impacts to onsite wetlands and existing stormwater drainage systems. The FSGA DPW Environmental Division will establish a 25-foot undisturbed vegetative buffer on the ground adjacent to these surface water features prior to the timber harvest, grubbing, and grading process, to minimize the potential transport of sediments and runoff into these surface water resources. This will be aided by the effective implementation of timber harvest E&S control BMPs, NPDES permit requirements, site-specific ESPC Plans, and pre- and post-construction BMPs. During construction, periodic inspections of work sites and the established buffer areas will be conducted, which will include verification of compliance through turbidity sampling and E&S BMP checks. The Installation shall mandate immediate correction of all violations.

The ESPC Plan shall be developed in association with the Installation's resident soils and stormwater subject matter experts (SMEs). During this process, ESPC plans will be reviewed for compliance with both the CWA and Georgia ESCA. These SMEs will also inspect and monitor the project during its construction phase to ensure compliance. Should land disturbance within wetlands become necessary, additional coordination with the FSGA Environmental Division is required and may include applying for a CWA Section 404 permit from the U.S. Army Corps of Engineers.

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Figure Redacted

**Figure 10. Water Resources at the EAAF Alternative Location.**

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Figure Redacted

**Figure 11. Water Resources at the Camp Oliver Alternative Location.**

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The new facilities proposed for the 3CAB platoons have no site layout at present; however, they will be placed within the swathe of land shown on Figure 10. As each facility is funded and the design process is initiated, the Army will “avoid by design,” as with the GAARNG facility, to ensure minimization of impacts to wetlands and the stormwater drainage system on EAAF. Where unavoidable, impacts will be minimized to the greatest extent possible. Timber harvest, site preparation, construction, and permitting requirements will be as discussed for the GAARNG facility, as well as impact minimization measures, to include adherence to timber harvest E&S control BMPs, NPDES permit requirements, site-specific ESPC Plans, and pre- and post-construction BMPs established BMPs and SOPs.

Following timber harvest and construction, training will recommence. The Shadow UAS can be launched or catapulted from the existing improved runway at EAAF, at which it also lands at the conclusion of the training, none of which result in land disturbance, and for which no adverse impacts are anticipated. Some UAS training missions will be manned-unmanned, integrating the Shadow UAS with its platoons’ associated AH-64 Apache helicopters as they conduct aerial gunnery (AG) training on FSGA; however, the ground disturbance associated with these training events will not occur at EAAF, as discussed under Cumulative Impacts (3.2.3, EA page 28). Routine site maintenance surrounding the facilities will occur as needed, and will be minimal and conducted in compliance with the CWA and ESCA and for which no adverse impacts are anticipated.

***Floodplains.*** This alternative location is not within a floodplain and, accordingly, there will be no adverse impacts to floodplains.

#### **Alternative II: Camp Oliver.**

Under this alternative, there will be minor adverse impacts to water quality and resources as a result of the timber harvest of approximately 200 acres, 20 of which are jurisdictional wetlands.

***Wetlands and Surface Water Sources.*** At present, there is no established layout for either the Army or GAARNG facilities at this alternative location; however, if selected, construction will occur within the swathe of previously disturbed land shown on Figure 11. There is an existing system of man-made stormwater drainages at this location, surrounded by a network of natural, unnamed streams and wetlands, most of which can be avoided through the design process. The GAARNG facility will be constructed first, as its funding has been secured, and its site preparation, construction, and permitting requirements will be as discussed under Alternative I, as will all impact minimization measures, to include adherence to timber harvest E&S control BMPs, NPDES permit requirements, site-specific ESPC Plans, and pre- and post-construction BMPs established BMPs and SOPs. As funded and sited, the 3CAB facilities will follow the same process. No impacts are anticipated as a result of subsequent operations and routine maintenance at these facilities.

Reestablishment of the airstrip’s lateral clearance will require timber harvest, grubbing, and grading of approximately 200 acres of forest surrounding the site’s existing airstrip (denoted by the “bowtie” shaped area on Figure 11). Approximately 20 acres consists of jurisdictional wetlands. These may either be “topped off” or grubbed and graded, although no site specific plan for site clearance has been developed at this time. Grubbing and grading within the wetlands will require a CWA Section 404 permit from the U.S. Army Corps of Engineers, in addition to mitigation for impacts to jurisdictional wetlands. Potential adverse impacts to surface water sources will be minimized and mitigated through effective implementation of timber harvest E&S control BMPs, NPDES permit requirements, site-specific ESPC plans, and pre- and

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post-construction BMPs, to include site stabilization via reseeding/planting, maintaining 25-foot buffers around all wetlands, and conducting periodic inspections of work sites. The Installation shall mandate immediate correction of all violations. Additional site maintenance will be required at this alternative location to ensure the airstrip's lateral clearance remains to standard, to include periodic mowing within the bowtie. All such actions will be conducted in compliance with the CWA and ESCA. All of these measures are anticipated to minimize any adverse impacts to water resources to a level of minor. No impacts from training are anticipated at this location, as discussed under Alternative I.

***Floodplains.*** There will be ground disturbance within portions of the 100-year floodplain associated with timber harvest and potential grubbing and grading to re-establish the lateral clearance of the airstrip, as discussed above. However, this would be during the timber harvest and lateral clearance establishment period only. Periodic mowing and maintenance to maintain the lateral clearance for the airstrip would also occur within these floodplain areas, but would be as minimally intrusive as possible and adhere to all compliance measures in applicable laws and regulations, with as little-to-no ground disturbance as possible. There are no floodplains at the location where the Army and GAARNG facilities would be constructed. Accordingly, negligible adverse impacts to floodplains are anticipated.

### **Alternative III: No Action/Status Quo**

Under this alternative, there will be no adverse impacts to water quality and resources. No new facility construction will be implemented at EAAF or Camp Oliver and potential impacts associated with routine repairs and maintenance to existing facilities and current and future training will be minimized down to no effect via adherence to guidance and requirements in existing Installation management plans, permits, and BMPs.

### **3.2.3 CUMULATIVE IMPACTS**

#### **Alternative I: EAAF ROI**

Negligible cumulative impacts to water quality and resources are anticipated. Past and present actions in the ROI consist of military training at the SA Ranges and Burton/Canoochee airstrips, the majority of whose impacts remain contained within each facility's footprint. There is a potential for sediments and/or other pollutants to wash into stormwater drainageways (and nearby water resources) at these facilities; however, adherence to facility-specific management plans, E&S Control measures, and BMPs minimize these potential impacts to below a level of significance. Munitions from the SA Ranges are fired into the SAIA and munitions from the FPs and PAAs are fired into the AIA or the B-18 IA, potentially impacting water sources at these impact areas; however, there are no indications they have reached a level of significance. Manned-unmanned training integrating the Shadow UAS with the Apache helicopter may be introduced to the ROI as a result of the proposed action, with all munitions fire aimed into the AIA; however, prior NEPA analysis determined these impacts would not exceed the Installation's historic baseline for such training, resulting in no additional adverse impacts to water resources within the ROI. Adherence to existing Installation-wide management plans (such as the INRMP) and utilization of facility-specific E&S Controls and BMPs will continue to minimize adverse impacts to a level below significance. The only foreseeable future project is the proposed action and the continuation of current and ongoing activities, including the active management of the Installation's sensitive resources. For these reasons, negligible cumulative

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impacts are anticipated as a result of the proposed action, when considered in conjunction with these past, present, and reasonably foreseeable future actions.

### **Alternative II: Camp Oliver ROI**

Negligible cumulative impacts to water quality and resources are anticipated. Past and present actions consist of maneuver training in the western maneuver corridor and military aviation training at Cartwright and Remagen airstrips. As with Alternative I, the majority of impacts at those locations remain within each facility's footprint, and adherence to facility-specific management plans, E&S Control measures, and BMPs minimize the potential for pollutants to reach stormwater drainageways (and nearby water resources) at these facilities to a level below significance. Ground disturbance associated with maneuver training can erode soils and lead to sedimentation of water resources in the ROI; however, the FSGA Integrated Training Area Management (ITAM) personnel proactively monitor the corridor and conduct follow-up repairs/maintenance as needed. Active resource management activities also assist in the minimization of erosion in the ROI, including projects that establish ground cover in areas with high erosion potential. These efforts combine to ensure preservation of the ROI's sensitive resources. Manned-unmanned training between the Shadow UAS and Apache helicopters will not impact this ROI, although they may fly through this area on their way to conduct this training on other portions of the Installation. Foreseeable future projects with the potential to result in cumulative impacts include the upgrades to Remagen's dirt airstrip and the tank trails in the area, as these have the potential to result in pollution of water resources. However, adherence to project-specific permits, E&SC Control measures, and BMPs are anticipated to minimize adverse impacts to a level below significance. For these reasons, negligible cumulative impacts are anticipated as a result of the proposed action, when considered in conjunction with these past, present, and reasonably foreseeable future actions.

### **Alternative III: No Action/Status Quo**

No cumulative impacts to water quality and resources are anticipated as a result of implementation of this alternative, as no direct or indirect impacts are expected.

## **3.3 BIOLOGICAL RESOURCES**

### **3.3.1 AFFECTED ENVIRONMENT**

Biological resources include native and naturalized plants (vegetation), animals, and 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. Unless otherwise indicated, the basis for the information in this section is from the Installation's INRMP, the "2007 Management Guidelines for the Red-Cockaded Woodpecker (RCW) on Army Installations," and Army Regulation 200-1, "Environmental Protection and Enhancement."

**Vegetation.** FSGA is located in the Atlantic Coastal Plain physiographic province of Georgia and contains Georgia's largest remaining forest of longleaf pine. The longleaf pine/wiregrass ecosystem on FSGA is highly compatible with military training, as is evidenced by activities in the proposed action area, which is used for military training exercises yet still supports a healthy population of wildlife and special status

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species. Timber harvest is proposed under Alternatives I and II; therefore, this resource is carried forward for detailed discussion.

**Wildlife.** Wildlife management activities on FSGA identified 46 species of mammals, 57 species of reptiles, 241 species of birds, 38 species of amphibians, and 64 species of fish. Wildlife clearings, firing points, landing zones, and other open areas are disked and seeded to encourage the growth of annual vegetation, used by wildlife species as food sources. Common wildlife on FSGA includes white-tailed deer, wild boar, fox, bobcat, rabbit, squirrel, and other small mammals. In addition to a diverse assemblage of forest songbirds, game birds such as eastern wild turkey and northern bobwhite quail occur on the Installation. There are also several reptile, amphibian, and fish species, to include the American alligator, eastern diamondback rattlesnake, striped bass, and numerous species of sunfish, catfish, shiners, and darters. Impacts to wildlife at the EAAF and Camp Oliver locations will be negligible and temporary, with the species flushing from the area during construction, and returning once it ceases. Therefore, this resource is not discussed further in this EA.

**Migratory Birds.** Approximately 170 species of birds protected under the Migratory Bird Treaty Act (MBTA) occur on FSGA, either seasonally or year-round, and many of these species can be expected to occur in the areas affected by the action alternatives. Fort Stewart complies with the MBTA by implementing Army Policy Guidance (17 August 2001) and EO 13186, *Responsibilities of Federal Agencies to Migratory Bird Treaty Act*. Impacts to migratory birds under all alternatives will be negligible and temporary, with the species flushing from the area during construction, and returning once activities cease. Therefore, this resource is not discussed further in this EA.

**Protected Species.** There are seven federally-listed species known to occur on FSGA: the red-cockaded woodpecker (RCW), shortnose sturgeon, Atlantic sturgeon, wood stork, eastern indigo snake, frosted flatwoods salamander (FFS), and smooth coneflower. There is also one State of Georgia protected species, the gopher tortoise, which is protected because the federally protected Indigo snake often resides in its burrows. Implementation of the proposed action at either alternative location will not impact the Atlantic sturgeon, shortnose sturgeon, wood stork, or smooth cornflower due to either a lack of or unsuitability of the habitat at an alternative location and/or the distance between the alternative location and any documented sighting of that species. Accordingly, they will not be discussed further in this EA. However, the RCW, FFS, indigo snake, and gopher tortoise and/or their habitat will be impacted at the Alternatives I and/or II locations. Therefore, these species are carried forward for detailed discussion.

**RCW.** The RCW is listed by the United States Fish and Wildlife Service (USFWS) as endangered, and is a highly social species that lives in extended family groups known as colonies or clusters. The quality of RCW foraging habitat varies depending upon vegetation in the understory, weather, soils, season, and fire frequency and intensity. The highest populations of RCWs occur on areas with active prescribed burning programs that control hardwoods (frequency of every 2-3 years). On FSGA, the Army reached its RCW recovery goal of 350 potential breeding groups (an adult female and adult male that occupy the same cluster) during the breeding season of 2012 and has enough suitable or potentially suitable habitat management units (HMU) to support 657 RCW clusters. The Army adheres to guidelines established in the USFWS' Recovery Plan for the RCW, as well as to requirements of existing Biological Opinions (BOs) prepared in accordance with the UFWS Recovery Plan and as approved in consultation with the USFWS.

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*FFS.* The frosted flatwoods salamander (FFS) is listed by the USFWS and the state of Georgia list as threatened. Terrestrial adult FFS inhabit low areas in pine flatwoods, where they live in underground burrows that they excavate or in crayfish tunnels. The FFS have been found more than one mile from their breeding ponds. A protective buffer of 492 yards from a wetland's edge is recommended by USFWS and used by Fort Stewart. Isolated pools have been ranked according to their suitability as FFS breeding sites, and protective buffers have been assigned to minimize impacts to the potential breeding sites. The Installation's conservation goal is to maintain five existing populations of FFS; currently, 25 breeding sites are known to exist on Fort Stewart.

*Eastern Indigo Snake.* The Eastern indigo snake is listed by USFWS and the state of Georgia as threatened (USFWS, 2003) and primarily resides and forages in dry areas interspersed with wetland habitats, such as the drainage ways and rivers to the northern and western portions of the proposed action site. These species frequently nest in the burrows created by Gopher tortoises and are often associated with the same habitat as these species for that reason. Four known populations have been identified on FSGA, specifically along the Canoochee River, Beards Creek, and the Ogeechee River, and the species has been reported in the AIA and B-3 and B-4, adjacent to the Ogeechee River. Research by FSGA Environmental Division indicates the AIA may be among the best sites in GA for this species, and the Installation's conservation goal for it is to maintain areas in which it is known to occur and to encourage expansion into suitable unoccupied habitat.

*Gopher Tortoise.* The Gopher tortoise is one of the important keystone vertebrates in longleaf pine forests because its long-lasting burrows are used by numerous vertebrates and invertebrates, such as the eastern indigo snake, and its habitat is interspersed throughout the proposed action area. The species is a dry land turtle with a high, domed shell, a length of up to 15 inches, and elephant-like hind feet and flattened shovel-like front feet for digging. The Gopher tortoise digs a long sloping burrow up to 30 feet long and extending up to 9 feet below the surface. The traditional habitat of the gopher tortoise is the same as that discussed for the RCW and the Indigo snake, and contains an abundance of herbaceous ground cover and generally open canopy with a sparse shrub midstory. The tortoise favors disturbed habitats that are cleared and maintained. To aid in conservation of this species, buffer zones for military training are maintained at least 25 feet from burrows. The tortoises and their burrows are surveyed at least every five years to document numbers and distribution of active burrows and habitat quality for the tortoises and indigo snakes, and the information is sent to the USFWS annually (Fort Stewart, 2005).

### **3.3.2 ENVIRONMENTAL CONSEQUENCES**

#### **Alternative I: EAAF**

Under this alternative, there will be no adverse impacts to biological resources as a result of the timber harvest of approximately 57 acres of upland forest.

**Vegetation.** Construction of the GAArNG's permanent hangar will occur first in FY16; no FY is currently set for any of the 3CAB facilities and, accordingly, their merchantable timber harvest will occur in phases as each facility is funded and sited. Prior to their removal, all timber harvest areas shall be clearly delineated on the ground in coordination with a FSGA Forestry Branch representative. The Forestry Branch requires a minimum of 90 days to harvest the merchantable timber and is not responsible for site cleanup, to include

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stump removal, logging slash, and any remaining non-merchantable timber. This cleanup is the responsibility of the contractor chosen for site preparation, in addition to all follow-up grubbing and grading to prepare the site for construction. Adherence to timber harvest BMPs, NPDES permit and standard E&S requirements established in the project's ESPC Plan will help minimize potential adverse impacts to vegetation on site. It will also minimize soil erosion and aid in the re-establishment of post-project ground level vegetation. This process and set of requirements will apply to each new facility as its funding is secured, its site selected, and a construction schedule established and implemented.

No adverse impacts to vegetation are expected during facility operations and maintenance, as they are limited to within the facilities and on the airstrip, do not require any additional ground disturbance, and if required, will be minimal and conducted in compliance with the CWA and ESCA. As discussed under Water Quality and Resources, Shadow UAS training is accomplished on the existing runway and in the air, none of which results in land disturbance and for which no adverse impacts are anticipated.

**Protected Species.** The only protected species potentially impacted by the proposed action at EAAF and its surrounding area are the RCW and FFS. Accordingly, these are the only protected species discussed below.

*RCW.* The FSGA Fish and Wildlife Branch (FWB) prepared a Biological Assessment (BA) and conducted informal consultation with the USFWS to address potential impacts to RCW at the EAAF location, concluding there was no potential impact to these species; the USFWS issued their concurrence with the Installation's findings on January 25, 2016 (Appendix C). Surveys supporting the BA did not identify any RCWs on or directly adjacent to EAAF; however, one RCW Cluster (#430) will lose 10.4 acres of foraging habitat due to timber harvest associated with the GAARNG permanent hangar facility (Figure 12). However, it will retain adequate foraging resources post-harvest and construction, will remain viable for the birds residing within the cluster, and will continue to meet the Managed Stability Standard (MSS) for RCWs, resulting in temporary adverse impacts only. However, based on the abundance of RCW HMU and RCW cavity trees on FSGA, and the fact that the FSGA RCW population reached its recovery goal in 2012, no impacts to the RCW are anticipated.

*FFS.* Surveys also determined timber harvest and construction will impact 15.4 acres of the secondary buffer of potential FFS breeding ponds, located to the east and south of EAAF (Figure 13). No confirmed FFS breeding ponds will be impacted, and there are no FFS ponds (potential or confirmed) on or closely adjacent to EAAF itself. The nearest known occurrence of a FFS is 2.1 miles southeast of the proposed action area in FSGA Training Area (TA) A-10, which further minimizes the potential for impacts to this species.

Construction for the 3CAB facilities may occur within the secondary buffer of potential FFS ponds; however, impacts to this buffer are likely avoidable during the design phase for each facility as it is funded and sited. In addition, the project design shall incorporate protection of all surface water sources as required by the CWA, the GA ESCA, and the ESA. Due to the distance of the FFS sighting from the project area and the implementation of these minimization measures, no impacts to FFS associated with the proposed action are anticipated.

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Figure Redacted

**Figure 12: RCW Habitat Management Units and Clusters at Evans Army Airfield Location.**

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Figure Redacted

**Figure 13: FFS Habitat Management Units and Clusters at Evans Army Airfield Location.**

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No adverse impacts to protected species are expected during facility operations and maintenance, which is limited to the facilities and the airstrip, nor during Shadow UAS training, which is accomplished on the existing airstrip, where none of these species are found and/or likely to be found. Overall, no impacts are anticipated as these lands will continue to be managed in accordance with existing FSGA management plans, such as the INRMP, and in accordance with existing reasonable and prudent measures identified in BOs issued by the USFWS for Fort Stewart.

### **Alternative II: Camp Oliver**

Under this alternative, there will be negligible adverse impacts to biological resources as a result of the timber harvest of approximately 200 acres of upland forest.

**Vegetation.** As with Alternative I, areas slated for merchantable timber removal will be clearly delineated on the ground in advance of the harvest with a FSGA Forestry Branch representative. As there is a larger timber harvest associated with this alternative (200 acres versus 57 acres under Alternative I), the FSGA Forestry Branch will require a greater amount of time to harvest the merchantable timber and this should be reflected in the project timeline and contracts. As with Alternative I, the Forestry Branch is not responsible for site cleanup to include the removal of stumps, logging slash, and non-merchantable timber, and the contractor is required to adhere to timber harvest BMPs, NPDES permit and standard E&S requirements established in the project's ESPC Plan to help minimize potential adverse impacts to vegetation on site. This process and set of requirements will apply to each new facility as its funding is secured, its site selected, and a construction schedule established and implemented.

No adverse impacts to vegetation are expected during facility operations and maintenance, as they are limited to within the facilities and on the airstrip, do not require any additional ground disturbance, and if required, will be minimal and conducted in compliance with the CWA and ESCA. As discussed under Water Quality and Resources, Shadow UAS training is accomplished on the existing runway and in the air, none of which results in land disturbance and for which no adverse impacts are anticipated.

**Protected Species (Figure 14).** The protected species potentially impacted by the proposed action at Camp Oliver and its surrounding area are the RCW, eastern indigo snake, and gopher tortoise. Accordingly, these are the only species discussed below.

*RCW.* In 2006, the Installation explored the idea of establishing UAS operations at Camp Oliver, during which time it was determined that approximately 57 acres of upland forested habitat must be removed surrounding the existing airstrip to re-establish its original lateral clearance limits (Mixon, 2016). Once restored, the airstrip could safely accommodate UAS operations and training. This clearance was not specific to supporting any one type of UAS.

Accordingly, a BA was prepared by the FSGA FWB to analyze the potential impacts of these proposed improvements to protected species at the Camp Oliver location. The BA concluded there would be no adverse effect to protected species as a result of the proposed improvements, and the USFWS agreed with this finding (Appendix C). The proposed improvements never occurred at Camp Oliver, however, as FSGA leadership determined it was more efficient to centralize UAS operations at EAAF and WAAF due in part to the lack of required improvements at those locations (i.e., less funding required).

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Figure Redacted

**Figure 14: Protected Species at Camp Oliver Location.**

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At the time of the 2006 BA, there were no established standards for airfields supporting UAS operations and training; however, in 2010, Engineering Technical Letter (ETL) 1110-3-506 was published and established the specific criteria followed today (DA, 2013b). Utilizing ETL 1110-3-506, FSGA determined that a clearance of 200 acres of upland forest was required at Camp Oliver to establish an appropriate lateral clearance for support of Shadow UAS operations and training (Figure 1; DA, 2013b); thus the difference in proposed clearcuts (200 versus 57) analyzed in the two BAs. Information in this section combines data from the 2006 BA and a subsequent analysis of the recently expanded footprint by the FSGA FWB.

Timber harvest and construction will impact RCW HMU; however, no RCW cavity trees were identified on or directly adjacent to Camp Oliver proper. There are four active clusters (#s167, 199, 362, and 466) and one inactive cluster (#467) adjacent to the proposed 200 acre clear cut (Figure 14). Although this will impact the foraging partition of Cluster 466, the closest to the clear cut's southeastern edge, the cluster will retain adequate foraging resources post-harvest and construction, will remain viable, and will continue to meet the MSS for RCWs, resulting in temporary adverse impacts only. There is no potential to affect the foraging partition of any other RCW cluster. Based on the abundance of RCW HMU, RCW cavity trees on FSGA, and the fact that the FSGA RCW population reached its recovery goal in 2012, negligible impacts to the RCW are anticipated.

*FFS.* Surveys determined FFS HMU is located adjacent to the clear cut and that there are three potential FFS breeding ponds located within one mile of the southern boundary of the clear cut. Timber harvest may impact the primary and secondary buffers at these locations; however, no FFS have been detected in these ponds, and no ponds lie within the proposed clear-cut itself. No FFS are located adjacent to Camp Oliver proper. Accordingly, no impacts to the FFS associated with the proposed action are anticipated.

*Indigo Snake and Gopher Tortoise.* Surveys determined eastern indigo snake HMU is located adjacent to, but not within, Camp Oliver proper and the boundaries of the clear cut. This HMU also supports populations of gopher tortoises, in whose burrows the snake often resides. There is one eastern indigo snake sighting at the eastern boundary of the clear cut, but none within it, and three gopher tortoise areas lie within one mile of Camp Oliver and the clear cut, one each to its north, west, and south. Historically, the primary risk to the eastern indigo snake is direct mortality from vehicle traffic or damage to the gopher tortoise burrows or other retreats in which it seeks shelter (Fort Stewart Endangered Species Management Team, July 2001). During timber harvest and construction, contractors shall take extra precautions while on roads and trails transporting felled timber as a protective measure for these species.

No adverse impacts to protected species are expected during facility operations and maintenance, which is limited to the facilities and the airstrip, nor during Shadow UAS training, which is accomplished on the existing airstrip, where none of these species are found and/or likely to be found. Overall, negligible impacts are anticipated under this alternative, as these lands will continue to be managed in accordance with existing FSGA management plans, such as the INRMP, and in accordance with existing reasonable and prudent measures identified in BOs issued by the USFWS for Fort Stewart.

### **Alternative III: No Action/Status Quo**

Under this alternative, there will be no adverse impacts to biological resources. New construction at either EAAF or Camp Oliver will not be implemented and no impacts are anticipated from routine repairs and maintenance to existing facilities or current and future training, which will be minimized down to no effect

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via adherence to existing management plans (such as the INRMP) and reasonable and prudent measures identified in recent BOs.

### **3.3.3 CUMULATIVE IMPACTS**

#### **Alternative I: EAAF**

No cumulative impacts to biological resources are anticipated as a result of implementation of this alternative, as no direct or indirect impacts are expected.

#### **Alternative II: Camp Oliver**

Negligible cumulative impacts to biological resources are anticipated. Past and present actions consist of maneuver training in the western maneuver corridor and military aviation training at Cartwright and Remagen airstrips. Maneuver training has the potential to damage protected species habitat in the ROI; however, this portion of the Installation has an open vegetative landscape through which military vehicles may easily maneuver, resulting in minimal historic adverse impacts to protected species habitat. In addition, FSGA ITAM and FWB personnel monitor training impacts across the Installation and ensure the landscape is well maintained, repairing damage well before it may result in cumulative degradation. The FSGA Forestry Branch also conducts routine, as-needed prescribed burns and timber thinnings throughout the ROI to maintain this open landscape, which is also an ideal habitat for the many wildlife and protected species who reside within it. No impacts are anticipated as a result of the aviation training, as impacts are mostly confined to within each facility's footprint. Manned-unmanned training between the Shadow UAS and Apache helicopters will not impact this ROI, although they may fly through this area on their way to conduct this training on other portions of the Installation. Foreseeable future projects with the potential to result in cumulative impacts include the upgrades to Remagen's dirt airstrip and Camp Oliver's rappel tower, as the wildlife will temporarily flush from these areas during construction. Impacts will be temporary, however, and will not reach a level of significance. For these reasons, negligible cumulative impacts are anticipated as a result of the proposed action, when considered in conjunction with these past, present, and reasonably foreseeable future actions.

#### **Alternative III: No Action/Status Quo**

No cumulative impacts to biological resources are anticipated as a result of implementation of this alternative, as no direct or indirect impacts are expected.

## **3.4 CULTURAL RESOURCES**

### **3.4.1 AFFECTED ENVIRONMENT**

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, including paleontological), architectural resources, and traditional cultural properties. Historic districts may fall within all three of these, depending upon what they contain.

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The Installation's Integrated Cultural Resources Management Plan (ICRMP) incorporates federal and Army cultural resource laws and regulations into an internal document outlining how Fort Stewart manages its cultural resources. Utilizing this guidance, FSGA and the Georgia State Historic Preservation Office (SHPO) developed 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 Federal laws and regulations while providing a timely, effective method of managing Fort Stewart's cultural resources.

Under the National Historic Preservation Act (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 National Register of Historic Places (NRHP). Historic properties include traditional cultural properties and, in general, must be more than 50 years old to be considered for protection under the NHPA, although they may also warrant consideration if they 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. Although many other laws apply to cultural resources, this analysis will focus on consideration of impacts under the NHPA.

Traditional cultural properties can include archaeological resources, buildings, neighborhoods, prominent topographic features, habitats, plants, animals, or traditional hunting and gathering areas that American Indians or other consider essential to continue traditional cultures. Specific American Indian Tribal resources or sacred sites, or areas on Fort Stewart where such sites may be situated, have not all been identified to date. Fort Stewart consults with American Indian Tribes having an ancestral affiliation with the Fort Stewart area on a case-by-case basis, specifically when projects arise with the potential to affect Tribal resources.

Architectural resources include standing buildings, dams, canals, bridges, and other structures of historic or aesthetic significance. Archaeological resources include any material remains of past human life or activities that can provide scientific or humanistic understandings of past human behavior and culture by applying scientific or scholarly techniques. For example, archaeological resources consist of sites, arrowheads, stone flakes, or bottles.

There are no known traditional cultural properties or prehistoric resources identified on or in proximity to the alternative locations for the proposed action; accordingly, these cultural resources components are not discussed further in this EA. However, archaeological and architectural resources have been identified on or in the vicinity of the alternative locations, and are discussed below. For additional details, see Appendix D, Cultural Resources Impact Analysis Report. *Note: due to site sensitivity, no maps are provided in this section of the EA.*

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### **3.4.2 ENVIRONMENTAL CONSEQUENCES**

#### **Alternative I: EAAF.**

Under this alternative, no adverse impacts to cultural resources are anticipated. Surveys at this location did not identify any properties eligible or potentially eligible for the NRHP. Structures within EAAF were determined ineligible for the NRHP in accordance with the Fort Stewart 2001 Building Survey (Fortune & Maggioni 2001). Following completion of each of the several phases of construction proposed for this alternative location, units will continue to train, which to date has not resulted in adverse impacts to cultural resources at this location.

#### **Alternative II: Camp Oliver.**

Under this alternative, no adverse impacts to cultural resources are anticipated, as prior surveys at this location did not identify any properties eligible for listing on the NRHP. Two historic structures are located to the northwest of the Camp Oliver sub-cantonment area: Glisson's Store (built in 1923) and the Glisson's Fire Tower (built in 1954); however, both structures were previously determined eligible for the NRHP and the proposed new usage of Camp Oliver, including the upgrades to the runway and clear cut to establish the lateral clearance area, will have no adverse effect to them. In addition, the Fire Tower was previously mitigated for adverse effects (up to and including demolition) and the Glisson's Store's viewshed is sufficiently displaced from the area of potential effect to avoid any adverse impacts to this sensitive resource.

#### **Alternative III: No Action/Status Quo**

Under this alternative, no adverse impacts to cultural resources are anticipated. No new construction or upgrades to either airfield will occur. Training actions have not historically resulted in adverse impacts to cultural resources at these locations, and the proposed new Shadow UAS training mission at Camp Oliver is not anticipated to result in adverse impacts.

### **3.4.3 CUMULATIVE IMPACTS**

#### **Alternative I: EAAF**

No cumulative impacts to cultural resource anticipated as a result of implementation of this alternative, as no direct or indirect impacts are anticipated.

#### **Alternative II: Camp Oliver**

No cumulative impacts to cultural resource anticipated as a result of implementation of this alternative, as no direct or indirect impacts are anticipated.

#### **Alternative III: No Action/Status Quo**

No cumulative impacts to cultural resource are anticipated as a result of implementation of this alternative, as no direct or indirect impacts are anticipated.

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## 3.5 NOISE

### 3.5.1 AFFECTED ENVIRONMENT

Noise is as any undesirable sound that interferes with communication, is intense enough to damage hearing, diminishes the quality of the environment, and/or is otherwise annoying. 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 may come from either stationary or mobile sources.

To assist communities with land use planning and zoning, the Army has identified three planning categories or zones associated with noise level contours in the Installation Environmental Noise Management Plan (ENMP) (DA, 2012b) and the Joint Land Use Study. The paragraphs below discuss these zones and the compatibility level associated with them, Figure 15 shows their distribution on FSGA, and Table 1 shows a comparison of common noise sources.

- **Zone I** includes all areas around a noise source in which day-night sound level (DNL) is less than 65 decibels, A-weighted (dBA); or 62 decibels, C-weighted (dBC). This area is usually suitable for all types of land use activities (homes, schools, and hospitals).
- **Zone II** consists of an area where the DNL is between 65 and 75 dBA or 62 and 70 dBC. Exposure to noise within this area is normally incompatible with noise-sensitive land uses (residences, hospitals, churches, educational facilities), and use of the land within the zone should normally be limited to activities such as industrial, manufacturing, transportation, and resource production (industrial parks, factories, and highways). In situations where noise-sensitive land uses occur within Zone II, guidance recommends noise level reduction features be incorporated in design and construction.
- **Zone III** is an area around the source of noise in which the DNL is greater than 75 dBA or 70 dBC. The noise level within this zone is considered incompatible with noise-sensitive land uses, such as churches, schools, parks, playgrounds, residences, and hospitals.

Noise from construction activities varies with the types of equipment used and the duration of use. The U.S. Department of Transportation (USDOT) Federal Highway Administration (FHA) compiled noise levels generated by individual pieces of construction equipment and specific construction operations from both stationary and mobile sources and for steady, intermittent, and impulse-type generators of noise. Stationary sources include pumps, generators, and compressors; these sources are considered nonimpact-type noises. Stationary sources considered impact-type noises include pile drivers, jackhammers, pavement breakers, and blasting operations. Mobile sources include dozers, scrapers, graders, etc.

Training noise on FSGA varies from small arms fire to artillery and aerial gunnery, as well as noise associated with military aviation training, to include UAS. The most substantial noise impacts are from the larger rounds impacting the impact areas, to include artillery gunnery exercises; however, these impacts are directed toward the Artillery Impact Area (AIA), at the center of the Installation and away from all potential sensitive receptors. EAAF and WAAF are the airfields most commonly used for UAS training, as discussed in Chapter 2.0 of this EA, although the small, light Raven can be hand-launched from any location on FSGA.

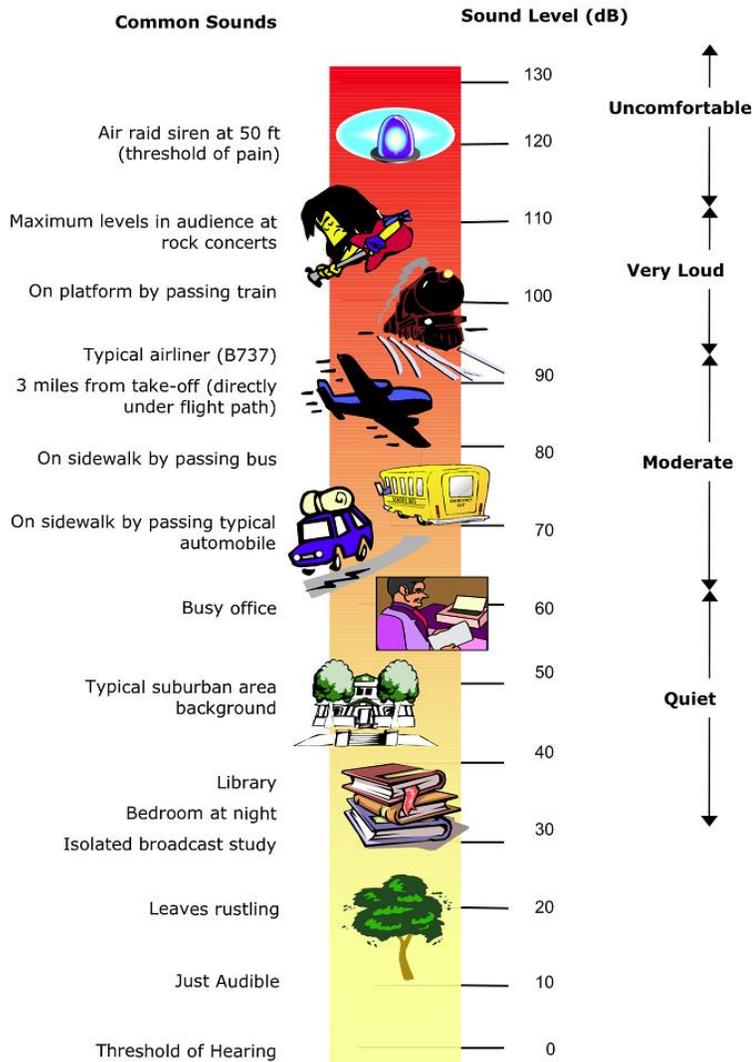
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The Installation Compatible Use Zone (ICUZ) Study for the ENMP describes the ranges by location, type of weaponry utilized, and type of training conducted. The ICUZ Study utilized a MicroNoise Model Program to generate noise contours produced by Fort Stewart on an average day. The results showed that all sensitive land uses were located outside of areas where the most noise-producing military and aviation training were occurring. Consequently, the Environmental Noise Management Plan concluded those activities at Fort Stewart pose no potential impacts to noise sensitive land uses on the Installation or in the surrounding community.

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Figure Redacted

**Figure 15: Fort Stewart Noise Contours.**



**Table 1: Common Sources of Noise and their Decibel Levels (Cowan, 1994).**

### 3.5.2 ENVIRONMENTAL CONSEQUENCES

#### Alternative I: EAAF

Under this alternative, there will be negligible adverse impacts to the noise environment on FSGA. Short-term increases in noise will occur due to timber harvesting and construction at and immediately surrounding the airfield. However, these are expected to be negligible because construction would occur during normal business hours only, sensitive receptors would not be near the area, and the equipment would be used for a short period of time only. Currently, only the GAArNG facility is approved, funded, and sited; accordingly, this facility will be constructed first, followed by timber harvest and construction of the 3CAB facilities individually as they are funded over varying FYs. This will phase the noise-related disturbance out over

short periods of time. Workers participating in harvest and construction shall comply with Occupational Safety and Health Act (OSHA) regulations, which will minimize the potential for noise-related hearing loss associated with the proposed action. For government personnel, adherence is also required with DoD Instruction 6055.12, *Hearing Conservation Program*; and U.S. Department of the Army Pamphlet 40-501, *Hearing Conservation Program*.

No impacts are anticipated, as the UAS only operate within the Installation's restricted airspace and not over areas containing sensitive noise receptors, such as on- or off-Post residences and schools. A comparison of Shadow UAS noise levels to other common noise sources is at Table 2. As this is an existing noise source at EAAF, an additional 12 UAS at this location is not anticipated to result in a substantial change or to adversely impact the existing noise environment. Soldiers shall comply with DoD Instruction 6055.12, *Hearing Conservation Program*; and U.S. Department of the Army Pamphlet 40-501, *Hearing Conservation Program*, and wear hearing protection while in the vicinity of the active UAS. However, once the UAS reaches an altitude of approximately 5000 feet AGL, they cannot be seen or heard; accordingly, UAS Team members and/or others on the ground could remove hearing protection at that point.

**Comparison of noise levels of the Shadow to other common noise sources**

Noise source	Distance (feet)	Noise level (dBA)
Shadow (UAV)	204	85
Shadow (UAV)	28	108
Passenger car (65 mph)	25	77
Motorcycle	25	90
Air conditioner	60	60

Sources: USACHPPM 2003

**Table 2: Noise Level Comparisons**

### **Alternative II: Camp Oliver**

Under this alternative, there will be negligible adverse impacts to the noise environment on FSGA. As with Alternative I, there will be a short-term increase in noise resulting from the sequenced timber harvest and construction, and workers on site will be required to adhere to the same preventive and protective measures to minimize potential adverse impacts. The addition of 24 UAS to Camp Oliver will result in a minimal change to the Installation's current noise environment at this location, as there are currently no UAS operations occurring at this airfield. However, as the UAS will remain within the Installation's restricted airspace and avoid sensitive noise receptors, there will be no substantial change in the noise environment. Overall, negligible adverse impacts are anticipated as a result of this alternative.

### **Alternative III: No Action/Status Quo**

Under this alternative, there will be no adverse impacts to the noise environment on FSGA. There will be no timber harvest and construction, and accordingly, potential impacts to the noise environment would be the result of routine repairs and maintenance of existing facilities and current and future training only. The addition of the 12 UAS at EAAF or the 24 UAS to Camp Oliver would result in no impact and negligible impacts on the noise environment, respectively, and Soldiers participating in training activities at these

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locations must wear protective hearing equipment. Overall, there will be no impacts to the noise environment as a result of this alternative.

### **3.5.3 CUMULATIVE IMPACTS**

#### **Alternative I: EAAF**

No cumulative impacts to the noise environment are anticipated. Past and present actions in the ROI consist of military aviation training at Burton and Canoochee Airstrips and EAAF. Small arms training occurs at the SA Ranges, which fire into the SAIA, and training occurs at the FPs and PAAs, which fire into the AIA and B-18 IA. Some aviation training in the ROI is manned-unmanned, coordinating UAS with Apache helicopters. All training in the ROI so far not resulted in impacts to sensitive noise receptors and the addition of the proposed action is not anticipated to contribute to adverse effects to the ROI. Other than the proposed action, there are no other construction projects planned for this portion of the Installation in the immediate future (5-10 years). Adherence to OSHA and Army regulations and aviation safety rules and regulations should minimize potential impacts to levels below negligible. For these reasons, no cumulative impacts are anticipated as a result of the proposed action, when considered in conjunction with these past, present, and reasonably foreseeable future actions.

#### **Alternative II: Camp Oliver**

Negligible cumulative impacts to the noise environment are anticipated. The Installation boundary lies close and to the west of Camp Oliver and is the site of municipal and rural activities, including the City of Daisy. Military aviation training occurs at Cartwright and Remagen airstrips and will be added to the location of the proposed action as a result of this alternative. Wheeled and non-wheeled vehicular maneuver training occurs throughout this portion of the Installation. There are no FPs PAAs or IAs within this ROI; however, military aircraft (to include the UAS and Apache) may maneuver through this airspace on their way to those training resources in other parts of the Installation. These, added to the increased noise resulting from the proposed action, may result in an increase in noise levels in the overall ROI. Reasonably foreseeable future actions within the ROI consist of continued resource management activities, military training, and minor construction projects, including upgrades to Remagen's dirt airstrip, repairs to Camp Oliver's rappel tower, and construction of concrete turn pads on the Installation's tank trails. Adherence to OSHA regulations, site-specific health and safety plans, and overall safety rules and regulations should assist in minimizing potential impacts. For these reasons, negligible cumulative impacts are anticipated as a result of the proposed action, when considered in conjunction with these past, present, and reasonably foreseeable future actions.

#### **Alternative III: No Action/Status Quo**

No cumulative impacts to the noise environment are anticipated as a result of implementation of this alternative, as no direct or indirect impacts are expected.

## **3.6 HEALTH AND SAFETY**

### **3.6.1 AFFECTED ENVIRONMENT**

Health and Safety includes the evaluation of fire and police protection, healthcare services availability, traffic hazards, and safety danger zones (SDZ) associated with on-Post training ranges and airfields, as well as worker safety issues during construction, operations, repairs/maintenance on Installation job sites and

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facilities, and range/training safety. Occupational health and safety applies to on-the-job safety and implements the requirements of 29 CFR 1926 et seq, the Occupational Safety and Health Act (OSHA). All construction and demolition on Post is performed in accordance with applicable OSHA regulations to protect human health and minimize safety risks. For this EA, Aviation Safety and safety measures issues specific to the UAS will also be discussed.

*Range Safety.* The “Range Safety Program,” implemented under Army Regulation (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, 2012a). The program is applicable to operational ranges, non-range training lands, bombing ranges, artillery impact areas (AIAs), target areas, all live fire weapons firing areas, recreational ranges utilized for rod and gun clubs, and test and evaluation ranges. This is of particular pertinence to the proposed action, as UAS are capable of carrying a wide variety of payloads, including munitions, which can be dropped on these range lands, and due to the fact that the Shadow UAS in particular frequently participates in manned-unmanned missions with its associated Apache helicopters, which fire large caliber munitions into the Installation’s AIAs. Range safety program goals include enhancing safe and realistic live fire training, protection of personnel and property while improving combat readiness, protection of civilian and military populations living and working near live-fire operational training ranges and lands, as well as minimization of environmental, personnel, and equipment impacts.

*Worker Safety.* The “Army Safety Program,” implemented under AR 385-10, governs Army policies, responsibilities, and procedures to protect and preserve Army personnel and property against accident loss (DA, 2013a). This provides for operational safety and mandates compliance with applicable safety laws and regulations. To ensure worker health and safety, compliance with OSHA standards and the Army Safety Program is required and only authorized personnel will be allowed within the footprint of disturbance; in addition, all workers must adhere to safety standards established by OSHA. Workers must also be knowledgeable of and adhere to any unique, site-specific safety measures that apply.

*Aviation Safety.* AR 385-10 also sets forth policies and procedures for Aviation Safety Management (DA, 2013a). UAS team members integrate safety and risk management procedures into all of their daily operations and ensure their actions are in full compliance with safety standards and requirements established in OSHA, National Fire Protection Association, and Environmental Protection Agency rules and regulations (DA, 2013a). Field Manual 3-04.155, *Army Unmanned Aircraft System Operations*, requires each UAS Team assign and designate a Safety Officer (DA, 2009a). This individual works with the Installation Commander at which the team is stationed to develop and implement site-specific safety programs and is the Team’s primary trainer. Typical safety program requirements include safety meetings (quarterly and monthly), Individual risk assessment, crew risk assessment and mitigation, and UAS accident and incident investigations (as needed) (DA, 2009a).

UAS safety requirements are adapted to the Installation at which they are stationed and its specific airspace. The UAS Team Leader integrates risk management into all aspects of its mission planning and execution, per AR 95-23, *Unmanned Aircraft System Flight Regulations*. Installation commanders having Army UASs assigned, attached, or tenant to their commands prepare and publish local flying rules that advise on tactical training and maintenance flight areas, arrival and departure routes, and airspace restrictions applicable to their local flying areas (DA, 2010). Installation commanders may set altitude limitations based on noise

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abatement, fly-neighborly policies, or other safety considerations, and these will be displayed in flight operations and provided to all necessary parties. The UAS Team utilizes this local information in the development of their training flight plans, to ensure a safe and efficient training flight environment.

UAS operations on FSGA are conducted in FSGA's Class D/R3005 airspace under a single COA from the FAA. The ATC, which controls all of FSGA's Class D airspace, (in which all of the alternatives lie) is located at WAAF. Its primary purpose is to prevent a collision between aircraft operating in the airspace, as well as organize and expedite the flow of traffic. Notice To Airmen (NOTAMs) system to inform pilots of potential conflicts with the use of the airspace. This ensures all users of the airspace are (a) aware of the hours and altitudes of scheduled events occurring within the airspace, (b) advised of scheduled live fire training on ranges, to include aerial gunnery, and (c) advised of any "no fly" areas on Post associated with Surface Danger Zones (SDZ) of live fire ranges. The NOTAMs system is a valuable scheduling, training and safety tool on FSGA.

All training actions on FSGA, on both the ground and within its airspace, are scheduled via the FSGA Range Facility Management Support System, or RFMSS. Utilization of the FSGA airspace requires the users to outline their anticipated hours of use and the minimum/maximum altitude needed to accomplish the training requirement. The FSGA DPTMS Scheduling Officer then consolidates requests by day, week, and month and submits the Installation's proposed use of the RA through the FAA scheduling module at the Jacksonville Air Route Traffic Control Center (Hollis, 2015).

### **3.6.2 ENVIRONMENTAL CONSEQUENCES**

#### **Alternative I: EAAF**

Under this alternative, there will be negligible adverse impacts to health and safety as a result of the timber harvest, construction, and operations/training associated with the Shadow UAS at this location.

*Range and Worker Safety.* Traffic hazards may increase slightly along GA Highway 144 during the initial phase of the proposed action as logging trucks supporting the timber harvest for the GAaRNG permanent hangar facility enter/exit the FSGA traffic network. This may cause traffic delays and hazards, as GA Highway 144 can experience heavy traffic flows early in the morning at mid-afternoon as people head into/out of work at the FSGA cantonment area to its west; however, these impacts will be temporary and cease once timber harvest is complete. Vehicles supporting the grubbing, grading, and removal of the remaining materials following the timber harvest should not add substantially to traffic congestion at this location, as they will be removed via smaller, dump-style trucks. These actions will not result in a disruption of fire/police protection or healthcare services availability to this location, again, as this additional traffic input will be temporary in nature and occur primarily during morning and afternoon rush hour. Accordingly, no impacts to health and safety as a result of traffic are anticipated.

The alternative location lies within the safety fan for the former Ranges X and E, which fired 90mm, 40mm, and 120mm high explosive munitions. Therefore, all personnel working on the timber harvest and subsequent construction on site shall receive unexploded ordnance (UXO) Awareness Training, to ensure they understand UXO identification and Range Division notification procedures. To minimize impacts to worker safety, construction personnel will be instructed not to attempt to disturb, remove, or attempt to

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destroy munitions and explosives of concern (MEC) if they encounter, or suspect they encounter, it on the project, but shall cease any intrusive or ground disturbing activities and immediately notify the local Range Control Office. The Army will dispose of all UXO/MEC encountered at no expense to the contractor(s). Before commencing work, all activities must be coordinated between the site contractor and the Installation Safety Office. The contractor must have a Health and Safety plan that is approved by the Installation Safety Office prior to land disturbance. The plan must sufficiently address potential safety risks and response actions, including the discovery of UXO/MEC. These timber harvest, site clearance, and construction safety issues and concerns will be similar for each of the 3CAB facilities as they are funded and sited, although timber harvest may be to a lesser degree for some of those facilities than for others. Collectively, these measures and requirements will minimize potential range and worker safety impacts to a negligible adverse effect.

*Aviation Safety.* As a result of the stationing action, UAS stored and operated at EAAF will increase from 12 to 24. UAS training already occurs in this portion of the FSGA Class D airspace and the addition of 12 new UAS (creating a total of 24) is not anticipated to result in any safety concerns, such as overcrowding of the airspace or potential crashes. EAAF operates under the COA for WAAF, although operations at EAAF do not have the potential to enter into the NAS. Prior to all training events, the Team Safety Officer will brief the team on Installation-specific safety issues such as terrain and airspace restrictions. This is especially vital for the visual observer on the team as he/she navigates the UAS through the airspace. Final pre-flight safety checks include weather information, review of flight plan, and confirming the mission's status within NOTAM and RFMSS, minimizing the potential for training/airspace conflicts (DA, 2010).

Facilities are in place to accommodate safe storage and maintenance requirements until the GAARNG construction in FY17 and the 3CAB construction in subsequent FYs. Per AR 95-23, UAS platoon members shall ensure equipment is well-maintained to minimize safety incidents due to faulty, poorly-maintained equipment. During each training event, the UAS Team must ensure the runway is clear of all unnecessary equipment and personnel, regardless of whether the UAS will be launched or catapulted. This minimizes the potential for damage to the UAS and its support equipment, and is an important safety measure for all airfield personnel. Follow-up maintenance and inspection of the UAS and its support equipment is required at the conclusion of each training event, to ensure it is in good working order for future training. Repairs, if required, shall be completed in a timely manner (DA, 2010). Collectively, these measures and requirements will reduce potential aviation safety impacts to a level of no effect.

### **Alternative II: Camp Oliver**

Under this alternative, there will be negligible adverse impacts to health and safety as a result of the timber harvest, construction, and operations/training associated with the Shadow UAS at this location.

*Range and Worker Safety.* The majority of the site proposed for the GAARNG and 3CAB facilities is previously disturbed; accordingly, there will be few logging trucks and site preparation-related heavy equipment vehicles entering/exiting the road network at this alternative location and impacting the traffic flow. Also, this alternative is located at the far northwestern corner of the Installation, where traffic is relatively light, consisting primarily of vehicles associated with military training at the Remagen, Cartwright, and Camp Oliver airstrips and the rural/municipal traffic across the Installation boundary in the City of Daisy. These actions will not result in a disruption of fire/police protection or healthcare services

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availability to this location, as this additional traffic input will be temporary in nature. Accordingly, no impacts to health and safety as a result of traffic are anticipated.

The alternative location does not lie within the safety fan of any former ranges; however, the Installation has been the site of active military training for more than 75 years and the presence of UXO/MEC is possible. Accordingly, all personnel working on the site shall receive UXO Awareness Training, to ensure they understand UXO identification and Range Division notification procedures. As with Alternative I, workers are advised not to disturb, remove, or attempt to destroy UXO/MEC, but to instead cease work and immediately notify the local Range Control Office, who will dispose of all UXO/MEC encountered at no expense to the contractor(s). Before commencing work, all activities must be coordinated between the site contractor and the Installation Safety Office. Any contractor working on this location must have a Health and Safety plan that is approved by the Installation Safety Office prior to land disturbance. The plan must sufficiently address potential safety risks and response actions, including the discovery of UXO/MEC. These requirements will be similar for each facility as it is funded and sited. Collectively, these measures and requirements reduce potential range and worker safety impacts to a level of no effect.

*Aviation Safety.* Currently, there are no UAS operations occurring at Camp Oliver. Accordingly, transference of the 12 existing UAS at EAAF, plus the addition of the 12 new UAS from the stationing action, and their associated training mission, will result in a change in the current airspace training patterns. This information would need to be stressed to current users of airspace in the immediate vicinity. NOTAM and RFMMS date entries may be insufficient and additional notification to users in the immediate area may also be required. This may result in potential negligible adverse effects to safety, but is anticipated to decrease as operations at this location become more routine. Camp Oliver is located in FSGA's RA; however, it does not operate under a COA. Obtaining a COA will not be required if all approaches to Camp Oliver are from the east, as UAS would not be required to enter the NAS from that location; however, if approaches are from the west, a COA is required, as UAS may navigate off-Post and into the NAS to make a proper approach onto the Camp Oliver runway to land. Collectively, these measures and requirements reduce potential aviation safety impacts from training to a level of negligible effect.

As with Alternative I, UAS Team members shall proactively incorporate safety measures into their daily routine, including proper UAS storage and maintenance, pre- and post-flight safety briefings, and pre-flight safety checks, including include weather information, review of flight plan, and confirming the mission's status within NOTAM and RFMSS to ensure there are no airspace conflicts (DA, 2010). During each training event, the UAS Team must ensure the runway is clear of all unnecessary equipment and personnel, from the beginning to the conclusion of the training event, to facilitate the safe launch and landing of the UAS. Collectively, these measures and requirements will reduce potential aviation safety impacts from operations to a level of no effect.

### **Alternative III: No Action/Status Quo**

Under this alternative, there will be no impacts to safety and health. No new construction will be implemented, resulting in no impacts associated with UXO/MEC or to the FSGA traffic network. No disruption of fire/police protection or healthcare services availability are anticipated at either location. No aviation safety impacts are anticipated from routine repairs, maintenance, operations, and training at the new facility as long as the platoons maintain adherence to measures discussed under the Alternative I and

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II locations. Collectively, these measures and requirements will reduce potential safety impacts to a level of no effect.

### **3.6.3 CUMULATIVE IMPACTS**

#### **Alternative I: EAAF**

Past and present actions in the ROI consist of military aviation training at Burton and Canoochee Airstrips and EAAF, small arms training at the SA Ranges, and live/non-live fire training at the FPs and PAAs, all of which has been conducted safely and effectively, and the increase of 12 new UAS at this location (resulting from the addition of the three new Shadow UAS platoons) is not anticipated to add any adverse effects to the ROI. Other past and present actions consist of natural resource management, which will continue into the future, as will military training. Other than the proposed action, there are no other construction projects planned for this portion of the Installation in the immediate future (5-10 years). Adherence to OSHA regulations, site-specific health and safety plans, and aviation safety rules and regulations should minimize potential impacts to levels below negligible. For these reasons, no cumulative impacts are anticipated as a result of the proposed action, when considered in conjunction with these past, present, and reasonably foreseeable future actions.

#### **Alternative II: Camp Oliver**

The Installation boundary lies close and to the west of Camp Oliver and is the site of municipal and rural activities, including the City of Daisy. Military aviation training occurs at Cartwright and Remagen airstrips and will be added to the location of the proposed action as a result of this alternative. Wheeled and non-wheeled vehicular maneuver training occurs throughout this portion of the Installation. There are no FPs, PAAs, AG Ranges, or IAs within this ROI; however, military aircraft (to include the UAS and Apache) may maneuver through this airspace on their way to those training resources in other parts of the Installation. Reasonably foreseeable future actions within the ROI consist of continued resource management activities, military training, and minor construction projects, including upgrades to Remagen's dirt airstrip, repairs to Camp Oliver's rappel tower, and construction of concrete turn pads on the Installation's tank trails. Adherence to OSHA regulations, site-specific health and safety plans, and overall safety rules and regulations should minimize potential impacts to levels below negligible. For these reasons, no cumulative impacts are anticipated as a result of the proposed action, when considered in conjunction with these past, present, and reasonably foreseeable future actions.

#### **Alternative III: No Action/Status Quo**

No cumulative impacts to health and safety are anticipated as a result of implementation of this alternative, as no direct or indirect impacts are expected.

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## 4.0 CONCLUSIONS

The *Final EA for Shadow UAS Actions on Fort Stewart, Georgia*, was prepared to analyze the potential environmental impacts associated with the permanent stationing of four Shadow UAS platoons on FSGA. These actions will ensure these Army and GAARNG platoons are trained safely, effectively, efficiently, and to DoD standards, that their equipment is housed, maintained and operated in accordance with all applicable standards and regulations, and ensure the mission readiness of the nation's present and future warfighting requirements. It is the conclusion of this analysis that the implementation of the proposed action at either of the action alternatives will not result in potentially significant impacts. Implementation of the No Action Alternative, although failing to meet the purpose and need of the proposed action, will likewise not result in potentially significant impacts. Accordingly, preparation of an Environmental Impact Statement is not required. Table 3 provides a summary of anticipated environmental impacts.

Type of Impact	Alternative I (Preferred)	Alternative II	Alternative III (No Action/Status Quo)
<b>Water Quality and Resources</b>			
<b>Direct / Indirect</b>	Negligible Adverse	Minor Adverse	No Adverse Impact
<b>Cumulative</b>	Negligible Adverse	Negligible Adverse	No Adverse Impact
<b>Cultural Resources</b>			
<b>Direct / Indirect</b>	No Adverse Impact	No Adverse Impact	No Adverse Impact
<b>Cumulative</b>	No Adverse Impact	No Adverse Impact	No Adverse Impact
<b>Biological Resources</b>			
<b>Direct / Indirect</b>	No Adverse Impact	Negligible Adverse	No Adverse Impact
<b>Cumulative</b>	No Adverse Impact	Negligible Adverse	No Adverse Impact
<b>Noise</b>			
<b>Direct / Indirect</b>	Negligible Adverse	Negligible Adverse	No Adverse Impact
<b>Cumulative</b>	No Adverse Impact	Negligible Adverse	No Adverse Impact
<b>Health and Safety</b>			
<b>Direct / Indirect</b>	Negligible Adverse	Negligible Adverse	No Adverse Impact
<b>Cumulative</b>	No Adverse Impact	No Adverse Impact	No Adverse Impact

**Table 3: Summary of Environmental Impacts.**

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## 5.0 ABBREVIATIONS AND ACRONYMS

AIA	Artillery Impact Area
AGL	Above Ground Level
AGR	Aerial Gunnery Range
AR	Army Regulation
ATC	Air Traffic Control
BCT	Brigade Combat Team
BN	Battalion
BO	Biological Opinion
BMP	Best Management Practice
CAB	Combat Aviation Brigade
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
COA	Certificate of Authorization
CWA	Clean Water Act
DA	Department of the Army
DoD	Department of Defense
DNR	Department of Natural Resources
DPW	Directorate of Public Works
DPTMS	Directorate of Plans, Training, Mobilization, and Security
EA	Environmental Assessment
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
EN	Engineer
EO	Executive Order
EPA	(U.S.) Environmental Protection Agency
EPD	Environmental Protection Division
ESCA	Erosion and Sediment Control Act
ESPC	Erosion and Sedimentation Pollution Control (Plan)
FAA	Federal Aviation Administration
FNSI	Finding of No Significant Impact
FP	Firing Point
FS Road	Fort Stewart Road
FSGA	Fort Stewart, Georgia
GBSAA	Ground Based Sense and Avoid
ICRMP	Integrated Cultural Resources Management Plan
ID	Infantry Division
INRMP	Integrated Natural Resources Management Plan
ITAM	Integrated Training Area Management
LOS	Line of Sight
MBTA	Migratory Bird Treaty Act
MEC	Munitions and Explosives of Concern
MUM	Manned Unmanned Teaming
NEPA	National Environmental Policy Act
NIOSH	National Institute for Occupational Safety and Health
NOA	Notice of Availability
NOTAM	Notice To Airman
NPDES	National Pollutant Discharge Elimination System
NWI	National Wetlands Inventory

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OSHA	Occupational Safety and Health Act
PA	Programmatic Agreement
PAA	Position Artillery Area
RFMSS	Range Facility Management Support System
ROI	Region of Influence
SA	Small Arms
SDZ	Safety Danger Zone
SHPO	State Historic Preservation Office
TLS	Threshold Level of Significance
UAS	Unmanned Aerial Surveillance/System
USC	U.S. Code
USFWS	United States Fish and Wildlife Service
UXO	Unexploded Ordnance

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APPENDIX A  
RESOURCES CONSIDERED BUT NOT ANALYZED IN DETAIL

*As discussed in Chapter 3 of the EA, implementation of the No Action and Action Alternatives had the potential to result in impacts to Water Quality and Resources, Biological Resources, Noise, and Health and Safety, and these resources are discussed in detail in the EA. Preliminary analysis predicted no impacts to Cultural Resources, Groundwater, Land Use, Air Quality, Recreation and Visual Resources, Socioeconomics, Provision for the Handicapped/Environmental Justice/Protection of Children, and Transportation. The basis for excluding these resources is discussed below.*

**Cultural Resources Management (CRM).** 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. The Installation's Integrated Cultural Resources Management Plan (ICRMP) incorporates cultural resource laws and regulations into an internal document outlining how Fort Stewart manages its cultural resources. The EAAF and Camp Oliver alternative locations have been previously surveyed for cultural resources, during which time no sites potentially eligible for the National Register of Historic Places were identified. Therefore, this resource is not carried forward for further analysis. However, the contractor(s) performing work at both alternative locations will be instructed that if, during the course of their work, artifacts and/or human remains are encountered, all actions must cease and the CRM POC (912)767-0992 and FSGA Military Police shall be contacted immediately.

**Land Use.** Land use generally refers to human modification of land, often for residential, commercial, industrial, agricultural, recreational, and economic purposes, but may also refer to the use of land for preservation or protection of natural resources such as wildlife habitat, vegetation, or unique features. The Army Real Property Master Plan (RPMP) process is specified in AR 210-20 (DA, 2005a), and the RPMP Technical Manual (DA, 2008) provides assistance in developing an RPMP at Army installations. An Army RPMP determines the types of activities that are allowed or that protect specially designated or environmentally sensitive uses. In compliance with AR 210-20, Fort Stewart maintains an RPMP that assists efficient and appropriate land use and development decisions across the Installation.

The majority of land use at Fort Stewart (68%, or 191,000 acres) is classified as Ranges and Training, which is divided into 120 training areas (including live-fire ranges, non-live-fire ranges, and special training areas such as confidence courses, driver's training, or land navigation). The process through which lands historically used for training activities may be transferred to other uses (AR 350-19) involves Garrison Command, environmental and planning staff, and Installation Management Command. This extensive process ensures the continued safety of the site as the Army's needs transform. The threshold limit for land use will be met if the proposed future use is incompatible with surrounding land uses or results in a change of land use that will degrade mission-essential training. The proposed future use of EAAF and Camp Oliver under each alternative will remain compatible with surrounding land uses and will require no change in land use as a result of the proposed action. Therefore, this resource is not carried forward for further analysis.

**Air Quality.** Air quality in a given location is described by the concentration of various pollutants in the atmosphere, with the significance of the pollutant concentration determined by comparing it to the Federal and State National Ambient Air Quality Standards (NAAQS). Fort Stewart's air quality is better than the

NAAQS and implementation of the proposed action will not change this status. Therefore, this resource is not carried forward for further analysis.

***Groundwater Quality.*** There are several aquifer systems on Fort Stewart, to include the Floridan aquifer system, from which the Installation withdraws its drinking water. No impacts to these groundwater resources are expected under either alternative, as impacts related to timber harvest and construction will be temporary and for which impacts are routinely minimized through standard erosion and sedimentation control measures. Therefore, this resource is not carried forward for further analysis.

***Recreation & Visual Resources.*** Recreational opportunities on Fort Stewart are abundant and include hunting, fishing, and camping. Visual resources include the natural and manmade physical features that give a particular landscape its aesthetic character and value. At present, EAAF and Camp Oliver are utilized for military training only and not utilized for recreation or their visual resources. Although additional tree removal will occur, it will not detract from the existing viewshed and overall aesthetics at either location, which will remain a training land environment, surrounded by forested training lands. This negates potential impacts to these resources as a result of the proposed action. Under the No Action Alternative, no impacts will occur to these resources as even less tree removal or other landscape altering activities will occur due to construction of the GAARNG facility only. Therefore, this is not carried forward for further analysis.

***Socioeconomics/Environmental Justice/Protection of Children.*** Socioeconomics focuses on the general features of the local economy that could be affected by the proposed action. Completion of the proposed action is not expected to result in the creation of new jobs and/or a change in the local economy, as it will occur entirely within the Installation boundary, where no low-income or minority populations reside, and where there are no children residing and/or frequently visiting, environmental justice and protection of children are also not carried forward for further analysis.

***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. The proposed action does not fall under the purview of the ADA; therefore, this provision has been eliminated from further analysis in this EA.

***Transportation.*** Adverse impacts are not expected because any contractors working on the proposed action will be required to coordinate with the Installation prior to working on the site. A plan will be developed to ensure on-Post traffic remains as unhindered as possible. Should the No Action Alternative be chosen, there would be even less of a change in the existing transportation network/environment on FSGA, as only construction associated with the GAARNG facility will occur, resulting in fewer timber harvest and construction-related vehicles traversing the Installation roads. Therefore, this resource is not carried forward for further analysis.

**APPENDIX B**  
**DPW STORMWATER POLICIES**



DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, US ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD  
DIRECTORATE OF PUBLIC WORKS  
1587 FRANK COCHRAN DRIVE  
FORT STEWART, GEORGIA 31314

REPLY TO  
ATTENTION OF

IMSH-PW

MEMORANDUM FOR CONTRACTORS

SUBJECT: DPW Policy Letter #10 – Dry Detention Basins (Revised 14 March 2012)

1. REFERENCES.

- a. Federal Clean Water Act (CWA), as amended (33 U.S.C.1251 et seq.), and Clean Water Act stormwater regulations 40 CFR 122.26.
- b. Executive Orders #13423 Energy Independence and Security Act-2007, and #13514 Federal Leadership in Environmental, Energy, and Economic Performance-2009; Section 438-Stormwater.
- c. Policy Memo 19 JAN 10, Office of the Under Secretary of Defense, DoD Implementation of Stormwater Requirements under Section 438 of the Energy Independence and Security Act.
- d. Georgia Water Quality Control Act, as amended, O.C.G.A. §12-5-20, *et seq.*, and the Rules for Water Quality Control, Chapter 391-3-6, promulgated pursuant thereto, as amended
- e. Erosion & Sedimentation Control Act, as amended, O.C.G.A §12-7-1, *et seq.*, and the Rules for Erosion & Sedimentation, Chapter 391-3-7, promulgated pursuant thereto, as amended

2. PURPOSE. This memorandum replaces the former Policy Letter #10 and re-establishes the Directorate of Public Works policy concerning erosion and sedimentation controls, standards, and specifications for dry detention basins and stormwater controls for flooding.

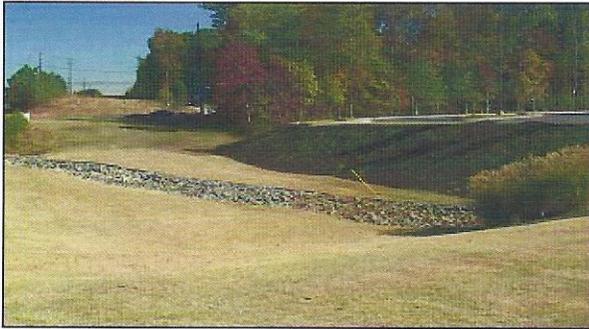
3. APPLICABILITY. This policy applies to all contractors and government employees at Fort Stewart and Hunter Army Airfield.

4. RESPONSIBILITIES. The following are the minimum standards for contractors to use to ensure uniformity of the use of dry detention basins throughout the Installation.

- a. Fort Stewart/Hunter Army Airfield (FS/HAAF) must comply with the State of Georgia National Pollutant Discharge Elimination Systems Permitting reference; the DPW Stormwater Policy #11, FS/HAAF Construction Site Runoff Control and FS/HAAF Post-Construction New-Redevelopment requirements which can be found with other Stormwater Management documents at the following web link: [http://www.stewart.army.mil/dpw/EN\\_Downloads.asp](http://www.stewart.army.mil/dpw/EN_Downloads.asp).

Therefore, overall stormwater designs must focus on maintaining or restoring the hydrologic performance of the watershed in its pre-development condition. Traditional, centralized stormwater management connects impervious surfaces to efficiently route stormwater to regional or site specific detention facilities to mitigate peak flow. Although these facilities may be successful in reducing the peak flow rate to the pre-development level immediately downstream of these facilities they serve, this approach may become ineffective in addressing the water quality of surface runoff and reducing downstream flooding since a greater volume of stormwater still runs off from these developed areas below the peak flow rate.

As noted above, centralized stormwater practices must now be replaced with *Low Impact Development (LID)* and *Green Infrastructure (LID/GI)* stormwater control practices. The LID/GI approach focuses on disconnecting the impervious surfaces and intercepts and treats surface runoff at the source. LID/GI stormwater control practices utilize *Best Management Practices (BMPs)*, such as bio-retention, rain gardens, vegetative enhanced swales, and other infiltration practices, which increase groundwater recharge, and improves surface water quality along with detention and extended detention basins, which protect stream channels, and reduces downstream flooding. The objective of the LID/GI method is to reduce the volume of stormwater required to be detained and effectively improve water quality via the treatment train LID/GI BMPs.



#### **Dry Detention Basins-Description:**

A dry detention basin is a surface storage basin or facility designed to provide water quantity control through detention of stormwater runoff.



#### **Extended Detention Basins (EDBs)-Description**

An extended detention basin (EDB) is a basin designed to detain stormwater for many hours after storm runoff ends. This BMP is similar to a detention basin used for flood control, however; the EDB uses a much smaller outlet that extends the emptying time of the more frequently occurring runoff events to facilitate pollutant removal. The EDBs drain time for the water quality volume (WQv) is recommended to remove a significant portion of total suspended solids (TSS).

- b. As referenced within the *Georgia Stormwater Management Manual and Coastal Stormwater Supplement (GASWMM/CSS)*, water *quantity* management practices can only be used to *manage* the post-construction stormwater runoff rates and volumes generated by larger, less frequent rainfall events (e.g., 1-year, 24-hour event, 25-year, 24-hour event). They provide little, if any, stormwater runoff reduction or stormwater quality protection (Storm Water Management [SWM])

Criteria #1 & #2, respectively). Consequently, it is recommended they be used in conjunction with LID/GI practices and general application stormwater management practices to completely satisfy the aquatic resource protection (SWM Criteria #3), overbank flood protection (SWM Criteria #4) and extreme flood protection (SWM Criteria #5) criteria presented in the GASWMM/CSS. Two (2) of the water quantity management practices that may be used in coastal Georgia with LID/GI treatment trains include:

- Dry Detention Basins
- Extended Detention Basins

#### c. General Description

Dry detention basins or Extended Detention basins (EDBs) are surface facilities intended to provide for the temporary storage of stormwater runoff to reduce downstream water quantity impacts. These facilities temporarily detain stormwater runoff, releasing the flow over a period of time. They are designed to completely drain following a storm event and are normally dry between rain events.

Dry detention basins are intended to provide overbank flood protection (peak flow reduction of the 25-year storm) and can be designed to control the extreme flood (100-year) storm event.

Dry EDBs provide downstream channel protection through extended detention of the channel protection volume, and can also provide 25-year and 100-year control.

Both dry detention and EDBs provide limited pollutant removal benefits and are not intended for water quality treatment. Detention-only facilities must be utilized with a treatment train approach with other LID/GI structural control BMPs which provide treatment of the water quality volume requirements. Compatible multi-objective use of dry detention facilities is strongly encouraged.

#### d. Design Criteria and Specifications

Dry Detention and EDBs should be incorporated into the overall stormwater design for development and redevelopment projects as follows:

#### e. Location

Dry detention and EDBs are to be located downstream of other LID/GI general application structural controls (*bioretention, sand filters, infiltration trench and enhanced swale*) which are typically used in combination with detention controls for treatment of the water quality volume (WQv). The detention facilities are located downstream from the water quality controls either on-site or combined into a regional or neighborhood facility. See Section 3.1 GASWMM/CSS and the United States Environmental Protection Agency Technical Guidance for Implementation of Section 438 for more information on the use of multiple structural controls such as LID/GI in a treatment train.

- The maximum contributing drainage area to be served by a single dry detention or EDB is 75 acres.
- EDBs are well suited for watersheds with at least five impervious acres up to approximately one square mile of watershed. Smaller watersheds can result in an orifice size prone to clogging. Larger

watersheds and watersheds with base flows can complicate the design and reduce the level of treatment provided. EDBs are also well suited where flood detention is incorporated into the same basin. The depth of the seasonable high groundwater table should be investigated. Groundwater depth should be one (1) or more feet below the bottom of the basin in order to keep this area dry and maintainable.

- Always maximize the distance between the inlet and the outlet. It is best to have a basin length (measured along the flow path from inlet to outlet) to width ratio of at least 2:1. A longer flow path from inlet to outlet will minimize short circuiting and improve reduction of TSS. To achieve this ratio, it may be necessary to modify the inlet and outlet points through the use of pipes or swales.

#### f. General Design

- Dry detention basins are sized to temporarily store the volume of runoff required for a minimum of 24 hours and to provide overbank flood protection (i.e., reduce the post-development peak flow of the 25-year storm event to the pre-development rate), and control the 100-year storm.

EDBs are sized to provide extended detention of the channel protection volume for a minimum of 72 hours and can also provide additional storage volume for normal detention (peak flow reduction) of the 25-year and 100-year storms.

Routing calculations must be used to demonstrate that the storage volume is adequate. Hydraulic considerations are needed to ensure the basin is sized to store the entire (or remaining volume after installation of LID/GI BMPs) water quality design volume (removal of Total Suspended Solids [TSS] by 80%) and the outlet structure must be sized as to provide desired hydraulic detention time of 24 hours as a minimum for the 1-year, 24-hour storm.

- Storage volumes greater than 100 acre-feet are subject to the requirements of the Georgia Safe Dams Act (see Appendix H of the GASWMM) unless the facility is excavated to this depth.
- Vegetated embankments shall have side slopes no steeper than 3:1 or 4:1 (horizontal to vertical). The basin side slopes should be stable and gentle to facilitate maintenance and access. Slopes that are flatter should be utilized to allow for conventional maintenance equipment, and for improved safety and aesthetics. Riprap-protected embankments shall be no steeper than 3:1.
- The maximum depth of the basin should not exceed 4 feet. The final grade of the basin floor shall be no deeper than one (1) foot above seasonal high water table.
- Areas above the normal high water elevations of the detention facility should be sloped toward the basin to allow drainage. Careful finish grading is required to avoid creation of upland surface depressions that may retain runoff. A low flow or pilot channel across the facility bottom from the inlet to the outlet (often constructed with geotextile underlayment and riprap) is recommended to convey low flows and prevent standing water conditions.
- Forebay Designs for EDBs: The forebay provides an opportunity for larger particles to settle out in an area that can be easily maintained. The length of the flow path through the forebay should be maximized, and the slope minimized to encourage settling.

- a) The appropriate size of the forebay may be as much a function of the level of development in the tributary area as it is a percentage of the WQv.
- b) When portions of the watershed may remain disturbed for an extended period of time, the forebay size will need to be increased due to the potentially high sediment load. The forebay outlet should be sized to release 2% of the un-detained peak 100-year discharge.
- c) A soil riprap berm with 3:1 side slopes (or flatter) and a pipe outlet or a concrete wall with a notch outlet should be constructed between the forebay and the main EDB.
- d) Micropool EDBs: Micropool extended detention basins are a variation of the standard wet extended detention pond that have only a small permanent pool (i.e., micropool). The “micropool” provides enough storage for approximately 10% of the stormwater runoff volume generated by the target runoff reduction rainfall event (e.g., 85th percentile rainfall event). The remainder of the stormwater runoff volume generated by the target runoff reduction rainfall event is managed in an extended detention zone provided immediately above the “micropool” and released over an extended 24-hour period.

- The following areas will be sodded: (1) Bottom of the detention basin, (2) Inside side slopes of the detention basin, and (3) Outward, ten feet from the edge of the detention basin. All other disturbed areas will be seeded with temporary and permanent grasses; contact the Natural Resources Conservation Service for appropriate seasonal seed mixes. Utilization of erosion control blankets, permanent and/or temporary, as required, for prevention of erosion rills is required.
- Adequate maintenance access must be provided for all detention basins.
- All detention basins within one-thousand (1000) feet of any housing and/or school facility shall be secured with a four (4) foot chain link style fence.
- During construction of any project on FS/HAAF the following erosion and sedimentation best management practices are not permitted:
  - 1) Man made “haybales”
  - 2) The use of slotted board dams as a retrofit on less than 30 acres is not allowed. Instead, a perforated half-round pipe with a stone filter ring must be utilized.

#### g. Inlet and Outlet Structures

There are a wide variety of outlet structure types, the most common of which are, orifices, perforated risers, pipes/culverts, sharp-crested weirs, broad-crested weirs, V-notch weirs, proportional weirs, and combination outlets. Reference Section 2.3 of the GASWMM/CSS for more information on the design criteria for *Outlet Structures*.

Each of the above outlet types has a different design purpose and application:

- 1) Water quality and channel protection flows are normally handled with smaller, more protected outlet structures such as reverse slope pipes, hooded orifices, orifices located within screened pipes or risers, perforated plates or risers, and V-notch weirs.

2) Larger flows, such as overbank protection and extreme flood flows, are typically handled through a riser with different sized openings, through an overflow at the top of a riser (drop inlet structure), or a flow over a broad crested weir or spillway through the embankment. Overflow weirs can also be of different heights and configurations to handle control of multiple design flows.

- Inflow channels are to be stabilized with flared riprap aprons, or the equivalent. A sediment forebay sized to 0.10 inches per impervious acre of contributing drainage should be provided for dry detention and EDBs that are in a treatment train with off-line <sup>(1)</sup> water quality treatment structural controls.

*(1) Structural stormwater controls are designed to be either "on-line" or "off-line." On-line structural controls must be able to handle the entire range of storm flows. Off-line facilities such as bioretention areas, and infiltration trenches on the other hand are designed to receive only a specified flow rate through the use of a flow regulator (i.e. diversion structure, flow splitter, etc). Flow regulators are typically used to divert the WQv to an off-line structural control sized and designed to treat and control the WQv. After the design runoff flow has been treated and/or controlled meeting this WQv, it is returned to the conveyance system or "on-line" structure.*

*A key decision whether to locate a BMP on-line or off-line. On-line refers to locating a BMP such that all of the runoff from the upstream watershed is intercepted and treated by the BMP. A single on-line BMP should be designed to treat both onsite runoff and upstream (offsite) runoff. Locating BMPs off-line requires that all onsite catchment areas flow through the BMP(s) prior to combining with flows from the upstream (offsite) watershed.*

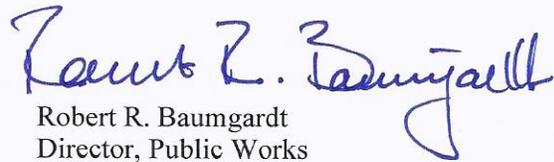
*Designers should also be aware that WQv BMPs, especially those that promote infiltration, could result in volume reductions for flood storage. These volume reductions are most pronounced for frequently occurring events, but even in the major event, some reduction in detention storage volume can be achieved if WQv-reduction BMPs are widely used on a site.*

- For a dry detention basin, the outlet structure must be sized as to provide desired hydraulic detention time of 24 hours as a minimum for the 1-year, 24-hour storm (based upon hydrologic routing calculations) and can consist of a weir, orifice, outlet pipe, combination outlet, or other acceptable control structure. Small outlets that will be subject to clogging or are difficult to maintain are not acceptable.

The Inlet and Outlet structures must be separated as much as possible to avoid short-circuiting and the positioning of these structures and/or orifices should be above the dry detention basin bottom to provide space for captured sediments and to minimize resuspension of any TSS captured in the basin. The inlet must be designed to safely bypass flows which would exceed the design volume and dissipate flow energy at concentrated points of inflow. This also will limit erosion and promote particle sedimentation.

- For EDBs, a low flow orifice capable of releasing the channel protection volume over 24 hours must be provided. The channel protection orifice should have a minimum diameter of 3 inches and should be adequately protected from clogging by an acceptable external trash rack. The orifice diameter may be reduced to 1 inch if internal orifice protection is used (e.g., an over perforated vertical stand pipe with 0.5-inch orifices or slots that are protected by wirecloth and a stone filtering jacket). Adjustable gate valves can also be used to achieve this equivalent diameter. Reference Section 2.3.1 (*Outlet Structures*) of the GASWMM/CSS for more information on the design of outlet works.

- Seepage control or anti-seep collars should be provided for all outlet pipes.
  - A conveyance shall be installed from all inlets to outlets. The inlet and outlet conveyance final grade is to be a minimum of one (1) foot above the seasonal high water table elevation. The conveyance is required to be lined with geo-textile and with four inches (4") of stone over same (Graded 2"- 4" stone). The conveyance is to be a minimum of 4 feet wide.
  - Riprap, plunge pools or pads, or other energy dissipators are to be placed at the end of the outlet to prevent scouring and erosion (See Section 4.5 of the GASWMM, *Energy Dissipation Design*, for more guidance).
    - An emergency spillway is to be included in the stormwater basins design to safely pass the extreme flood flow. The spillway prevents pond water levels from overtopping the embankment and causing structural damage. The emergency spillway must be designed to State of Georgia guidelines for dam safety (see Appendix H of the GASWMM) and must be located so that downstream structures will not be impacted by spillway discharges.
    - A minimum of 1 foot of freeboard must be provided, measured from the top of the water surface elevation for the extreme flood, to the lowest point of the embankment not counting the emergency spillway.
5. PROPONENT: The Directorate of Public Works (DPW) is the proponent for this policy. The point of contact is DPW, Environmental Division, at commercial (912) 767-2010 or DSN 870-2010.

  
Robert R. Baumgardt  
Director, Public Works

NOV 04 2011

MEMORANDUM FROM DPW

MEMORANDUM FOR CONTRACTORS AND TENANTS

SUBJECT: DPW Policy Letter # 11 - Stormwater Management Program

1. REFERENCES.

a. Federal Clean Water Act (CWA) at 33 U.S.C. §1251, *et seq.*; and its implementing regulations found at 40 CFR § 122.26, *et seq.*

b. Section 438 of the Energy Independence and Security Act at 42 U.S.C. §17094.

c. Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance, 5 October 2009.

d. Georgia Water Quality Control Act, O.C.G.A. §12-5-20, *et seq.*, and its implementing rules found at Ga. Admin. Comp. ch. 391-3-6, *et seq.*

e. Georgia Erosion & Sedimentation Control Act, O.C.G.A. §12-7-1, *et seq.*, and its implementing rules found at Ga. Admin. Comp. ch. 391-3-7, *et seq.*

f. Deputy Under Secretary of Defense (Installations and Environment) Memorandum, DoD Implementation of Storm Water Requirements under Section 438 of the Energy Independence and Security Act, 19 January 2010.

g. AR 200-1, Environmental Protection and Enhancement, 13 December 2007.

2. APPLICABILITY. This policy is applicable to Contractors and Tenants on Fort Stewart/Hunter Army Airfield.

3. PURPOSE. To provide guidance on the Stormwater Management Program.

4. POLICY. The Installation's stormwater systems are regulated under National Pollutant Discharge Elimination System (NPDES) Permits, as defined in above references.

a. To protect water quality, the Installation is required to have a stormwater management program that reduces the discharge of pollutants from industrial activities, construction activities, and

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SUBJECT: DPW Policy Letter # 11 - Stormwater Management Program

the Municipal Separate Storm Sewer System (MS4) to the "maximum extent technically feasible."

b. For any new development and redevelopment that occurs on the Installation, the stormwater management program must include best management practices (BMPs) for construction site stormwater runoff control and post-construction stormwater management.

c. For new development or redevelopment of 5,000 sq ft or greater that occurs on the Installation, the stormwater management program must include, to the "maximum extent technically feasible," additional stormwater low impact development BMPs.

d. All personnel are required to comply with the Installation's Stormwater Management Plan, as detailed in the following documents located on the Team Stewart web site at [http://www.stewart.army.mil/dpw/EN\\_Downloads.asp](http://www.stewart.army.mil/dpw/EN_Downloads.asp).

(1) Stormwater Pollution Prevention Plan (SWP3) for Industrial Activities

(2) Municipal Separate Storm Sewer Systems (MS4) Notices of Intent

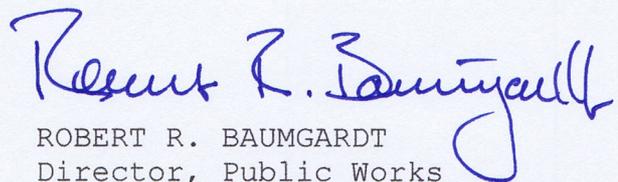
(3) Illicit Discharge, Detection and Elimination (IDDE) Plan

(4) Stormwater Guidance for Construction Site Stormwater Runoff Control

(5) Post-Construction Stormwater Management Guidance for New Development and Redevelopment

(6) Stormwater Maintenance Standard Operating Procedures

5. PROPONENT. The DPW Environmental Division is the proponent for this policy at commercial (912) 767-2010.

  
ROBERT R. BAUMGARDT  
Director, Public Works

APPENDIX C  
BIOLOGICAL ASSESSMENTS & USFWS OPINIONS



# United States Department of the Interior

## Fish and Wildlife Service

105 West Park Drive, Suite D  
Athens, Georgia 30606  
Phone: (706) 613-9493  
Fax: (706) 613-6059

West Georgia Sub-Office  
Post Office Box 52560  
Fort Benning, Georgia 31995-2560  
Phone: (706) 544-6428  
Fax: (706) 544-6419

Coastal Sub-Office  
4980 Wildlife Drive  
Townsend, Georgia 31331  
Phone: (912) 832-8739  
Fax: (912) 832-8744

January 25, 2016

Mr. Robert R. Baumgardt  
U.S. Army Installation Management Command  
Directorate of Public Works  
1587 Veterans Parkway  
Fort Stewart, Georgia 31314-5048  
Attention: Mr. Tim Beaty

Re: USFWS Log Number 2016-I-0556

Dear Mr. Baumgardt:

Thank you for your December 14, 2016, letter and attached Biological Assessment concerning your proposal to construct a permanent aircraft hangar for the Shadow Unmanned Aerial Surveillance system at Evans Army Airfield in Liberty County, Georgia. We have reviewed the information you provided and submit the following comments under provisions of the Endangered Species Act of 1973 (ESA) as amended (16 U.S.C. 1531 et seq.).

According to the information you provided, the project area encompasses a small portion (57.1 acres) of existing red-cockaded woodpecker (RCW) Habitat Management Unit. The nearest historical sighting of an eastern indigo snake is 1.2 miles west of the proposed project site. The nearest historical sighting of a frosted flatwoods salamander is 2.1 miles southeast of the proposed project. The nearest known sighting of foraging wood storks is at least 1.9 miles east of the project site. The nearest smooth coneflower population is 19.7 miles northwest of the project area. Therefore, due to the small amount of habitat that will be impacted, we agree with your determination that this proposed project is not likely to adversely affect any federally listed endangered or threatened species. Also, we believe that the requirements of section 7 of the ESA have been satisfied and no further consultation is required. However, obligations under section 7 of the ESA 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 determined that may be affected by the identified action.

We appreciate the opportunity to comment during the planning stages of your project. If you have any questions, please contact Robert Brooks of our Coastal Georgia Office at 912-832-8739, extension107.

Sincerely,



Strant Colwell  
Coastal Georgia Supervisor



DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, US ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD  
DIRECTORATE OF PUBLIC WORKS  
1587 VETERANS PARKWAY  
FORT STEWART, GEORGIA 31314

REPLY TO  
ATTENTION OF

Directorate of Public Works

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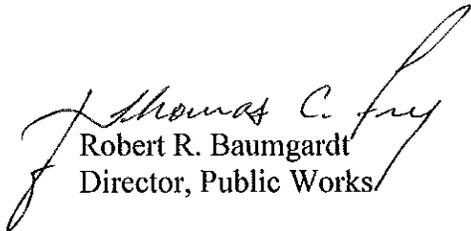
U.S. Department of the Interior  
Fish and Wildlife Service  
ATTN: Strant Colwell  
4980 Wildlife Drive, NE  
Townsend, GA, 31331

Dear Mr. Colwell:

Fort Stewart proposes to construct a permanent aircraft hangar for the Shadow Unmanned Aerial Surveillance systems at Evans Army Airfield in Liberty County, Georgia. This construction will replace prior temporary facilities. A Biological Assessment has been prepared in accordance with the requirements of the Endangered Species Act. The conclusion reached in this Biological Assessment is that the proposed action may affect, but is not likely to adversely affect, the red-cockaded woodpecker, wood stork, eastern indigo snake, frosted flatwoods salamander, or smooth coneflower, and will not affect the Atlantic or shortnose sturgeon. 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.

If additional information is needed, please contact Mr. Tim Beaty, DPW, Fish and Wildlife Branch at telephone (912) 767-7261. Your continued cooperation and assistance are appreciated.

Sincerely,

  
Robert R. Baumgardt  
Director, Public Works

Enclosures

# BIOLOGICAL ASSESSMENT

## Construction of Permanent Facilities for the Shadow Unmanned Aerial Surveillance (UAS) Systems at Evans Army Airfield (EAAF)

Fort Stewart, Georgia

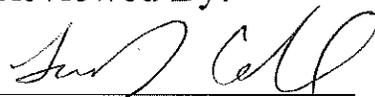
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Prepared By:



D. ODIE DURDEN  
Wildlife Biologist  
Fish and Wildlife Branch  
Environmental Division  
Directorate of Public Works  
Fort Stewart, GA

Reviewed By:



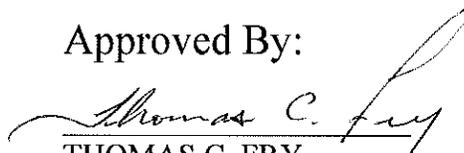
LAWRENCE D. CARLILE  
Chief, Planning and Monitoring  
Fish and Wildlife Branch  
Environmental Division  
Directorate of Public Works  
Fort Stewart, GA

Submitted By:



TIMOTHY A. BEATY  
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

Evans Army Airfield (EAAF) is located east of the Fort Stewart cantonment area and is the current area of operations for the 3rd Infantry Division's (3<sup>rd</sup> ID) Shadow Unmanned Aerial Surveillance (UAS) systems. The 3<sup>rd</sup> ID currently operates 8 Shadow UAS out of EAAF, and the Georgia Air National Guard (GAARNG) operates an additional 4 Shadow UAS out of its temporary hangar at this location. Recent stationing decisions resulted in the FY17 placement of an additional 12 Shadow UAS at this location, as 3 new platoons will be incorporated into the 3<sup>rd</sup> ID's Combat Aviation Brigade. Although housed at Hunter Army Airfield, these Soldiers will conduct training at EAAF. New facilities are required to support this stationing action, some of which will be temporary, followed by permanent construction in outlying fiscal years. Although the GAARNG has no pending stationing action or corresponding plan for additional Shadows, they do plan to construct a permanent hangar at EAAF in FY16 to replace the temporary hangar they currently use at this location. This temporary facility will be demolished once construction of the permanent facility is complete. The EAAF complex was determined to be an appropriate location for the Shadow UAS placement and subsequent buildup due to its location adjacent to Restricted Airspace, the availability of existing infrastructure (runway, hangars that will suffice during temporary/permanent construction, and utilities), and minimal existing environmental constraints (Figure 1).

## SITE DESCRIPTIONS

Forested habitat within the proposed action area comprises a canopy dominated by slash pine (*Pinus elliotii*), loblolly pine (*P. taeda*), longleaf pine (*P. palustris*), and pond pine (*P. serotina*), with a mid-story of sweetgum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), live oak (*Q. virginiana*), wax myrtle (*Myrica cerifera*), and red bay (*Persea borbonia*). The groundcover is characterized by saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), shiny blueberry (*Vaccinium myrsinites*), huckleberry (*Gaylussacia frondosa*), runner oak (*Q. pumila*), and rusty lyonia (*Lyonia ferruginea*). Wetland systems adjacent to the proposed project are dominated by pond cypress (*Taxodium ascendens*), blackgum (*Nyssa sylvatica*), pond pine, red maple (*Acer rubrum*), and red bay. The soil types within the project area are Ocilla loamy fine sand, Pooler fine sandy loam, Chipley sand, Bayboro loam, Wahee sandy loam, Mascotte fine sand and Pelham loamy sand.

## SPECIES CONSIDERED

The following species occur, or may occur, in the proposed action area and were considered in this assessment:

Red-cockaded woodpecker (*Picoides borealis*) – Endangered  
Wood stork (*Mycteria americana*) – Threatened  
Eastern indigo snake (*Drymarchon couperi*) – Threatened  
Frosted flatwoods salamander (*Ambystoma cingulatum*) – Threatened  
Atlantic sturgeon (*Acipenser oxyrinchus*) – Endangered  
Shortnose sturgeon (*Acipenser brevirostrum*) – Endangered  
Smooth coneflower (*Echinacea laevigata*) – Endangered

## DISCUSSION

### Red-cockaded Woodpecker

Fort Stewart Fish and Wildlife Branch personnel surveyed the project area for red-cockaded woodpeckers (RCW) and RCW cavity trees. There were no RCW cavity trees detected in the action area. The project will impact 57.1 acres of existing RCW HMU (Table 1), 1.9 acres of lowland hardwood, and 47.0 acres of existing non-forested habitat as identified in Fort Stewart's Integrated Natural Resources Management Plan (INRMP; Directorate of Public Works 2001; Figure 2). The foraging partitions of RCW Clusters 11 and 430 lie within the proposed action area. However, no RCW Habitat Management Unit (HMU) for the foraging partition of Cluster 11 will be impacted because the portion of Cluster 11's foraging partition that intersects the action area lies within existing non-forested area. A small portion (10.4 acres) of Cluster 430's foraging partition lies within the action area (Figure 2; Table 1).

A May 2005 memorandum from Noreen Walsh, Assistant Regional Director, Ecological Services, U.S. Fish and Wildlife Service, Atlanta, GA entitled "Implementation Procedures for Use of Foraging Habitat Guidelines and Analysis of Project Impacts under the Red-cockaded Woodpecker (*Picoides borealis*) Recovery Plan: Second Revision" (USFWS 2003) 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 predicate the necessity to conduct subsequent analyses.

#### Foraging Partition Level Analysis

The RCW Recovery Plan requires that a foraging analysis be performed for all active RCW clusters that may be impacted by a project using the Foraging Matrix (hereafter, Matrix) analysis tool. Federal agencies must perform an analysis of all affected foraging partitions to determine if they meet the RCW Recovery Standard (RS) of Good Quality Foraging Habitat (GQFH). If foraging partitions do not meet the RS, then the foraging partition must be analyzed to determine if it meets the Managed Stability Standard (MSS). The pre-project foraging partition of Cluster 430 was analyzed and no stand within the foraging partition met the RS (i.e., there were no acres of GQFH). Therefore, we analyzed the post-project stands receiving direct impact (i.e., loss of habitat in a foraging partition) using the MSS. The result was that Cluster 430 currently exceeds the MSS and will continue to exceed the MSS post-project (Table 2).

To summarize the impacts of the proposed project on the RCW, Cluster 430 will lose 10.4 acres of foraging habitat. The affected cluster will have adequate foraging resources available to it post-project and will continue to meet the MSS. Fort Stewart reached its recovery goal of 350 potential breeding groups during the breeding season of 2012 and has enough suitable or potentially suitable RCW HMU to support 657 RCW clusters post project. Because the foraging partition passes MSS, the group, neighborhood, and population analyses are not warranted. The proposed action may affect, but is not likely to adversely affect the RCW.

## Wood Stork

No wood storks were observed in the proposed project area, nor have they been observed foraging in the action area. Some wetlands will be affected by the proposed action, but the nearest area where foraging wood storks have been observed is approximately 1.9 miles east of the action area in FSTA A-10 (Figure 3). Because of its distance from confirmed wood stork sightings and the implementation of erosion and sedimentation control measures, the proposed action may affect, but is not likely to adversely affect, the wood stork.

## Eastern Indigo Snake

The project area does not lie within eastern indigo snake HMU. No eastern indigo snakes have ever been detected in the project area. The nearest known occurrence of an eastern indigo snake is 1.2 miles west of the action area in FSTA B-2. This project will not affect gopher tortoise habitat or any gopher tortoise burrows. The nearest known gopher tortoise habitat is 0.5 miles northwest of the action area in FSTA B-EQA2 (Figure 3). The proposed project may affect, but is not likely to adversely affect, the eastern indigo snake.

## Frosted Flatwoods Salamander

The entire project area lies within the frosted flatwoods salamander (FFS) HMU. The proposed project impacts zero acres of primary buffer and 15.4 acres of secondary buffer of potential FFS breeding ponds as identified in a FFS habitat review project (Palis 2002). The nearest known occurrence of a FFS is 2.1 miles southeast of the action area in FSTA A-10 (Figure 4). 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. Therefore, the proposed actions will not result in significant erosion, run-off, or other off-site impacts that might affect FFS habitat or ponds. Due to the distance of the FFS sighting from the project area and the implementation of previously mentioned control measures, the proposed action may affect, but is not likely to adversely affect, the FFS or the landscape's ability to support FFS.

## Atlantic and Shortnose Sturgeon

Telemetry and capture data, which was collected as part of Fort Stewart'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. The proposed project lies >15 miles west-southwest of the nearest Atlantic and shortnose sturgeon occurrences on the Canoochee River. Due to unsuitable habitat and the distance between the proposed project area and documented sturgeon sightings, this project will not affect the Atlantic and shortnose sturgeons.

## Smooth Coneflower

No smooth coneflowers were observed in the proposed project area and the soils types are unsuitable for this species (USFWS 1995). Fort Stewart's population of the smooth coneflower is located in FSTA F-11, approximately 19.7 miles northwest of the project area (Figure 5). Because of its distance from the confirmed smooth coneflower population and the acidic soil types present in the action area, the proposed action may affect, but is not likely to adversely affect, the smooth coneflower.

## 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, wood stork, eastern indigo snake, FFS, or smooth coneflower. The proposed action will not affect the Atlantic and shortnose sturgeon because habitat in the action area is not suitable for these species. Critical habitat has been proposed for the FFS, but no FFS critical habitat was proposed for designation on Fort Stewart. Other listed species that occur on Fort Stewart 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 CFR 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.

Figure 1. Location of Proposed EAAF UAV Facility, Fort Stewart, Georgia.

Figure Redacted

Figure 2. Red-cockaded Woodpecker Habitat Management Unit and Clusters Affected by the Proposed Project, Fort Stewart, Georgia.

Figure Redacted

Figure 3. Wood Stork, Eastern Indigo Snake, and Gopher Tortoise Occurrences Near the Project Area, Fort Stewart, Georgia.

Figure Redacted

Figure 4. Frosted Flatwoods Salamander Habitat Impacted by Project Area, Fort Stewart, Georgia.

Figure Redacted

Figure 5. Smooth Coneflower Population, Fort Stewart, Georgia.

Figure Redacted

Table 1. Red-cockaded Woodpecker Habitat Management Unit Acres Affected per Partition.

RCW Partition	HMU Acres Affected
11	0.0
430	10.4
Non-Partition	46.7

Table 2. Managed Stability Values for Affected Red-cockaded woodpecker Partitions, Post-project.

**Partition 11 - Partition Values (MS)**

11/30/2015

1:51:12PM

<b>Total size of Partition (acres)</b>	284.38	<b>Total Acres Forage Habitat 1/4-Mile*</b>	94.52
<b>Total Pine BA (sq feet) Pines &gt; 10" dbh</b>	11,297.68	<b>Contiguous Foraging Acres*</b>	186.54
<b>Total Acres Forage Habitat</b>	186.54	<b>Meets Managed Stability</b>	Yes

**Partition 430 - Partition Values (MS)**

11/30/2015

1:52:31PM

<b>Total size of Partition (acres)</b>	419.63	<b>Total Acres Forage Habitat 1/4-Mile*</b>	89.73
<b>Total Pine BA (sq feet) Pines &gt; 10" dbh</b>	12,947.63	<b>Contiguous Foraging Acres*</b>	239.86
<b>Total Acres Forage Habitat</b>	239.87	<b>Meets Managed Stability</b>	Yes

## LITERATURE CITED

Directorate of Public Works. 2001. Integrated Natural Resources Management Plan, 2001-2005. 172 pp. plus appendices.

Palis, John G. 2002. Distribution of Potential Habitat of the Federally Threatened Flatwoods Salamander (*Ambystoma cingulatum*) on Fort Stewart, Georgia. Contract #DAKF10-01-P-0265.

U.S. Fish and Wildlife Service. 2003. Recovery plan for the red-cockaded woodpecker (*Picoides borealis*): second revision. U.S. Fish and Wildlife Service, Atlanta, GA. 296 pp.

USFWS. 1992. Endangered and threatened wildlife and plants; *Echinacea laevigata* (smooth coneflower) determined to be endangered. 57 Federal Register, pp. 46340-46344.



## United States Department of the Interior

### Fish and Wildlife Service

105 West Park Drive, Suite D  
Athens, Georgia 30606

West Georgia Sub Office  
P.O. Box 52560  
Ft. Benning, Georgia 31995-2560

Coastal Sub Office  
4270 Norwich Street  
Brunswick, Georgia 31520

Mr. Michael W. Biering  
Department of the Army, 3D Infantry Division  
Directorate of Public Works  
1587 Frank Cochran Drive  
Fort Stewart, Georgia 31314-5048  
Attn: Mr. Tim Beaty

Re: FWS Log #07-I-0028

Dear Sir:

Thank you for your September 18, 2006, letter and attached Biological Evaluation concerning the proposed improvements and enlargement of the Camp Oliver Airstrip (COA) in Training Areas E-18 and F-9 on Fort Stewart, Georgia. The proposed action will result in the clear-cutting and stumping of about 56 acres of upland forested habitat and 5 acres of wetland habitat to facilitate construction of a glide path approach for Tactical Unmanned Aviation Vehicles at COA. We have reviewed the information you provided and submit the following comments under provisions of the Endangered Species Act of 1973 (Act) as amended (16 U.S.C. 1531 et seq.).

According to the information you provided, we agree with your determination that this proposed project is not likely to adversely affect any federally endangered or threatened species. Therefore, we believe that the requirements of section 7 of the Endangered Species Act have been satisfied and no further consultation is required. 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 determined that may be affected by the identified action.

We appreciate the opportunity to comment during the planning stages of your project. If you have any questions, please write or call staff biologist Robert Brooks of our Brunswick office at (912) 265-9336, ext. 25.

Sincerely,

*Sandra S. Tucker*  
Sandra S. Tucker  
Field Supervisor



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
HEADQUARTERS, FORT STEWART  
DIRECTORATE OF PUBLIC WORKS  
1587 FRANK COCHRAN DRIVE  
FORT STEWART, GEORGIA 31314-5048

Directorate of Public Works

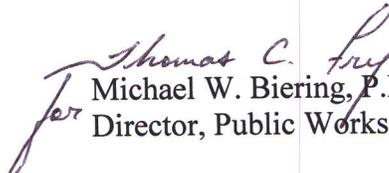
U.S. Department of the Interior  
Fish and Wildlife Service  
ATTN: Sandra Tucker  
4270 Norwich Street  
Brunswick, Georgia 31520

Dear Ms. Tucker,

A Biological Evaluation for improvements to and enlargement of the Camp Oliver Airstrip (COA) to facilitate an approach for Tactical Unmanned Aviation Vehicles (TUAV) in Fort Stewart Training Areas E-18 and F-9 is provided for your review. The proposed action is not likely to adversely affect any federally listed species occurring on Fort Stewart. No designated critical habitat will be destroyed or adversely modified by construction of the COA. The Army did not draw on the regulatory definition of destruction or adverse modification of critical habitat at 50 CFR 402.02 with respect to the conclusions and analysis made in this Biological Evaluation. 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.

Please provide your comments/concurrence with the findings of the Biological Evaluation. If additional information is needed, please contact Mr. Tim Beaty, DPW, Environmental Division, Fish and Wildlife Branch, at telephone (912) 767-7261. Your continued cooperation and assistance are appreciated.

Sincerely,

  
Michael W. Biering, P.E.  
Director, Public Works

Enclosure

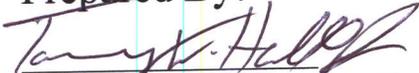
# BIOLOGICAL EVALUATION

## Improvement and Enlargement of the Camp Oliver Airstrip

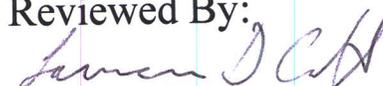
Fort Stewart, Georgia

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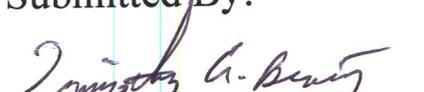
Prepared By:

  
TOMMY W. HOLLAND, JR.  
Wildlife Biologist  
Fish and Wildlife Branch  
Environmental Division  
Directorate of Public Works  
Fort Stewart, GA

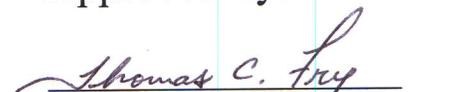
Reviewed By:

  
LAWRENCE D. CARLILE  
Chief, TES Mgt. Program  
Fish and Wildlife Branch  
Environmental Division  
Directorate of Public Works  
Fort Stewart, GA

Submitted By:

  
TIMOTHY A. BEATY  
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

## BIOLOGICAL EVALUATION

### IMPROVEMENT AND ENLARGEMENT OF THE CAMP OLIVER AIRSTRIP

#### PROJECT DESCRIPTION

The proposed action is to clear-cut, stump, and grub 56 acres of upland forest habitat and 5 acres of wetland habitat to facilitate the construction of a glide path approach for Tactical Unmanned Aviation Vehicles at the Camp Oliver Airstrip (COA) at Fort Stewart, Georgia. A portion (34 acres) of the action area is currently paved for use as an airstrip and was assessed as “non-forested” in Fort Stewart’s Endangered Species Management Plan (2001) (Figure 1). Total acreage for the development of the COA is 95 acres. Construction of the COA is necessary to expand the airstrip in order to enhance military training. The action area will be maintained by mowing, herbicide treatments, or other means as needed such that it remains an open and useable glide path approach.

#### SPECIES CONSIDERED

Species for consideration in the evaluation were taken from an existing list provided by the U.S. Fish and Wildlife Service (USFWS). The species listed by the USFWS and considered in this evaluation are:

Bald eagle (*Haliaeetus leucocephalus*) Threatened  
Red-cockaded woodpecker (*Picoides borealis*) Endangered  
Wood Stork (*Mycteria americana*) Endangered  
Eastern indigo snake (*Drymarchon corais couperi*) Threatened  
Flatwoods salamander (*Ambystoma cingulatum*) Threatened  
Shortnose sturgeon (*Acipenser brevirostrum*) Endangered

#### SITE DESCRIPTION

The proposed site for the COA is located in Fort Stewart Training Areas (FSTA) F-9 and E-18 (Figure 1). Habitats within the proposed COA are predominately old fields consisting mostly of loblolly pine (*Pinus taeda*), slash pine (*P. elliottii*), and water oak (*Quercus nigra*) with an understory comprised mostly of broom sedge (*Andropogon virginicus*), dog fennel (*Eupatorium capillifolium*), silk-grass (*Pityopsis graminifolia*), muscadine (*Vitis rotundifolia*), and beautyberry (*Callicarpa americana*). A longleaf pine (*P. palustris*) plantation along the northeastern edge of the action area with an understory of broom sedge and bahia grass (*Paspalum notatum*) also will be clear-cut, stumped, and grubbed. Wetlands within the action area are dominated by red maple (*Acer rubrum*), yellow poplar (*Liriodendron tulipifera*), and blackgum (*Nyssa sylvatica*). Soil types in and adjacent to the action area include Osier soils, Pelham loamy sand, Tifton loamy sand, Ellabelle loamy sand, and Leefield loamy sand.

## DISCUSSION

### Red-cockaded woodpecker

Fort Stewart Fish and Wildlife Branch personnel surveyed the project area for red-cockaded woodpeckers (RCWs) and RCW cavity trees. There were no RCW cavity or start trees detected. The nearest active RCW Cluster (362) is approximately 1.3 miles to the southeast of the proposed COA site in FSTA F-8, but the proposed project will not affect the foraging partition of this or any other active RCW cluster. Clear-cutting for the COA will remove a total of 56 acres of existing RCW Habitat Management Unit (HMU) as identified in the ESMP (2001). Because of the small acreage required for this project and its location adjacent to an established military facility, the proposed project may affect, but is unlikely to adversely affect RCWs. The proposed project will not prevent the Installation from achieving its RCW population recovery goal of 350 potential breeding groups.

### Eastern indigo snake

The proposed COA lies within the eastern indigo snake HMU and will result in the loss of 61 acres of existing eastern indigo snake HMU. The nearest known occurrence of an eastern indigo snake is 2.2 miles northeast of the action areas in FSTA F-11. The nearest gopher tortoise colony to the action area is 0.7 miles northwest of the action area in FSTA E-18. This gopher tortoise colony may be used as a wintering site by indigo snakes, but neither snakes nor snake sign has ever been detected there. Foraging snakes may enter connected wetlands near the action area in the summer. Because of the small acreage required for this project and its location adjacent to an established military facility, the proposed action may affect, but is unlikely to adversely affect eastern indigo snakes.

### Flatwoods salamander

The proposed COA does not lie within the flatwoods salamander HMU. The proposed project will not impact any potential flatwoods salamander ponds or their associated primary or secondary buffers. The nearest sighting of a flatwoods salamander is approximately 2.6 miles east of the proposed action areas in FSTA F-7. The nearest isolated wetland that has potential as a flatwoods salamander breeding site is approximately 0.4 miles southeast of the proposed COA, but flatwoods salamanders have never been detected breeding in this wetland. Because the action area is distant from salamander sightings and potential breeding sites, the proposed action may affect, but is not likely to adversely affect flatwoods salamanders.

### Bald eagle

No bald eagles or eagle nests were observed within the project area. The nearest bald eagle nest is located in FSTA E-13, approximately 8 miles south southwest of the action areas. Pond 2 (Glisson's Pond) is approximately 0.4 miles north of the action area, and even though bald eagles have been observed there, there is no bald eagle nest nearby and bald eagles are not seen there with any regularity. Because the action areas are distant from the only known bald

eagle nest on Fort Stewart, the proposed action may affect, but is unlikely to adversely affect bald eagles.

#### Wood Stork

No wood storks were observed in the action areas, nor have they ever been observed foraging in the action area. The nearest area where foraging wood storks have been observed is approximately 11.1 miles east northeast of action areas in FSTA F-20. Therefore, the proposed project may affect, but is not likely to adversely affect wood storks.

#### Shortnose sturgeon

The only records for shortnose sturgeons on Fort Stewart occur in or near the confluence of the Ogeechee and Canoochee Rivers approximately 30.4 miles east southeast of the project area. Suitable habitat for shortnose sturgeons does not occur in or near the action areas and therefore, the proposed project will not affect shortnose sturgeons.

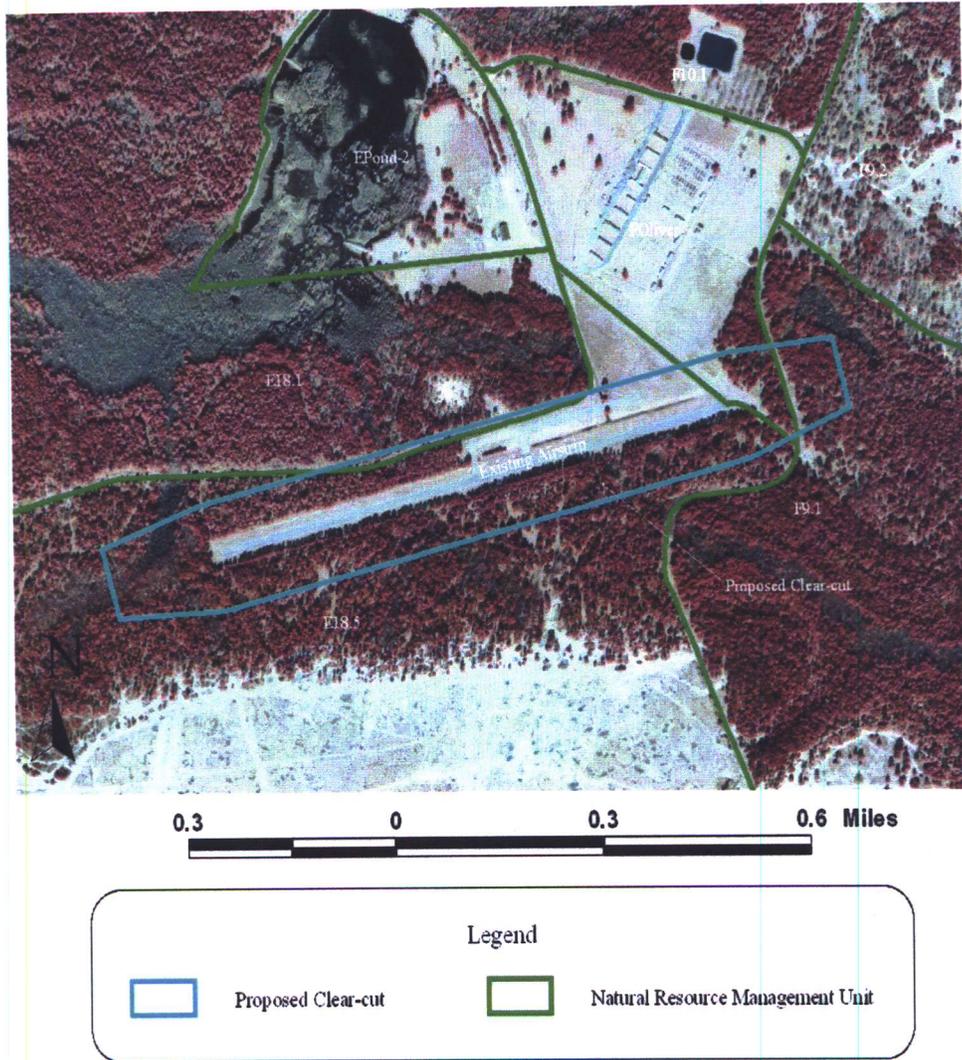
### **CUMULATIVE EFFECTS**

There are no foreseeable state, local, tribal, or private actions that would have a cumulative effect when combined with the impacts of the proposed actions. No adverse cumulative effects are anticipated.

### **CONCLUSION**

Due to the small amount of habitat that will be removed from listed species' HMUs and the proposed project's proximity to an existing military facility, the proposed action may affect, but is not likely to adversely affect RCWs, flatwoods salamanders, eastern indigo snakes, bald eagles, or wood storks. The proposed actions will not affect shortnose sturgeons because habitat in the action areas is not suitable for the species. Critical habitat has not been designated for any listed species that occurs on Fort Stewart, so no critical habitat will be destroyed or adversely modified. The Army did not draw on the regulatory definition of destruction or adverse modification of critical habitat at 50 CFR 402.02 with respect to the conclusions and analysis made in this Biological Evaluation. 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.

Figure 1. Proposed improvement and enlargement of the Camp Oliver Airstrip on Fort Stewart, Georgia.



## **Literature Cited**

Directorate of Public Works. 2001. Integrated Natural Resources Management Plan, 2001-2005. 172 pp. plus appendices.

APPENDIX D  
CULTURAL RESOURCES IMPACT ANALYSIS REPORT

# **Cultural Resource Impact Analysis of the Proposed Shadow Unmanned Aerial System Actions at Fort Stewart, Georgia**

**Prepared by: Brian K. Greer**

**Prepared under the supervision of:**

**Brian K. Greer, M.A., Principal Investigator**



**Cultural Resource Management  
Prevention & Compliance Branch  
Environmental Division  
U.S. Army Garrison, Fort Stewart, Georgia  
22 MARCH 2016**

**PURPOSE:** This Cultural Resource Impact Analysis (CRIA) summarizes the potential impacts to cultural resources and documents the efforts to analyze and determine effects for the purposes of complying with the National Historic Preservation Act and the Installation's Programmatic Agreement (PA) with the Georgia State Historic Preservation Office (SHPO) and other applicable cultural resource laws and regulations. The results of this CRIA are summarized and incorporated into the Installation's Cultural Resource Management Annual Report to the SHPO in accordance with the PA.

**PROPOSED ACTION AND AREA OF POTENTIAL EFFECT:** The purpose of the proposed action is twofold. First, to provide the U.S. Army with the facilities, infrastructure, and space required to fully support the stationing, operational, and training requirements of three Shadow UAS platoons and their equipment on FSGA. Second, to provide the GAARNG with a permanent facility in which to operate, maintain, and support its Shadow UAS platoon, currently stationed on FSGA and operating from temporary facilities on the Installation. The proposed action is needed to ensure these Army and GAARNG platoons are trained safely, effectively, efficiently, and to DoD standards, that their equipment is housed, maintained and operated in accordance with all applicable standards and regulations, and to ensure the mission readiness of the nation's present and future warfighting requirements.

### **ALTERNATIVE I: EVANS ARMY AIRFIELD (EAAF) – PREFERRED**

Under this alternative, the incoming 3CAB Shadow UAS platoons will store and operate their 12 UASs at EAAF, resulting in a total of 24 UAS operating out of this alternative location (including the GAARNG UAS) (see Figure 1). The platoon members will be housed at HAAF. The space at EAAF for permanent 3ID facility construction will be set aside but no construction will occur until Army funding has been secured and siting approved. The GAARNG will construct its permanent facility at this location, which has been approved, funded, and sited at EAAF. This will consolidate all existing Shadow UAS operations by the 3ID and the GAARNG at EAAF.

Figure Redacted

**Figure 1: Alternative I – Evans Airfield Area of Potential Effect**

This location has been previously surveyed for cultural resources and/or is excluded from archaeological survey requirements in accordance with the PA (Campo et al. 1999; Greer et al. 2012). One Isolated Find (9LI521) is located along the northwestern edge of the APE and has been determined ineligible for the NRHP. Structures within the EAAF have all been determined ineligible for the NRHP in accordance with the Fort Stewart 2001 Building Survey (Fortune & Maggioni 2001). No known areas of tribal interest have been identified within the APE.

Figure Redacted

**Figure 2: Alternative I – Cultural Resource Impacts**

### ALTERNATIVE II: CAMP OLIVER

Under this alternative, the incoming 3CAB Shadow UAS platoons will store and operate their 12 UASs at Camp Oliver, and all existing Shadow UAS operations (to include the GAARNG) will be moved from EAAF to Camp Oliver (see Figure 3). This will result in a total of 24 UAS operating out of Camp Oliver. As with Alternative I, land will be set aside for pending 3ID facility construction, and the GAARNG will construct its permanent facility, although it will require a new siting process. The platoon members will be housed at HAAF. Camp Oliver is not typically utilized for UAS training operations; therefore, operating 24 Shadow UASs will cause adjustment to how the facility is scheduled for utilization.

## Figure Redacted

### **Figure 3: Alternative II – Camp Oliver Area of Potential Effect**

This location has been previously surveyed for cultural resources and/or is excluded from archaeological survey requirements in accordance with the PA (Ambrosino et al. 2000; Campbell et al. 2000; Espenshade & Holland 1998; and Espenshade et al. 2010). The following archaeological sites were documented within the APE: 9EV95; 9EV104; 9EV105; 9EV107; 9EV108; 9EV144; 9EV146; 9EV168; 9EV388; 9EV389; 9EV392; and 9EV393 (See Figure 4). All sites have been determined ineligible for the NRHP.

Structures located within Camp Oliver (largely comprised of structures built in the 1950s) have been previously determined ineligible for the NRHP. The structures were evaluated both as individual resources and as a district. Two historic structures are located to the northwest of the Camp Oliver subcantonment area, Glisson's Store (built in 1923) and the Glisson's Fire Tower (built in 1954). Both structures have been determined eligible for the NRHP. The proposed use of Camp Oliver and upgrades to the runway will have no adverse effect to these historic properties. The Firetower has been previously mitigated for adverse effects (up to and including demolition) and Glisson's Store's viewshed is sufficiently displaced from the APE. No known areas of tribal interest have been identified within Alternative II's APE.

Figure Redacted

**Figure 4: Alternative II Cultural Resource Impacts**

### ALTERNATIVE III: NO ACTION/STATUS QUO

Under this alternative, the incoming 3CAB Shadow UAS platoons will be housed at HAAF and their 12 Shadow UAS and support equipment will be stored and utilized at either EAAF or Camp Oliver, FSGA, as these two locations have been determined most feasible for their support. However, no permanent construction for either the 3CAB or GAARNG Shadow UAS platoons will occur, and the platoons' equipment will be stored in existing motorpools and/or other currently existing facilities at either EAAF or Camp Oliver. Not building these facilities does not meet the purpose and need for the proposed action; however, the CEQ regulations that implement NEPA require a clear basis for choice among options by the decision maker and the public, and a no action alternative must be included and analyzed (40 CFR 1502.14[d]).

Under Alternative III, impacts to cultural resources will occur only from the continued operation of the existing facilities (i.e. the EAAF and Camp Oliver) and the increased number of UAV's utilized at the facilities. No new construction and no upgrades to the

airfields will occur so impacts will remain static. As a result, no impacts to cultural resources are anticipated to occur under this alternative.

## CONCLUSION

For all three alternatives, this cultural resource analysis has determined that there will be no adverse effects to historic properties as defined under the National Historic Preservation Act. No areas of tribal interest (i.e. Sacred Sites, properties of religious importance, and/or Native American Graves Protection and Repatriation Act related resources) have been identified with all three alternatives. In regard to significant impacts to cultural resources under the National Environmental Policy Act, the threshold level of significance is defined as any unmitigated adverse impact to historic properties or areas of tribal interest. No unmitigated adverse effects to cultural resources are anticipated as a result of the proposed undertaking. Therefore, the threshold level of significance for cultural resources has not been met for the proposed actions under all three alternatives. Cumulative impacts to cultural resources are considered negligible under all three alternatives.

## REFERENCES CITED

Ambrosino, James N.; Keith J. Little; and Dale Sadler

2000 *Archaeological Investigations at Fort Stewart: An Intensive Archaeological Survey of 9,860 Acres (NRMUs E9.3, E21.3, F2.1, F3.1, F4.1, F6.6, F6.7, F7.1, F9.2, F9.3, F9.4, F9.5, F16.2, F16.3, F17.1 and Camp Oliver in Evans, Liberty and Long Counties) at Fort Stewart, Georgia.* Panamerican Consultants, Inc., Tuscaloosa. Panamerican Consultants, Tuscaloosa. Submitted to the National Park Service, Southeast Regional Office, Atlanta, and funded by the Directorate of Public Works, Environmental Branch, Fort Stewart under Contract Number 1443CX509098044.

Campbell, L. Janice, James R. Morehead, James H. Matthews, Karina Cooksey, Christina M. Callisto, Lee C. Thomas, Bret Kent, Ashley Kent, Carrie Williams Bourgeois, Philip Bourgeois, and Erica Meyer

2010 *Cultural Resources Survey at Fort Stewart Military Reservation (NRMUs A3.3, A15.1, B1.1, B1.2, B1.3, B1.4, B15.4, B20.4, B22.1, B22.3, B24.4, C10.1, C10.2, C10.3, C15.2, C16.1, C16.2, C16.3, C16.4, D5.8, D12.3, D13.1, D13.2, D15.2, D15.3, D15.4, D16.3, D16.4, E18.1, E22.2, E22.3, F6.1, F6.2, F6.3, F6.4, F6.5, F7.2, F7.4, F12.2, F15.1, F15.3, F16.1, & F17.2) in Bryan, Evans, Liberty and Long Counties, Georgia.* Prentice Thomas and Associates, Inc., Mary Esther, Florida. Submitted to the National Park Service, Southeast Archaeological Center, Tallahassee, and the Directorate of Public Works, Environmental Branch, Fort, Stewart, Georgia.

Campo, Rachel; Michael Trinkley & Debi Hacker

1999 *Fort Stewart 8 and 10: An Archaeological Survey of Natural Resource*

*Management Units A9.1, A12.1, A12.2, B7.2, B7.3, E6.3, E8.3, F7.2, and F17.3, Fort Stewart, Evans and Liberty Counties, Georgia.* Chicora Research Contribution Number 258. Chicora Foundation, Inc., Columbia, South Carolina. Prepared for the National Park Service, Southeast Regional Office, Atlanta, Georgia with funds by Fort Stewart, United States Army under Contract Number: 1443CX500095044.

Espenshade, Christopher T. and Jeffrey Holland

1998 *An Intensive Look at Fort Stewart: Archaeological Survey of 18,352 Acres at Fort Stewart, Georgia.* Prepared for the National Park Service, Southeast Region under Contract Number 1443CX509096013, Delivery Orders 1 and 2. Prepared by TRC Garrow Associates, Inc., Atlanta, Georgia.

Espenshade, Christopher; Tracy Martin; David Price; Leslie Raymer; Diana Valk; and Stacey Young

2012 *Phase I Archaeological Survey of 9,785 Acres and Phase II Evaluation of Nine Sites, Fort Stewart, Georgia.* Prepared by SpecPro Environmental Services, Oak Ridge, Tennessee and New South Associates, Stone Mountain, Georgia under Contract Number W912HN-10-D-0001, Delivery Order 0014. Submitted to the Directorate of Public Works, Environmental Division, Fort Stewart, Georgia.

Fortune, Molly and Joseph P. Maggioni

2001 *Building Inventory Fort Stewart, Georgia: An Inventory of Department of Defense Buildings Built Prior to 1989.* Directorate of Public Works, Environmental Division, Fort Stewart, Georgia.

Greer, Brian K.; Thomas Kozma; Joseph P. Maggioni; Ashley Moss; and Jessie Larson

2012 *Fort Stewart/Hunter Army Airfield Cultural Resource Management Annual Report: Fiscal Year 2012.* Directorate of Public Works, Environmental Division, Fort Stewart, Georgia.

APPENDIX E  
PUBLIC OUTREACH



HISTORIC PRESERVATION DIVISION

MARK WILLIAMS  
COMMISSIONER

DR. DAVID CRASS  
DIVISION DIRECTOR

July 13, 2016

Thomas C. Fry  
Chief, Environmental Division  
Directorate of Public Works  
954 William H. Wilson Avenue  
Fort Stewart, Georgia 31314  
**Attn: Melissa B. Kendrick**

RE: Fort Stewart: Construct Shadow Unmanned Aerial Systems Facilities  
Chatham County, Georgia  
**HP-160628-004**

Dear Mr. Fry,

The Historic Preservation Division (HPD) has received initial information concerning the above referenced project requesting comments pursuant to the National Environmental Policy Act of 1969. Our comments are offered to assist the Department of the Army and Fort Stewart in complying with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended.

Thank you for notifying us of this federal undertaking. We look forward to receiving Section 106 compliance documentation as appropriate.

Please refer to project number **HP 160628-004** in future correspondence regarding this project. If we may be of further assistance, please contact me at (770) 389-7851 or [jennifer.dixon@dnr.ga.gov](mailto:jennifer.dixon@dnr.ga.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "JD", written over a light blue horizontal line.

Jennifer Dixon, MHP, LEED Green Associate  
Program Manager  
Environmental Review & Preservation Planning



DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT STEWART/HUNTER ARMY AIRFIELD  
954 WILLIAM H. WILSON AVENUE  
FORT STEWART, GEORGIA 31314

Office of the Directorate

Evans County Board of Commissioners Office  
Attn: Del Beasley  
3 Freeman Street  
Claxton, GA 30417

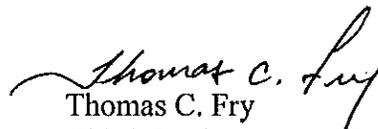
Dear Mr. Beasley:

Enclosed is a copy of the *Draft Finding of No Significant Impact (FNSI) and Draft Environmental Assessment (EA) for Shadow Unmanned Aerial Systems (UAS) on Fort Stewart, Georgia (FSGA)*.

Currently, three Shadow UAS platoons operate on FSGA, two assigned to the 3<sup>rd</sup> Combat Aviation Brigade (3CAB) of the 3<sup>rd</sup> Infantry Division, and one assigned to the Georgia Army National Guard (GAArNG), all operating out of temporary facilities on Evans Army Airfield (EAAF). In fiscal year 2017, the Army will assign three additional UAS Shadow platoons to 3CAB. This unprecedented growth in Shadow UAS training on FSGA has generated a need to construct permanent facilities at an appropriate airfield within the Installation's boundaries to accommodate both the existing and future platoons. Both EAAF and Camp Oliver on FSGA were determined suitable to support the needs of the Army and GAArNG platoons. The Draft EA analyzes the potential environmental impacts of implementing the action at either of these two alternative locations and compares those potential impacts to a no action alternative.

The Draft FNSI and EA are enclosed on CD. Please submit comments during the public comment period, June 20 - July 19, 2016, to Melissa B. Kendrick, using the following email address: [melissa.b.kendrick.civ@mail.mil](mailto:melissa.b.kendrick.civ@mail.mil), or by calling 912-767-2010.

Sincerely,

  
Thomas C. Fry  
Chief, Environmental Division  
Directorate of Public Works



DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT STEWART/HUNTER ARMY AIRFIELD  
954 WILLIAM H. WILSON AVENUE  
FORT STEWART, GEORGIA 31314

Office of the Directorate

Bryan County Commission  
Attn: Jimmy Burnsed  
51 North Courthouse Street  
Pembroke, GA 31321

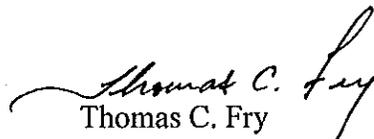
Dear Mr. Burnsed:

Enclosed is a copy of the *Draft Finding of No Significant Impact (FNSI) and Draft Environmental Assessment (EA) for Shadow Unmanned Aerial Systems (UAS) on Fort Stewart, Georgia (FSGA)*.

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Sincerely,

  
Thomas C. Fry  
Chief, Environmental Division  
Directorate of Public Works



DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT STEWART/HUNTER ARMY AIRFIELD  
954 WILLIAM H. WILSON AVENUE  
FORT STEWART, GEORGIA 31314

Office of the Directorate

City of Savannah  
Attn: Stephanie Cutter  
P.O. Box 1027  
Savannah, GA 31402

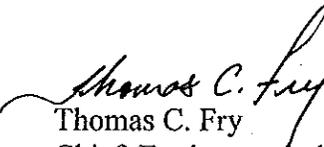
Dear Ms. Cutter:

Enclosed is a copy of the *Draft Finding of No Significant Impact (FNSI) and Draft Environmental Assessment (EA) for Shadow Unmanned Aerial Systems (UAS) on Fort Stewart, Georgia (FSGA)*.

Currently, three Shadow UAS platoons operate on FSGA, two assigned to the 3<sup>rd</sup> Combat Aviation Brigade (3CAB) of the 3<sup>rd</sup> Infantry Division, and one assigned to the Georgia Army National Guard (GAArNG), all operating out of temporary facilities on Evans Army Airfield (EAAF). In fiscal year 2017, the Army will assign three additional UAS Shadow platoons to 3CAB. This unprecedented growth in Shadow UAS training on FSGA has generated a need to construct permanent facilities at an appropriate airfield within the Installation's boundaries to accommodate both the existing and future platoons. Both EAAF and Camp Oliver on FSGA were determined suitable to support the needs of the Army and GAArNG platoons. The Draft EA analyzes the potential environmental impacts of implementing the action at either of these two alternative locations and compares those potential impacts to a no action alternative.

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Sincerely,

  
Thomas C. Fry  
Chief, Environmental Division  
Directorate of Public Works



DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT STEWART/HUNTER ARMY AIRFIELD  
954 WILLIAM H. WILSON AVENUE  
FORT STEWART, GEORGIA 31314

Office of the Directorate

City of Hinesville  
Attn: Billy Edwards  
115 East M.L. King, Jr. Drive  
Hinesville, GA 31313

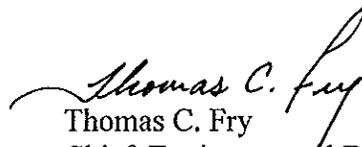
Dear Mr. Edwards:

Enclosed is a copy of the *Draft Finding of No Significant Impact (FNSI) and Draft Environmental Assessment (EA) for Shadow Unmanned Aerial Systems (UAS) on Fort Stewart, Georgia (FSGA)*.

Currently, three Shadow UAS platoons operate on FSGA, two assigned to the 3<sup>rd</sup> Combat Aviation Brigade (3CAB) of the 3<sup>rd</sup> Infantry Division, and one assigned to the Georgia Army National Guard (GAArNG), all operating out of temporary facilities on Evans Army Airfield (EAAF). In fiscal year 2017, the Army will assign three additional UAS Shadow platoons to 3CAB. This unprecedented growth in Shadow UAS training on FSGA has generated a need to construct permanent facilities at an appropriate airfield within the Installation's boundaries to accommodate both the existing and future platoons. Both EAAF and Camp Oliver on FSGA were determined suitable to support the needs of the Army and GAArNG platoons. The Draft EA analyzes the potential environmental impacts of implementing the action at either of these two alternative locations and compares those potential impacts to a no action alternative.

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Sincerely,

  
Thomas C. Fry  
Chief, Environmental Division  
Directorate of Public Works



DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT STEWART/HUNTER ARMY AIRFIELD  
954 WILLIAM H. WILSON AVENUE  
FORT STEWART, GEORGIA 31314

Office of the Directorate

Long County Board of Commissions  
Attn: Robert A. Long  
459 S. McDonald Street  
Ludowici, GA 31316

Dear Mr. Long:

Enclosed is a copy of the *Draft Finding of No Significant Impact (FNSI) and Draft Environmental Assessment (EA) for Shadow Unmanned Aerial Systems (UAS) on Fort Stewart, Georgia (FSGA)*.

Currently, three Shadow UAS platoons operate on FSGA, two assigned to the 3<sup>rd</sup> Combat Aviation Brigade (3CAB) of the 3<sup>rd</sup> Infantry Division, and one assigned to the Georgia Army National Guard (GAArNG), all operating out of temporary facilities on Evans Army Airfield (EAAF). In fiscal year 2017, the Army will assign three additional UAS Shadow platoons to 3CAB. This unprecedented growth in Shadow UAS training on FSGA has generated a need to construct permanent facilities at an appropriate airfield within the Installation's boundaries to accommodate both the existing and future platoons. Both EAAF and Camp Oliver on FSGA were determined suitable to support the needs of the Army and GAArNG platoons. The Draft EA analyzes the potential environmental impacts of implementing the action at either of these two alternative locations and compares those potential impacts to a no action alternative.

The Draft FNSI and EA are enclosed on CD. Please submit comments during the public comment period, June 20 - July 19, 2016, to Melissa B. Kendrick, using the following email address: [melissa.b.kendrick.civ@mail.mil](mailto:melissa.b.kendrick.civ@mail.mil), or by calling 912-767-2010.

Sincerely,

A handwritten signature in black ink that reads "Thomas C. Fry".

Thomas C. Fry  
Chief, Environmental Division  
Directorate of Public Works



DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT STEWART/HUNTER ARMY AIRFIELD  
954 WILLIAM H. WILSON AVENUE  
FORT STEWART, GEORGIA 31314

Office of the Directorate

City of Richmond Hill  
Attn: Linda Phillips  
40 Richard R. Davis Dr.  
Richmond Hill, GA 31324

Dear Ms. Phillips:

Enclosed is a copy of the *Draft Finding of No Significant Impact (FNSI) and Draft Environmental Assessment (EA) for Shadow Unmanned Aerial Systems (UAS) on Fort Stewart, Georgia (FSGA)*.

Currently, three Shadow UAS platoons operate on FSGA, two assigned to the 3<sup>rd</sup> Combat Aviation Brigade (3CAB) of the 3<sup>rd</sup> Infantry Division, and one assigned to the Georgia Army National Guard (GAArNG), all operating out of temporary facilities on Evans Army Airfield (EAAF). In fiscal year 2017, the Army will assign three additional UAS Shadow platoons to 3CAB. This unprecedented growth in Shadow UAS training on FSGA has generated a need to construct permanent facilities at an appropriate airfield within the Installation's boundaries to accommodate both the existing and future platoons. Both EAAF and Camp Oliver on FSGA were determined suitable to support the needs of the Army and GAArNG platoons. The Draft EA analyzes the potential environmental impacts of implementing the action at either of these two alternative locations and compares those potential impacts to a no action alternative.

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Sincerely,

A handwritten signature in cursive script that reads "Thomas C. Fry".

Thomas C. Fry  
Chief, Environmental Division  
Directorate of Public Works



DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT STEWART/HUNTER ARMY AIRFIELD  
954 WILLIAM H. WILSON AVENUE  
FORT STEWART, GEORGIA 31314

Office of the Directorate

Georgia Department of Natural Resources  
Environmental Protection Division  
Watershed Protection Branch  
Attn: Ms. Jennifer H. Welte  
4220 International Parkway, Suite 101  
Atlanta, GA 30354

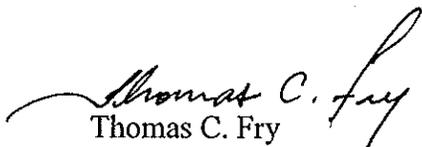
Dear Ms. Welte:

Enclosed is a copy of the *Draft Finding of No Significant Impact (FNSI) and Draft Environmental Assessment (EA) for Shadow Unmanned Aerial Systems (UAS) on Fort Stewart, Georgia (FSGA)*.

Currently, three Shadow UAS platoons operate on FSGA, two assigned to the 3<sup>rd</sup> Combat Aviation Brigade (3CAB) of the 3<sup>rd</sup> Infantry Division, and one assigned to the Georgia Army National Guard (GAArNG), all operating out of temporary facilities on Evans Army Airfield (EAAF). In fiscal year 2017, the Army will assign three additional UAS Shadow platoons to 3CAB. This unprecedented growth in Shadow UAS training on FSGA has generated a need to construct permanent facilities at an appropriate airfield within the Installation's boundaries to accommodate both the existing and future platoons. Both EAAF and Camp Oliver on FSGA were determined suitable to support the needs of the Army and GAArNG platoons. The Draft EA analyzes the potential environmental impacts of implementing the action at either of these two alternative locations and compares those potential impacts to a no action alternative.

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Sincerely,

  
Thomas C. Fry  
Chief, Environmental Division  
Directorate of Public Works



DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT STEWART/HUNTER ARMY AIRFIELD  
954 WILLIAM H. WILSON AVENUE  
FORT STEWART, GEORGIA 31314

Office of the Directorate

U.S. Fish and Wildlife Service  
Georgia Ecological Services Field Office  
Attn: Mr. Strant T. Colwell  
4980 Wildlife Drive NE  
Townsend, GA 31331

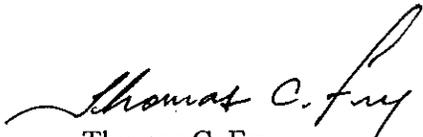
Dear Mr. Colwell:

Enclosed is a copy of the *Draft Finding of No Significant Impact (FNSI) and Draft Environmental Assessment (EA) for Shadow Unmanned Aerial System (UAS) Actions on Fort Stewart, Georgia (FSGA)*.

Currently, three Shadow UAS platoons operate on FSGA, two assigned to the 3<sup>rd</sup> Combat Aviation Brigade (3CAB) of the 3<sup>rd</sup> Infantry Division, and one assigned to the Georgia Army National Guard (GAArNG), all operating out of temporary facilities on Evans Army Airfield (EAAF). In fiscal year 2017, the Army will assign three additional UAS Shadow platoons to 3CAB. This unprecedented growth in Shadow UAS training on FSGA has generated a need to construct permanent facilities at an appropriate airfield within the Installation's boundaries to accommodate both the existing and future platoons. Both EAAF and Camp Oliver on FSGA were determined suitable to support the needs of the Army and GAArNG platoons. The Draft EA analyzes the potential environmental impacts of implementing the action at either of these two alternative locations and compares those potential impacts to a no action alternative.

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Sincerely,

  
Thomas C. Fry  
Chief, Environmental Division  
Directorate of Public Works



DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT STEWART/HUNTER ARMY AIRFIELD  
954 WILLIAM H. WILSON AVENUE  
FORT STEWART, GEORGIA 31314

Office of the Directorate

U.S. Forest Service  
Chattahoochee-Oconee National Forest  
Attn: Mr. George Bain  
1755 Cleveland Highway  
Gainesville, GA 30501

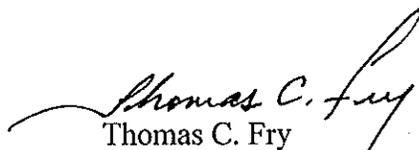
Dear Mr. Bain:

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Sincerely,

  
Thomas C. Fry  
Chief, Environmental Division  
Directorate of Public Works



DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT STEWART/HUNTER ARMY AIRFIELD  
954 WILLIAM H. WILSON AVENUE  
FORT STEWART, GEORGIA 31314

Office of the Directorate

Georgia Department of Natural Resources  
Environmental Review Coordination  
Attn: Karen Anderson-Cordova  
254 Washington Street, SW  
Atlanta, GA 30334

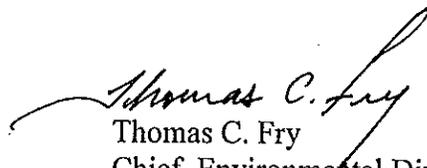
Dear Ms. Anderson-Cordova:

Enclosed is a copy of the *Draft Finding of No Significant Impact (FNSI) and Draft Environmental Assessment (EA) for Shadow Unmanned Aerial Systems (UAS) on Fort Stewart, Georgia (FSGA)*.

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Sincerely,

  
Thomas C. Fry  
Chief, Environmental Division  
Directorate of Public Works



DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT STEWART/HUNTER ARMY AIRFIELD  
954 WILLIAM H. WILSON AVENUE  
FORT STEWART, GEORGIA 31314

Office of the Directorate

City of Statesboro  
Attn: R. Shane Haynes  
City Manager  
50 East Main Street  
Statesboro, GA 30458

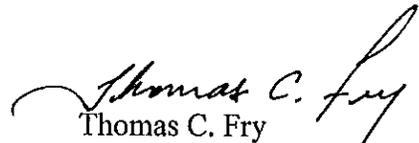
Dear Mr. Haynes:

Enclosed is a copy of the *Draft Finding of No Significant Impact (FNSI) and Draft Environmental Assessment (EA) for Shadow Unmanned Aerial Systems (UAS) on Fort Stewart, Georgia (FSGA)*.

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Sincerely,

  
Thomas C. Fry  
Chief, Environmental Division  
Directorate of Public Works



DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT STEWART/HUNTER ARMY AIRFIELD  
954 WILLIAM H. WILSON AVENUE  
FORT STEWART, GEORGIA 31314

Office of the Directorate

Savannah District Corps of Engineers  
Wetland Regulatory Division  
Attn: Jared Lopes  
100 W. Oglethorpe Avenue  
Savannah, GA 31401

Dear Mr. Lopes:

Enclosed is a copy of the *Draft Finding of No Significant Impact (FNSI) and Draft Environmental Assessment (EA) for Shadow Unmanned Aerial Systems (UAS) on Fort Stewart, Georgia (FSGA)*.

Currently, three Shadow UAS platoons operate on FSGA, two assigned to the 3<sup>rd</sup> Combat Aviation Brigade (3CAB) of the 3<sup>rd</sup> Infantry Division, and one assigned to the Georgia Army National Guard (GAARNG), all operating out of temporary facilities on Evans Army Airfield (EAAF). In fiscal year 2017, the Army will assign three additional UAS Shadow platoons to 3CAB. This unprecedented growth in Shadow UAS training on FSGA has generated a need to construct permanent facilities at an appropriate airfield within the Installation's boundaries to accommodate both the existing and future platoons. Both EAAF and Camp Oliver on FSGA were determined suitable to support the needs of the Army and GAARNG platoons. The Draft EA analyzes the potential environmental impacts of implementing the action at either of these two alternative locations and compares those potential impacts to a no action alternative.

The Draft FNSI and EA are enclosed on CD. Please submit comments during the public comment period, June 20 - July 19, 2016, to Melissa B. Kendrick, using the following email address: [melissa.b.kendrick.civ@mail.mil](mailto:melissa.b.kendrick.civ@mail.mil), or by calling 912-767-2010.

Sincerely,

  
Thomas C. Fry  
Chief, Environmental Division  
Directorate of Public Works



DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT STEWART/HUNTER ARMY AIRFIELD  
954 WILLIAM H. WILSON AVENUE  
FORT STEWART, GEORGIA 31314

Office of the Directorate

U.S. Environmental Protection Agency  
Federal Activity Branch  
Attn: Mr. Heinz J. Mueller  
61 Forsyth Street, SW  
Atlanta, GA 30303-3104

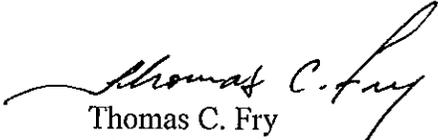
Dear Mr. Mueller:

Enclosed is a copy of the *Draft Finding of No Significant Impact (FNSI) and Draft Environmental Assessment (EA) for Shadow Unmanned Aerial Systems (UAS) on Fort Stewart, Georgia (FSGA)*.

Currently, three Shadow UAS platoons operate on FSGA, two assigned to the 3<sup>rd</sup> Combat Aviation Brigade (3CAB) of the 3<sup>rd</sup> Infantry Division, and one assigned to the Georgia Army National Guard (GAArNG), all operating out of temporary facilities on Evans Army Airfield (EAAF). In fiscal year 2017, the Army will assign three additional UAS Shadow platoons to 3CAB. This unprecedented growth in Shadow UAS training on FSGA has generated a need to construct permanent facilities at an appropriate airfield within the Installation's boundaries to accommodate both the existing and future platoons. Both EAAF and Camp Oliver on FSGA were determined suitable to support the needs of the Army and GAArNG platoons. The Draft EA analyzes the potential environmental impacts of implementing the action at either of these two alternative locations and compares those potential impacts to a no action alternative.

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Thomas C. Fry  
Chief, Environmental Division  
Directorate of Public Works



DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT STEWART/HUNTER ARMY AIRFIELD  
954 WILLIAM H. WILSON AVENUE  
FORT STEWART, GEORGIA 31314

Office of the Directorate

City of Glennville  
Attn: Ms. Amy W. Murray  
134 South Downing Musgrove Highway  
Glennville, GA 30457

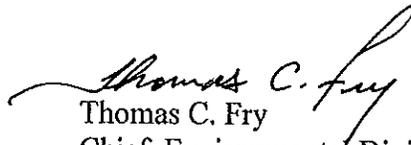
Dear Ms. Murray:

Enclosed is a copy of the *Draft Finding of No Significant Impact (FNSI) and Draft Environmental Assessment (EA) for Shadow Unmanned Aerial Systems (UAS) on Fort Stewart, Georgia (FSGA)*.

Currently, three Shadow UAS platoons operate on FSGA, two assigned to the 3<sup>rd</sup> Combat Aviation Brigade (3CAB) of the 3<sup>rd</sup> Infantry Division, and one assigned to the Georgia Army National Guard (GAArNG), all operating out of temporary facilities on Evans Army Airfield (EAAF). In fiscal year 2017, the Army will assign three additional UAS Shadow platoons to 3CAB. This unprecedented growth in Shadow UAS training on FSGA has generated a need to construct permanent facilities at an appropriate airfield within the Installation's boundaries to accommodate both the existing and future platoons. Both EAAF and Camp Oliver on FSGA were determined suitable to support the needs of the Army and GAArNG platoons. The Draft EA analyzes the potential environmental impacts of implementing the action at either of these two alternative locations and compares those potential impacts to a no action alternative.

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Sincerely,

  
Thomas C. Fry  
Chief, Environmental Division  
Directorate of Public Works



DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT STEWART/HUNTER ARMY AIRFIELD  
954 WILLIAM H. WILSON AVENUE  
FORT STEWART, GEORGIA 31314

Office of the Directorate

Liberty Consolidated Planning Commission  
Attn: Mr. Jeff Ricketson  
The Historic Courthouse  
100 Main Street, Suite 7520  
Hinesville, GA 31313

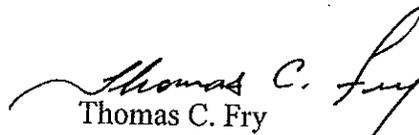
Dear Mr. Ricketson:

Enclosed is a copy of the *Draft Finding of No Significant Impact (FNSI) and Draft Environmental Assessment (EA) for Shadow Unmanned Aerial Systems (UAS) on Fort Stewart, Georgia (FSGA)*.

Currently, three Shadow UAS platoons operate on FSGA, two assigned to the 3<sup>rd</sup> Combat Aviation Brigade (3CAB) of the 3<sup>rd</sup> Infantry Division, and one assigned to the Georgia Army National Guard (GAArNG), all operating out of temporary facilities on Evans Army Airfield (EAAF). In fiscal year 2017, the Army will assign three additional UAS Shadow platoons to 3CAB. This unprecedented growth in Shadow UAS training on FSGA has generated a need to construct permanent facilities at an appropriate airfield within the Installation's boundaries to accommodate both the existing and future platoons. Both EAAF and Camp Oliver on FSGA were determined suitable to support the needs of the Army and GAArNG platoons. The Draft EA analyzes the potential environmental impacts of implementing the action at either of these two alternative locations and compares those potential impacts to a no action alternative.

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Sincerely,

  
Thomas C. Fry  
Chief, Environmental Division  
Directorate of Public Works



DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, US ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD  
DIRECTORATE OF PUBLIC WORKS  
1587 VETERANS PARKWAY  
FORT STEWART, GEORGIA 31314

Office of the Directorate

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

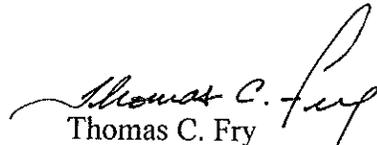
Dear Mr. Turner:

Enclosed is a copy of the *Draft Finding of No Significant Impact (FNSI) and Draft Environmental Assessment (EA) for Shadow Unmanned Aerial Systems (UAS) on Fort Stewart, Georgia (FSGA)*.

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Sincerely,

  
Thomas C. Fry  
Chief, Environmental Division  
Directorate of Public Works

AFFIDAVIT OF PUBLICATION  
SAVANNAH MORNING NEWS

STATE OF GEORGIA  
COUNTY OF CHATHAM

Personally appeared before me, Alaina Fincher, to me known,  
who being sworn, deposes and says:

That he/she is the authorized agent of Southeastern Newspapers  
Company, LLC d.b.a. Savannah Morning News, a Georgia corporation,  
doing business in Chatham County, Georgia as a daily newspaper published  
in said county;

That he/she is authorized to make affidavits of publication on behalf  
of said company;

That said newspaper is of general circulation in said county  
and in the area adjacent thereto;

That said newspaper is the legal organ for publication  
in Chatham County, Georgia

That he/she has reviewed the regular editions of the  
Savannah Morning News, published on:

June 19, 2016 \_\_\_\_\_, 2016,  
\_\_\_\_\_, 2016, \_\_\_\_\_, 2016,

and finds that the following advertisement, to-wit:

**NOTICE OF AVAILABILITY**  
**DRAFT FINDING OF NO**  
**SIGNIFICANT IMPACT (FNSI)**  
**AND DRAFT ENVIRONMENTAL**  
**ASSESSMENT (EA)**  
Shadow Unmanned Aerial Systems (UAS) Actions on Fort Stewart, Georgia  
Currently, three Shadow UAS platoons operate on FSGA, two assigned to the 3rd Combat Aviation Brigade (3CAB) of the 3rd Infantry Division, and one assigned to the Georgia Army National Guard (GAARNG), all operating out of temporary facilities on Evans Army Airfield (EAAP). In fiscal year 2017, the Army will assign three additional UAS Shadow platoons to 3CAB. This unprecedented growth in Shadow UAS training on FSGA has generated a need to construct permanent facilities at an appropriate airfield within the installation's boundaries to accommodate both the existing and future platoons. Both EAAP and Camp Oliver on FSGA were determined suitable to support the needs of the Army and GAARNG platoons. The Draft EA analyzes the potential environmental impacts of implementing the action at either of these two alternative locations and compares those potential impacts to a no action alternative.  
The Draft EA and its associated FNSI can be accessed via the Fort Stewart National Environmental Policy Act webpage: <http://act.west.army.mil/fortstewart>. The copies will be available at the Oak and Catherine Wall Branch of the Savannah Public Library, the Live Oak Public Library, Hinesville, GA at the East Library, Fort Stewart. Please submit comments during the public comment period, June 20, 2016 to June 19, 2016 to [embae.mccormick@army.mil](mailto:embae.mccormick@army.mil), [mallesha.mccormick@army.mil](mailto:mallesha.mccormick@army.mil), or by calling 912-757-2010.

Al Perclies  
\_\_\_\_\_

(Deponent)

appeared in each of said editions.  
Sworn to and subscribed before me

This 21 day of June, 2016

Eugene J. Cronk  
Notary Public; Chatham County, Ga.

**EUGENE J. CRONK**  
Notary Public, Chatham County GA  
My Commission Expires Jan. 24, 2018

AFFIDAVIT OF PUBLICATION

STATE OF GEORGIA

COUNTIES OF LIBERTY AND LONG

Personally appeared before me, the undersigned Notary Public, Kathryn Fox, who after being duly sworn stated under oath that she is the Business Manager of the COASTAL COURIER, the official Legal Organ of Liberty and Long Counties, newspapers published in the city of Hinesville, Georgia, and who further states under oath that the advertisement attached hereto and made a part of this affidavit appeared in the COASTAL COURIER on the following date(s):

June 19, 2016

Kathryn Fox

Business Manager

Sworn to and subscribed before me,

This 22 day of June 2016

Elly Mattingly  
Notary Public



Commission expires November 22, 2019

**NOTICE OF AVAILABILITY  
DRAFT FINDING OF NO SIGNIFICANT IMPACT (FNSI) AND  
DRAFT ENVIRONMENTAL ASSESSMENT (EA)  
Shadow Unmanned Aerial Systems (UAS) Actions on Fort Stewart, Georgia**  
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