

# FINDING OF NO SIGNIFICANT IMPACT

## SEMMES LAKE REPAIRS Fort Jackson, South Carolina

October, 2017

### 1. Proposed Action

The National Environmental Policy Act of 1969 (NEPA), requires federal facilities to evaluate the environmental impacts of a proposed action and any associated alternative actions prior to Construction of the action. This Finding of No Significant Impact (FONSI) summarizes the results of the evaluation and documents Fort Jackson's conclusions.

Semmes Lake is located off of Semmes Road (Figure 1). The Lakes are located completely within the boundaries of Fort Jackson's Military Reservation, and as such, are owned by the Federal Government.

Fort Jackson is proposing to rebuild Semmes Lake dam. This is alternative 4 from the EA. This alternative rebuilds the dam with a lake behind the dam. The dam would be an earthen embankment constructed to current dam safety standards and designed to not overtop during storms up to the calculated Inflow Design Flood (IDF) which is based on the Probable Maximum Precipitation (PMP – approximately equal to 0.001% chance storm {i.e., a one in 100,000 year event}), the IDF has an estimated annual chance of exceedance of 0.001%. The dam would have a top elevation of 224½ feet above mean sea level and a top width of 48 feet. The upstream face of the dam would be protected by rip-rap. This alternative would maintain the stormwater detention capacity that existed prior to October 2015. The spillway for the dam would be moved from the eastern end of the dam to the western end of the dam and would be constructed as a labyrinth weir. A labyrinth weir is designed to progressively pass more water with increasing inflow into the lake. The weir would be designed to maintain a normal pool elevation in the lake of 215 feet above mean sea level. Semmes Road and a pedestrian sidewalk would be re-constructed on top of the dam. The dam would be listed on the National Inventory of Dams and would undergo periodic inspections and maintenance as required by dam safety standards.

### 2. Other Alternatives Considered/Analyzed

Fort Jackson's EA evaluated various alternatives before development of the preferred alternative. These alternatives included the following:

**No Action:** The No Action Alternative would leave Semmes Lake (and the remnants of the dam) in its current condition. The breach in the dam would likely increase in width over time as a result of erosion due to surface runoff during storm events and erosion due to high flows in Wildcat Creek during storm events. The downstream face of the dam would likely also continue to erode due to surface runoff during storm events.

**Alternative 2:** This alternative would remove the existing earthen embankment and the road remnants. In order to maintain the stormwater detention function that Semmes Lake provided prior to October 2015, stormwater detention ponds would be constructed. To achieve the required stormwater capacity, detention ponds would be needed both in the old lakebed and downstream of the former lake in the Wildcat Creek channel. Construction of the detention ponds would require construction of several earthen berms approximately 5 feet high.

**Alternative 3:** Alternative 3 consists of rebuilding the dam and operating it as a dry dam. A dry dam is a dam that holds minimal-to-no water during normal conditions. It would only hold water during storm events and would function as a large, temporary stormwater detention pond. This alternative would maintain the stormwater detention capacity that existed prior to October 2015. The alternative involves rebuilding the dam with a high flow weir constructed in the Wildcat Creek streambed at the dam. This weir would allow normal low flows in Wildcat Creek to pass without causing any impoundment, but would progressively impound more water with increasing flow in Wildcat Creek associated with storm events. Water levels in the lakebed would be approximately 10 feet deep during the 4% annual chance storm event and would slowly drain after the storm. The lakebed would be maintained as a constructed wetland with minimal water in the wetlands. Because the dam would impound water during storm events, the dam would have to be constructed to current dam safety standards and would be listed on the National Inventory of Dams. Periodic inspections and maintenance would be performed as required by dam safety standards.

### **3. Environmental Impacts of the Preferred Alternative**

Resources were evaluated for impacts in the EA. The impacts to the resources from implementing the preferred alternative included the following:

- **Land use** - Construction of the preferred alternative would not result in any significant or negative impacts to land use.
- **Climate** - Construction of the preferred alternative would not result in any significant or negative environmental impacts on climate.
- **Physiography, Geology, Topography, and Soils** - Construction of the preferred alternative would not result in any significant or negative environmental impacts on physiography, topography, geology, or soils. Construction of the preferred alternative would provide a long term positive environmental impact by allowing sediments from runoff to settle out of suspension during high flow events, thereby reducing sedimentation downstream of the dam. During construction, best management practices would be followed to reduce temporary negative impacts from erosion and runoff due to construction activities.
- **Surface Water and Stormwater** - Construction of the preferred alternative would cause temporary changes to stormwater and surface water during construction. These impacts would consist of a short-term increase in turbidity and increased downstream sedimentation during construction that would subside shortly after construction activities cease. After construction, Alternative 4 would have a positive long-term impact to surface water by providing storm water detention, allowing sediment to settle out of

stormwater and controlling erosion of the old dam and downstream areas. Stormwater detention would be increased from the current condition and would match that of Semmes Lake prior to the October 2015 breach. Best management practices such as silt fencing, mulching, temporary seeding and other erosion control practices would be implemented during construction to reduce impacts to water quality.

- **Ground water** - Construction of the preferred alternative would not result in any significant or negative environmental impacts on ground water.
- **Floodplains and Wetlands** – Alternative 4 would have negative long-term impact to wetlands. These negative impacts are due to wetlands being permanently filled during construction (0.6 acres). Additionally, construction of alternative 4 would lead to a loss of any wetlands that have formed in the footprint of Semmes Lake. The loss of the wetland within the footprint of Semmes Lake would be slightly offset by wetlands that would form along the banks of Semmes Lake once the lake was refilled. Construction of Alternative 4 would have a positive long-term impact to stormwater detention as it would match that of Semmes Lake prior to the October 2015 breach. As such, the downstream floodplain of Semmes Lake would remain unchanged and there would be no change in the flood elevations. No practical non-floodplain alternative exists. The preferred alternative does not conflict with applicable state and local standards concerning floodplain protection. The preferred alternative will not significantly affect the natural and beneficial values of the floodplain. In compliance with Executive Order 11988, a Finding of No Practicable Alternative for construction in the floodplain has been prepared and is included as an Appendix of the EA for this project.
- **Fish and Wildlife** - Construction of the preferred alternative would result in temporary construction related impacts to wildlife. During construction, any wildlife in the area would likely leave, but would be expected to return following construction. Construction of the preferred alternative would not result in any long term significant or negative impacts to fish. In the long term construction of this alternative would maintain the current habitat and aquatic species composition of Upper and Lower Legion Lakes.
- **Vegetation** - Construction of the preferred alternative would not result in any significant impacts to vegetation.
- **Threatened and Endangered Species** - There will be no effect to listed species from construction of the preferred alternative.
- **Air Quality** - Construction of the preferred alternative would lead to a short term increase in emissions during construction from the operation of construction equipment. No long term increases in emissions would occur from construction of the preferred alternative, as construction equipment would no longer be in use once construction was completed. Best management practices would be implemented to reduce impacts to air quality.
- **Noise** - Construction of the preferred alternative would lead to an increase in noise during construction. Best management practices would be implemented to reduce noise during construction. No long term increases in noise would occur from construction of the preferred alternative.
- **Cultural Resources** - A cultural resources survey has been conducted by the South Carolina Institute for Archaeology and Anthropology at Semmes Lake. The site known as 38RD1447 will be managed as "unevaluated" for listing on the National Register due to partially inaccessible deposits. Ft. Jackson will protect and monitor the site (see also

Table 1) until a complete evaluation is done. This determination has been coordinated with the South Carolina State Historic Preservation Office. The preferred alternative would have no negative effect on historic properties or cultural resources as all known cultural sites would be avoided during construction.

- **Hazardous Materials and Hazardous Waste Management** - There are no known hazardous waste, or hazardous material sites within the immediate vicinity of Upper and Lower Legion Lakes. As is typical with large rehabilitation projects, on-site hazardous materials will be present to support equipment operations. These materials will be handled and stored in accordance with all applicable state and federal laws and no negative environmental impacts, resulting from these materials, are expected as a result of construction. Best management practices would be implemented to reduce the risk of spills or other means of contamination during construction.
- **Environmental Justice and Socioeconomic Condition** - Construction of the preferred alternative would cause no significant adverse environmental impacts to any of the residents in the area regardless of race, national origin, or level of income of residents.
- **Aesthetics and Recreation** - SL Alternative 4 would restore the aesthetics of the area to pre-flood conditions. Construction of this alternative would also restore fishing and other water-based recreational opportunities for soldiers and their families at the lake. If the fish habitat/nuisance aquatic vegetation control option is constructed, fishing opportunities at Semmes Lake would likely increase from historic levels.
- **Cumulative Impacts** - No significant adverse cumulative impacts are expected as a result of implementing the preferred alternative. The impacts of the preferred alternative for Semmes Lake, when considered along with present and future actions, are cumulatively insignificant because all impacts from the preferred alternative are minor, temporary, construction related impacts and known present and future actions in the Wildcat Creek watershed area expected to be minor and largely construction related. Any impacts associated with the preferred alternative, when added to other past, present, and reasonable foreseeable future actions are collectively insignificant as the preferred alternative would return Semmes Lake to pre-storm (October 2015) conditions.

#### **4. Mitigation Measures**

The EA identified mitigation measures and best management practices (BMPs) that must be followed to further reduce impacts of the preferred alternative. They are discussed in the EA and listed in Table 1 of this document. These mitigation measures and BMPs will be incorporated into any contract documents and specifications.

#### **5. Conclusions**

The draft EA and FONSI was distributed for public review in August 2017 for a 30 day comment and review period. The Final EA and FONSI address the comments received during this review period. Since Fort Jackson's findings demonstrate that the project will not significantly adversely affect environmental resources or human health, the preparation of an Environmental Impact Statement is not warranted. The full Environmental Assessment can be downloaded from the internet at [www.sac.usace.army.mil/SemmesandLegionLakes/](http://www.sac.usace.army.mil/SemmesandLegionLakes/).

I have considered the results of the analysis in the EA and the comments received during the public comment period, and have decided to proceed with the selection of the preferred



alternative. The implementation of the preferred alternative would not result in a significant impact of the quality of the human or natural environment. This analysis fulfills the requirements of the NEPA of 1969 as implemented by the Council of Environmental Quality (CEQ) regulations (40 Code of Federal Regulations (CFR) Parts 1500-1508), as well as the requirements of the Environmental Analysis of Army Actions (32 CFR Part 651). Therefore, issuance of a FONSI is warranted, and an Environmental Impact Statement is not necessary. The full EA and FONSI can be downloaded from the internet at [www.sac.usace.army.mil/SemmesandLegionLakes/](http://www.sac.usace.army.mil/SemmesandLegionLakes/).

18 OCT 17

Date



STEPHEN F. ELDER  
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Commanding



**Figure 1 - Semmes Location Map.**

**Table 1. Best Management Practices (BMP) and Mitigation Measures**

<b>Resource</b>	<b>Impact</b>	<b>BMP and Mitigation Measures</b>
Climate	Greenhouse gas emission	To reduce greenhouse gas emissions, the following BMPs will be utilized: reducing fugitive dust emissions, avoiding the unnecessary idling of construction equipment, and maintaining construction equipment in good operating condition.
Physiography, Geology, Topography, and Soils	Soil erosion during construction	To reduce soil erosion, the following BMPs will be utilized as needed: silt fencing and/or other control devices, mulching, removing sediment from pavement, temporary seeding, minimize exposed soil during construction, and other applicable erosion control practices. All erosion control and sedimentation control measures must be in place prior to land disturbance. Thereafter, all controls will be maintained and functioning until the area is permanently stabilized. Materials used for erosion control [hay bales, straw etc] will be certified as weed free from the supplier. Weekly inspections will be performed to safeguard against failures. Once the project is initiated, it will be carried out expeditiously to minimize the period of disturbance. Upon project completion, all disturbed areas will be permanently stabilized with vegetative cover, riprap, or other erosion control methods. Where vegetation is removed, supplemental plantings will be installed following completion of the project. Such plantings will consist of appropriate native species.
Surface Water and Stormwater	Increased turbidity and sedimentation during construction	To reduce stormwater velocity, the following BMPs will be utilized as needed: limiting of the amount of area disturbed at a time, staging and/or phasing of the construction sequence, sediment basins and sediment traps, diverting off-site flow around the construction site, and controlling the drainage patterns within the construction site. To reduce stormwater velocity, the following BMPs will be utilized as needed: surface roughening along slopes, sediment basins and traps, level spreaders, erosion control blankets, turf reinforcement mats, riprap, and staging and/or phasing of the construction sequence. All stormwater controls will be inspected on a weekly basis
Air Quality	Emissions during construction	To reduce impacts to air quality, the following BMPs will be utilized: reducing fugitive dust emissions by taking the following measures; avoiding the unnecessary idling of construction equipment, imposing a strict slow speed limit for vehicular traffic in the construction site, wetting areas to reduce dust, and maintaining construction equipment in good operating condition.
Noise	Noise during construction	To reduce noise, the following BMPs will be utilized: limiting work to daylight hours and avoiding the unnecessary idling of construction equipment.

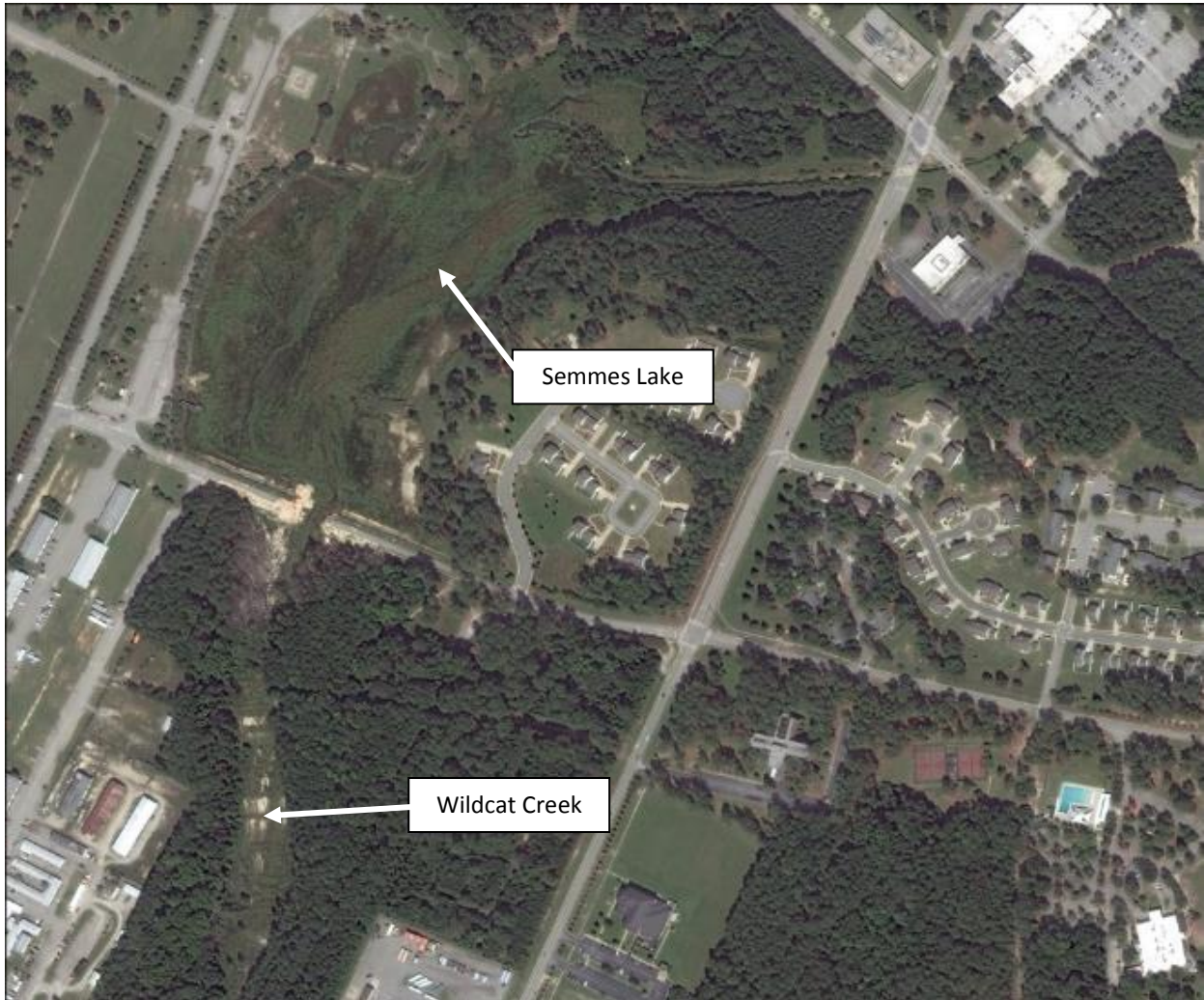
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Noise	Noise during construction	To reduce noise, the following BMPs will be utilized: limiting work to daylight hours and avoiding the unnecessary idling of construction equipment.

<p>Hazardous Materials and Hazardous Waste Management</p>	<p>Waste during construction</p>	<p>To reduce Hazardous Materials and Hazardous Waste, the following BMPs will be utilized: keeping equipment in good operating condition, properly storing and handling fuels, and cleaning leaks and spills immediately. Measures will be taken to prevent POL products, trash, debris etc from entering adjacent areas, wetlands and surface waters.</p>
<p>Cultural Resources</p>	<p>Erosion, wave action once water pool level is re-established</p>	<p>To protect the site known as 38RD1447, Ft. Jackson will complete a site protection project in the vicinity of the berm prior to the water level returning to full pool level. The project may include installing a geo-fabric, rip rap or other methods suitable for protection/stabilization. After full pool level is established this site shall be periodically monitored for impacts.</p>



**FINAL  
ENVIRONMENTAL ASSESSMENT  
REPLACEMENT OF SEMMES LAKE DAM  
Fort Jackson, South Carolina**




**Prepared by USACE Charleston District  
For Fort Jackson  
October 2017**

ENVIRONMENTAL ASSESSMENT  
REPLACEMENT OF SEMMES LAKE DAM  
Fort Jackson, South Carolina


**U.S. ARMY CORPS OF ENGINEERS CHARLESTON DISTRICT**

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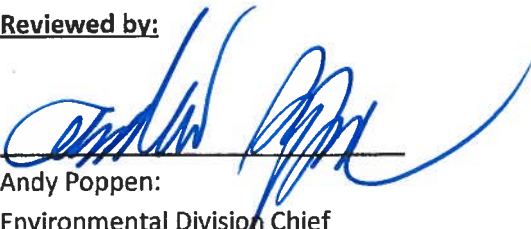
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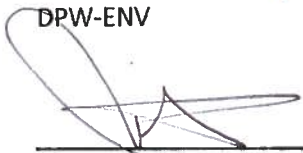
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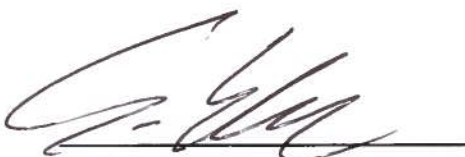
  
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APPENDIX G: Comments from the Public Meeting

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## 1. Introduction and Background

### 1.1. Location

The US Army Training Center and Fort Jackson is centrally located within the State of South Carolina in Richland County (Figure 1.1). The fort includes more than 52,000 acres, with more than 100 ranges and field training sites and 1,160 buildings. Soldiers, civilians, retirees and family members make up the Fort Jackson community. More than 3,500 active duty Soldiers and their 12,000 family members are assigned to the installation and make this area their home.

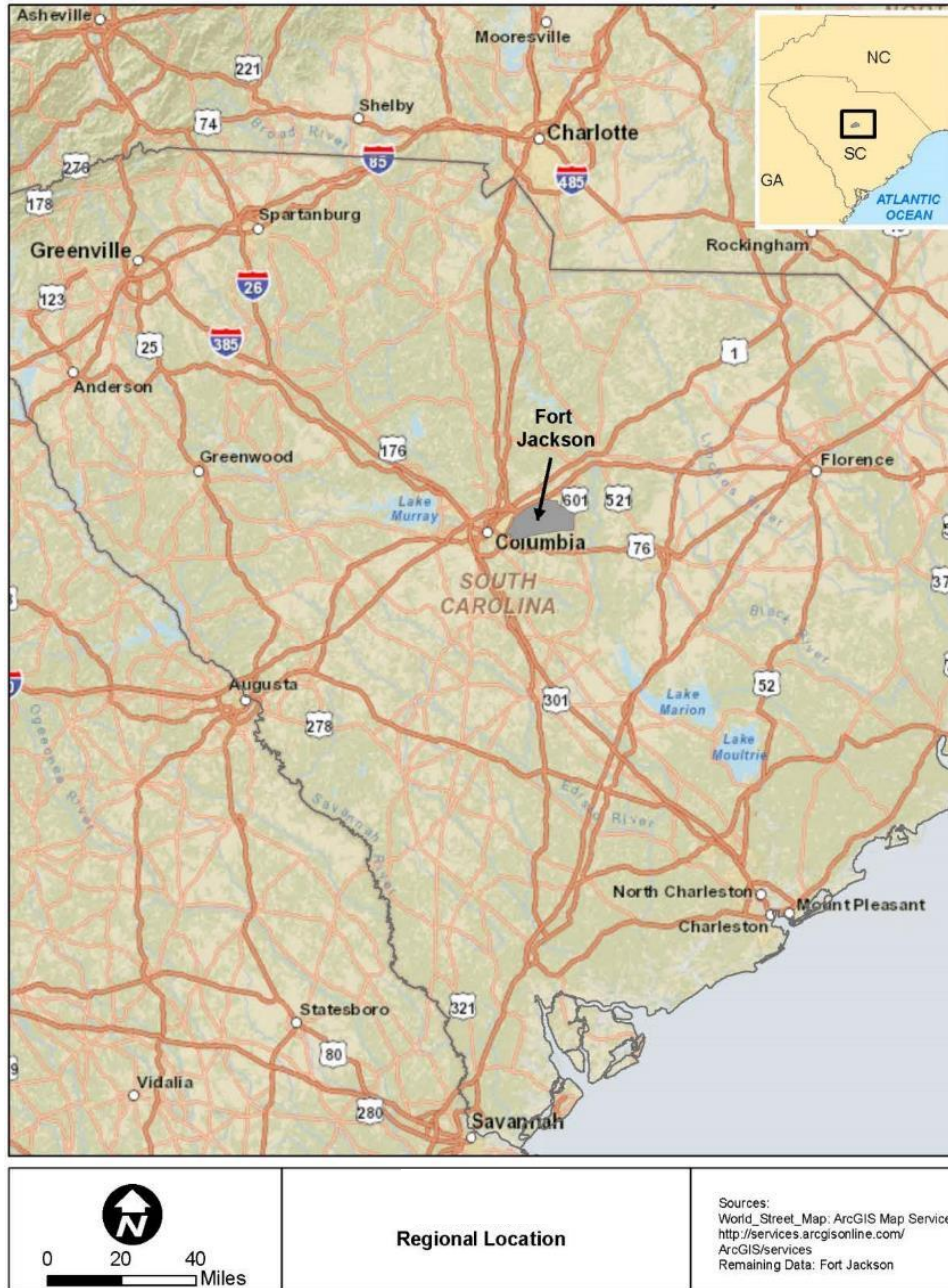
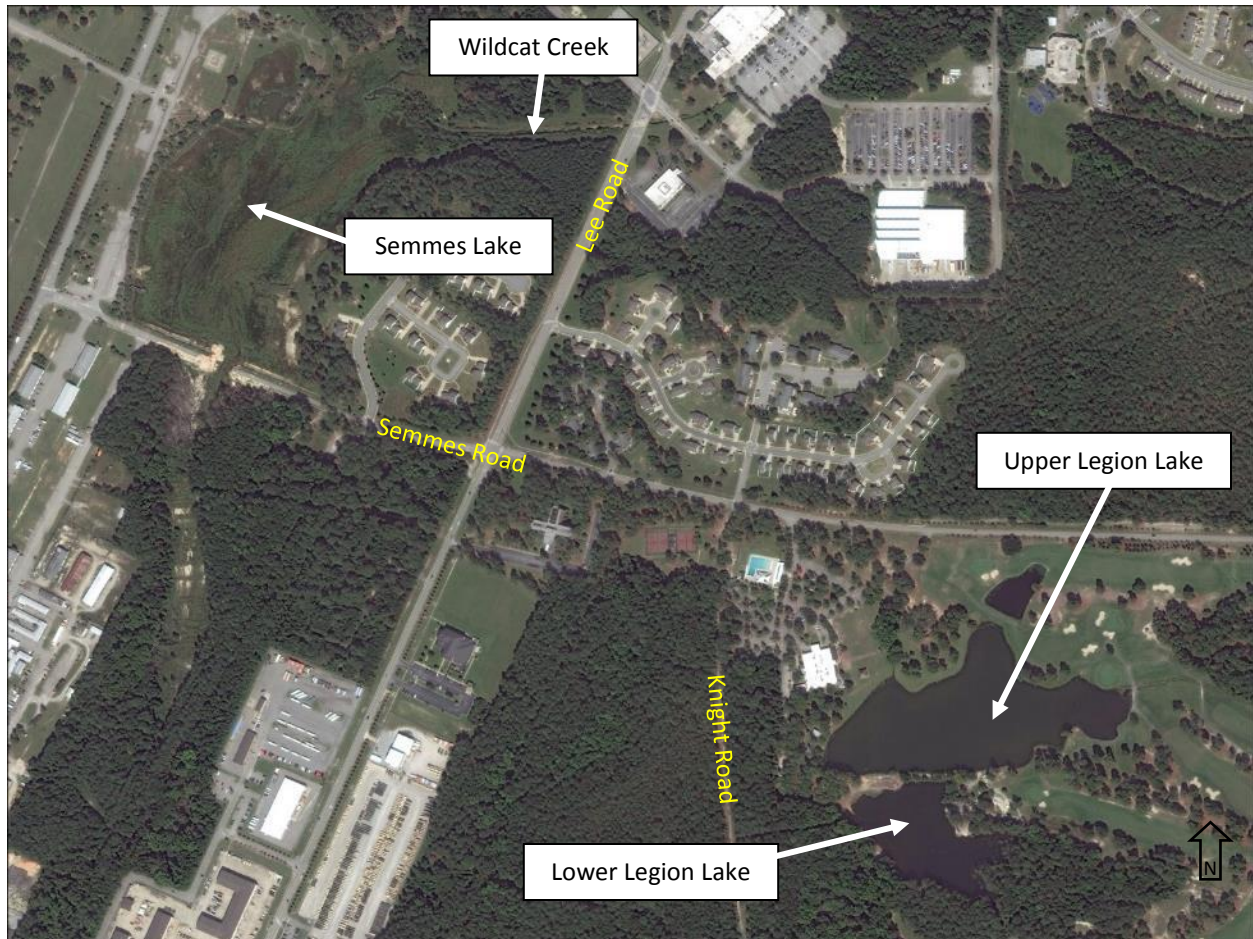


Figure 1.1 - Fort Jackson Regional Location

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Semmes Lake is located off Semmes Road. The lake is located completely within the boundaries of Fort Jackson's Military Reservation and, as such, is owned by the Federal Government. Figure 1.2 shows the historic location of Semmes Lake and the locations of nearby Upper and Lower Legion Lakes.



**Figure 1.2 - Semmes Lake Location Map.**

## 1.2. History

### 1.2.1. Semmes Lake Description

#### **Semmes Lake**

Aerial photography supports the existence of Semmes Lake in 1935. Prior to the loss of Semmes Dam, the dam's earthen embankment was approximately 970 feet long with a structural height of approximately 27 feet. The crest consisted of a two-lane paved roadway that was approximately 45-feet wide and approximately 970 feet-long. The normal reservoir capacity was approximately 167.3 acre-feet, and the maximum capacity was approximately 317.8 acre-feet. The top of dam elevation varied between approximately 220.7 feet and approximately 222.0 feet NAVD88.

Although the original purpose of the dam is uncertain, it appears it was not planned for flood control, water supply, or environmental purposes. However, the lake did provide a stormwater detention function for runoff from upper Wildcat Creek.



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Semmes Lake Dam was an earthen dam with a drop inlet and reinforced concrete pipe as the primary outlet. The outlet works was near the middle section of the dam and consisted of a concrete box, drop intake structure with trash-racks. The control mechanism was a gate that was operated from the top of the structure via a wheel. The connecting outlet was a reinforced concrete pipe (RCP) that discharged into a channel lined with riprap. The emergency spillway is along the left abutment of the dam and allows water to pass under the roadway. The emergency spillway flowed into a concrete-lined channel that discharged in the downstream area.

### 1.2.2. Rainfall Event and Semmes Dam Breach

During a four day period from October 2-5, 2015 a stalled mid-latitude weather system directed a stream of deep tropical moisture across South Carolina resulting in record-breaking rainfall totals across the state (Figure 1.3). The 4-day rainfall totals in the Columbia area exceeded the 1,000-year recurrence intervals as referenced to the point precipitation frequency estimates in NOAA Atlas 14 (CISA, 2015). Total rainfall exceeded 20 inches across much of eastern South Carolina (Figure 1.4). Semmes Dam failed during this historic storm event. Figure 1.5 shows a comparison of Semmes Lake prior to the storm and after the breach. Wildcat Creek currently meanders through the exposed Semmes lakebed and through the dam breach largely unimpeded.



Figure 1.3 – October 3-4 2015 Confluence of Weather Systems Impaction North and South Carolina (source, AccuWeather.com 2015)

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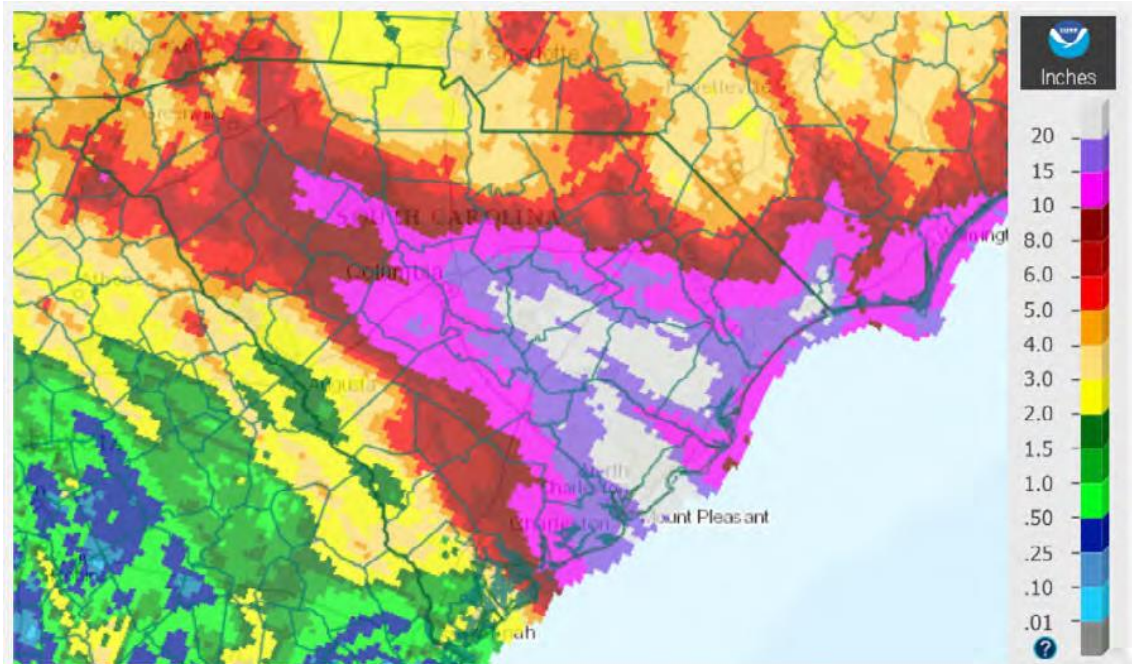


Figure 1.4 - National Weather Service Rainfall Totals for October 1-5, 2015 (source, NWS 2015)



Figure 1.5 - Semmes Lake Before (left) and After Dam Breach (right).



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### 1.3. Purpose, Need, and Scope of Analysis

The National Environmental Policy Act of 1969 (NEPA), 42 USC 4321, requires federal facilities to evaluate the environmental impacts of a proposed action and any associated alternative actions prior to implementation of the action.

This Environmental Assessment (EA) considers the direct, indirect, and cumulative effects of the Proposed Action, the No Action Alternative, and other alternatives over the reasonably foreseeable future. It was prepared in accordance with NEPA and implementing regulations of the Council on Environmental Quality (CEQ) (40 CFR 1500-1508), and the Army (32 CFR Part 651, Environmental Analysis of Army Actions). An EA is “routinely used as a planning document to evaluate environmental impacts, develop alternatives and mitigation measures, and allow for agency and public participation,” and “provides the decision maker with sufficient evidence and analysis for determining whether a FNSI [Finding of No Significant Impact] or an EIS [Environmental Impact Statement] should be prepared.” 32 CFR 651.20.

The purpose of this EA is to analyze and evaluate the environmental impacts of alternatives to address the loss of Semmes Dam due to historic flooding (described in Section 1.2.2).

This EA provides a discussion of the affected environment and the potential impacts to the physical, natural, and socioeconomic resources from the alternative actions for revitalization of Semmes Lake, and infrastructure associated with this area. The lake and the surrounding area were damaged due to the October 2015 flood event discussed in Section 1.2 of this document. This EA will help inform Army decision makers and the public of the environmental consequences from the alternatives for revitalization of Semmes Lake and infrastructure associated with these areas. Impacts are evaluated on both a direct and indirect basis and on a short-term, long-term, and cumulative basis. Specifically, the topics that are covered in this EA include:

- Land Use
- Climate
- Physiography, Geology, Topography, and Soils
- Surface Water and Stormwater
- Ground Water
- Floodplains and Wetlands
- Fish and Wildlife
- Vegetation
- Threatened and Endangered Species
- Air Quality
- Noise
- Cultural Resources
- Hazardous Materials & Hazardous Waste Management
- Environmental Justice and Socioeconomic Conditions
- Aesthetics and Recreation
- Cumulative Impacts

### 1.4. Alternatives Considered but Screened Out

An array of alternatives were considered to address the loss of Semmes Lake and the benefits it provided. Several of these alternatives were screened out early in the alternative formulation process



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and are described below. The remaining alternatives were carried forward for additional analysis and evaluation and are described in Section 2 of this document.

**Remove Breached Embankment (not carried forward for further analysis)**

This alternative did not include replacing Semmes Dam and left the dry lake bed in place. The 1,000-foot section of Semmes Road between Essayons Way and Pershing Road would not be replaced and the remaining earthen dam embankment would be removed and the area re-graded. This alternative was rejected because it would provide little in the way of effective stormwater detention and because post-dam discharge rates would increase the 1% annual chance event (ACE) flood elevations downstream by approximately 2.1 feet.

**Replace Semmes Road; No Lake or Dam (not carried forward for further analysis)**

This alternative included rebuilding the Semmes Road embankment and restoring vehicular traffic. A 48 foot wide bridge would be placed under the road to provide passage of Wildcat Creek. This alternative was rejected because the Semmes Road embankment would have impounded over 50 acre-feet during the 0.2% ACE flood which would mean that the road embankment should be built to dam standards. A dam is defined as any structure impounding more than 50 acre-feet or is above 6 feet in height; any dam meeting either of these criteria must be constructed to the appropriate dam safety standards. Building a structure meeting the definition of a dam without meeting dam safety standards would be unacceptable. This alternative was also rejected because post-dam discharge rates would increase the 1% ACE flood elevations downstream by approximately 2.1 feet.

## 2. Alternatives and Proposed Action

### 2.1. Alternative 1 - No Action

A basic alternative to any proposed plan is the "No Action" alternative. The No Action Alternative would leave Semmes Lake (and the remnants of the dam) in its current condition (Figure 2.1). The breach in the dam would likely increase in width over time as a result of erosion due to surface runoff during storm events and erosion due to high flows in Wildcat Creek during storm events. There would be little effective stormwater detention. The downstream face of the dam would likely also continue to erode due to surface runoff during storm events.

### 2.2. Alternative 2- Remove Dam Embankment and Road; Provide Stormwater Detention

This alternative would remove the existing earthen embankment and the road remnants (Figure 2.2). In order to maintain the stormwater detention function that Semmes Lake provided prior to October 2015, stormwater detention ponds would be constructed. To achieve the required stormwater capacity, detention ponds would be needed both in the old lakebed and downstream of the former lake in the Wildcat Creek channel. Construction of the detention ponds would require construction of several earthen berms approximately 5 feet high.

### 2.3. Alternative 3 - Rebuild the Dam and Road; Dry dam

Alternative 3 (Figure 2.3) consists of rebuilding the dam and operating it as a dry dam. A dry dam is a dam that holds minimal-to-no water during normal conditions. It would only hold water during storm events. This alternative would maintain the stormwater detention capacity that existed prior to October 2015. The alternative involves

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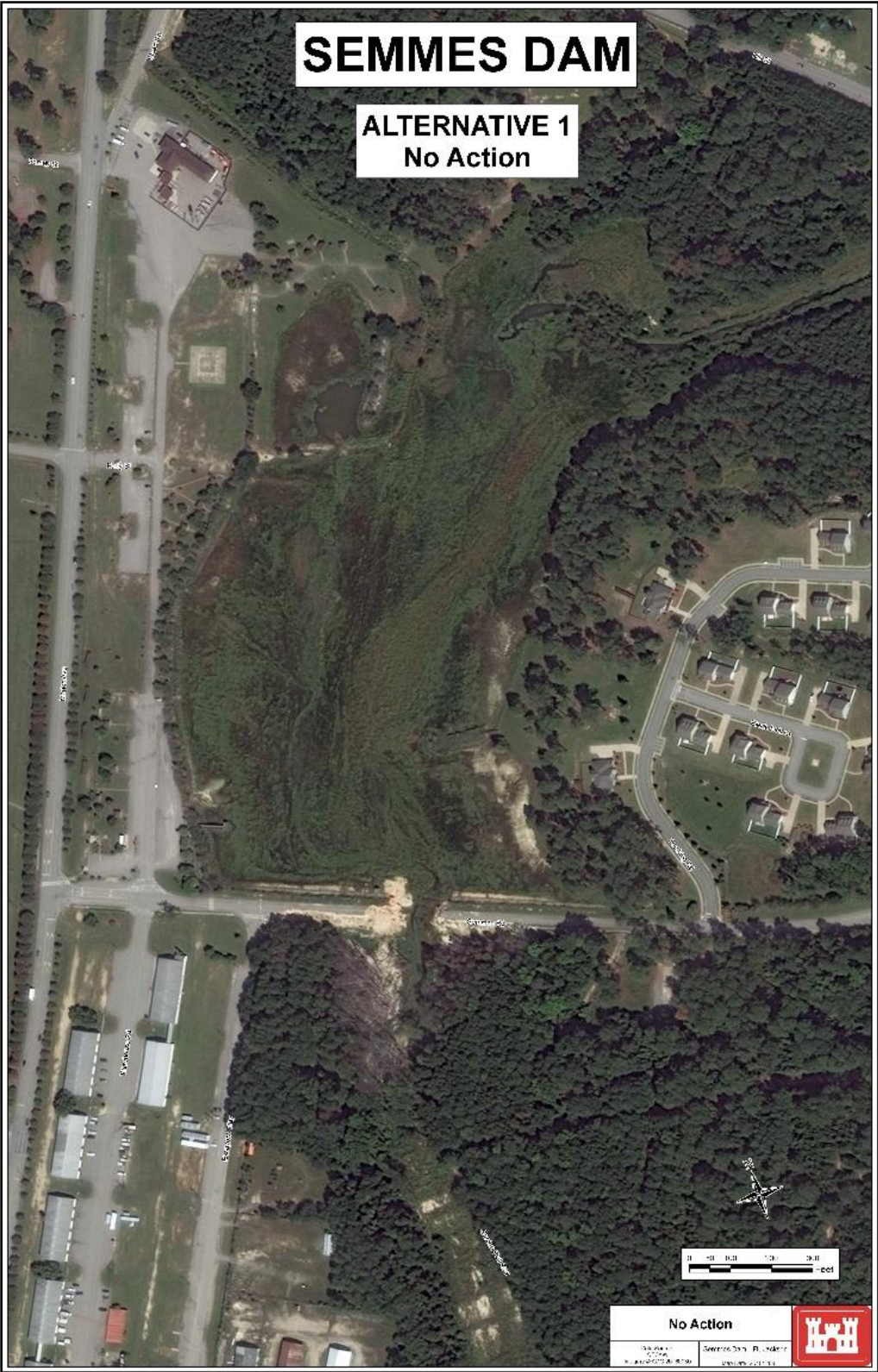


Figure 2.1. Alternative 1 - No Action Alternative



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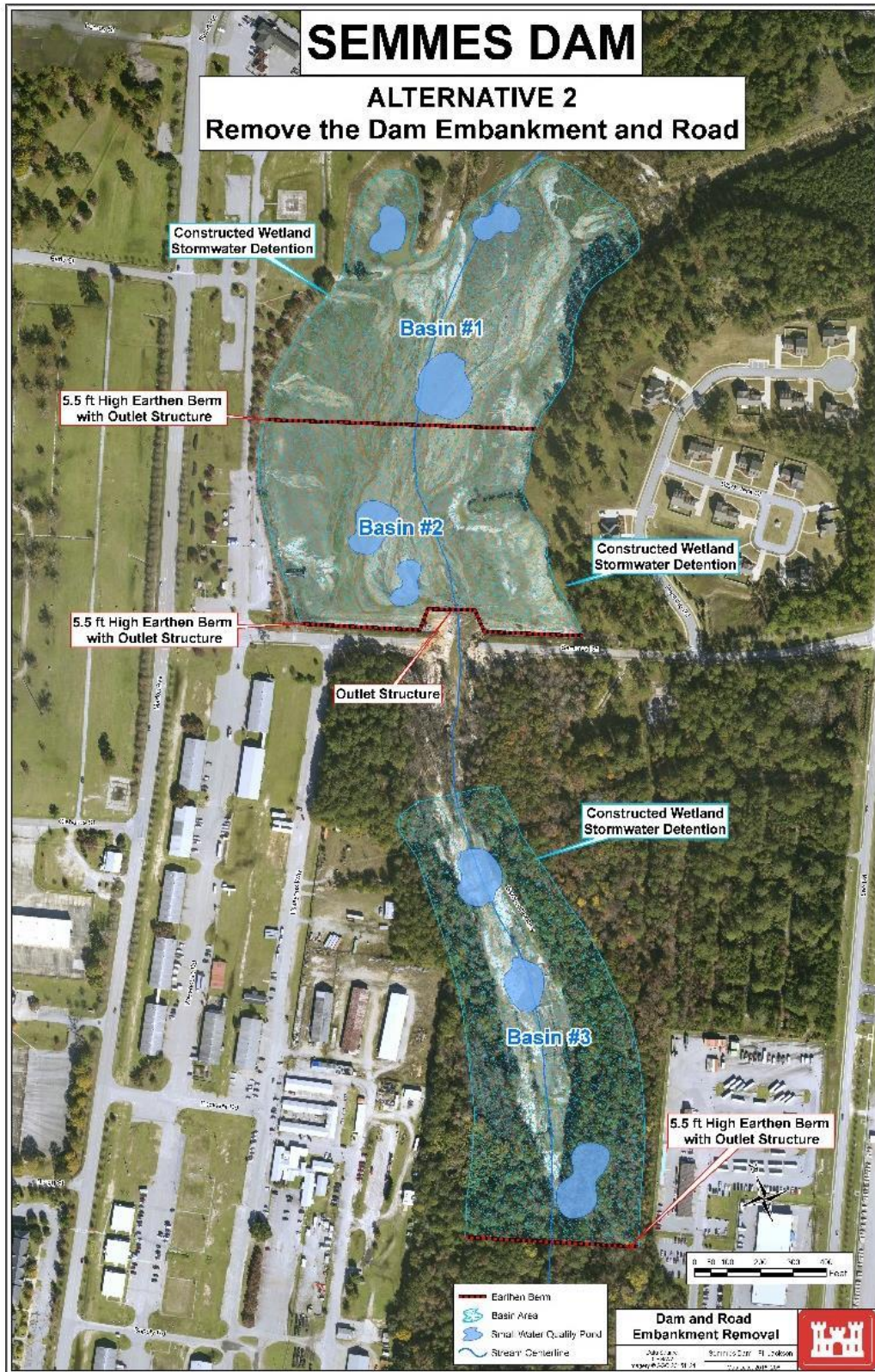


Figure 2.2 – Alternative 2 Remove Dam Embankment and Road; Provide Stormwater Detention (Conceptual Design)



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Figure 2.3 - Alternative 3 Rebuild the Dam and Road; Dry Dam (Conceptual Design)

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rebuilding the dam with a high flow weir constructed in the Wildcat Creek streambed at the dam. This weir would allow normal low flows in Wildcat Creek to pass without causing any impoundment, but would progressively impound more water with increasing flow in Wildcat Creek associated with storm events. Water levels in the lakebed would be approximately 10 feet deep during the 4% annual chance storm event and would slowly drain after the storm. Because the dam would impound water during storm events, the dam would have to be constructed to current dam safety standards and would be listed on the National Inventory of Dams. Periodic inspections and maintenance would be performed as required by dam safety standards.

#### 2. 4. Alternative 4- (Preferred Alternative) Rebuild the Dam and Road; Wet dam (Lake)

Fort Jackson is proposing to rebuild the Semmes Lake dam. This alternative would maintain the stormwater detention capacity that existed prior to October 2015. The dam would be an earthen embankment constructed to current dam safety standards and designed to not overtop during storms up to the calculated Inflow Design Flood (IDF) which is based on the Probable Maximum Precipitation (PMP – approximately equal to 0.001% chance storm {i.e., a one in 100,000 year event}), and, in turn, the Probably Maximum Flood (PMF – the runoff from the PMP). Consistent with dam safety standards, the PMF was properly reduced to the discharge at which dam failure will not significantly increase the downstream hazard. Analysis indicated that dam failure for the 80% PMF resulted in the same downstream hazard as the 100% PMF. The 80% PMF was used as the IDF for the spillway design. The dam would have a top elevation of 224½ feet above mean sea level and a top width of 48 feet. The upstream face of the dam would be protected by rip-rap. The spillway for the dam would be moved to the western end of the dam and would be constructed as a labyrinth weir. A labyrinth weir is designed to progressively pass more water with increasing inflow into the lake. The weir would be designed to maintain a normal pool elevation in the lake of 215 feet above mean sea level. Semmes Road and a pedestrian sidewalk would be re-constructed on top of the dam. The dam would be listed on the National Inventory of Dams and would undergo periodic inspections and maintenance as required by dam safety standards.



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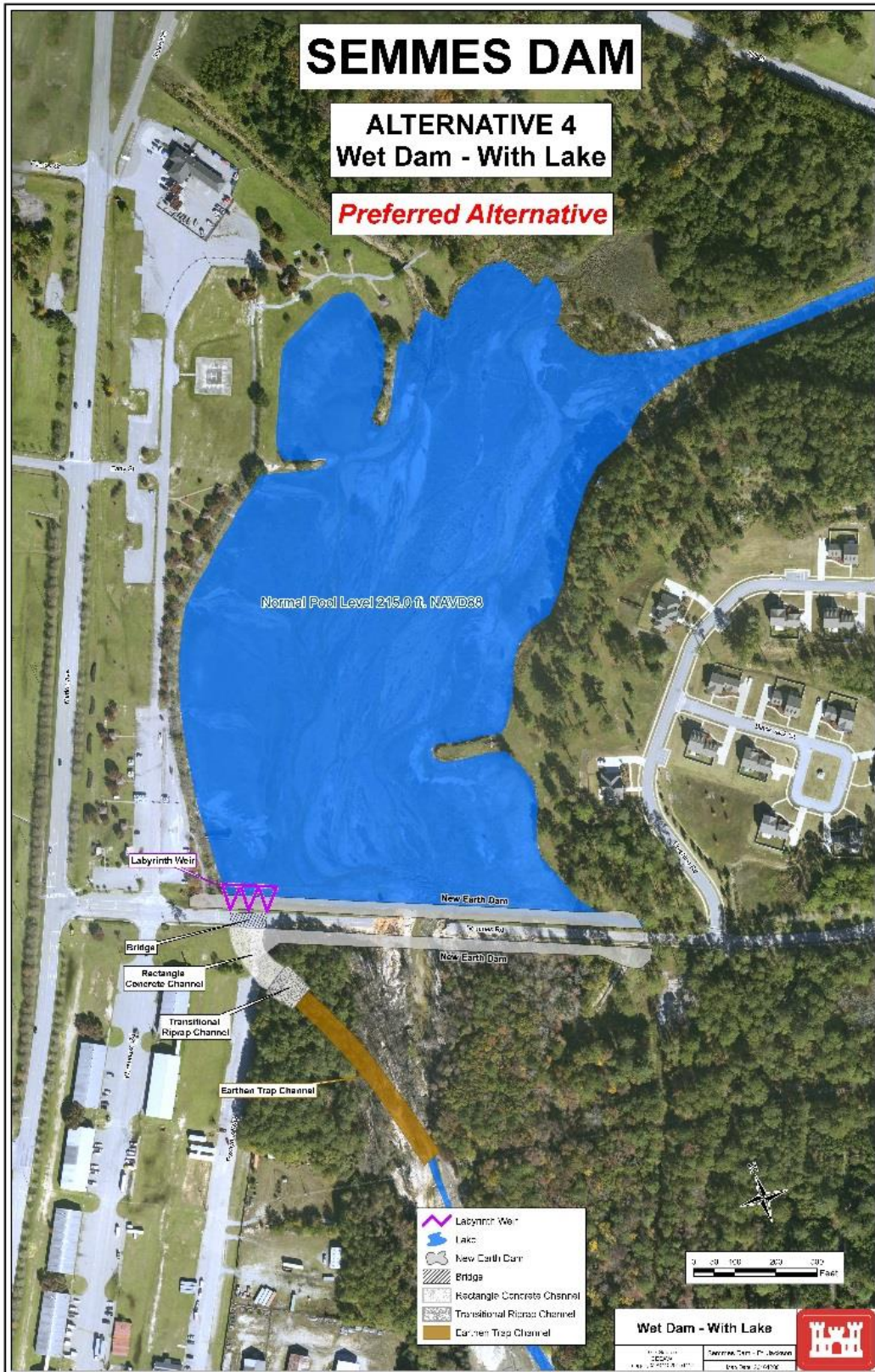


Figure 2.4 - Alternative 4 – Rebuild the Dam and Road; Wet Dam (Lake) (Conceptual Design)

### 3. Affected Environment and Environmental Consequences

The focus of this EA is Semmes Lake and the immediate vicinity. For additional information about environmental conditions at Fort Jackson, please see part 1 and 2 of the Programmatic Environmental Assessment Real Property Master Plan Fort Jackson, South Carolina <http://jackson.armylive.dodlive.mil/files/2014/05/Fort-Jackson-Real-Property-Master-Plan-PEA-Pt-1.pdf> and <http://jackson.armylive.dodlive.mil/files/2014/05/Fort-Jackson-Real-Property-Master-Plan-PEA-Pt-2.pdf>

#### 3.1. Land Use

##### 3.1.1. Affected Environment

This section describes the existing land use of the area surrounding Semmes Lake, taking into consideration both natural or human modified activities. Natural land use classifications include wildlife areas, forests, and other open or undeveloped areas. Human-modified land use classifications include residential, community, commercial, industrial, utilities, agricultural, recreational, and other developed uses. Land use is regulated by management plans, policies, and regulations determining the type and extent of land use allowable in specific areas and protection specially designated for environmentally sensitive areas.

Semmes Lake is located adjacent to three land use categories. Semmes Lake is bordered on the west shore, north shore, and the upper east shore by areas designated for community land use. The lower east shore is bordered by residential land use areas. Beginning adjacent to Semmes Lake Road and extending downstream along Wildcat Creek the land use category is industrial.

##### 3.1.2. Environmental Consequences

###### Alternative 1 - No Action

The No Action Alternative would not result in any significant or negative impacts to land use compared to the existing state or the pre-flood state. Although this alternative would result in the loss of Semmes Lake, it would not have a significant impact on land use in the area. Land use designations or the ability to use the land would not change if this alternative was implemented.

###### Alternative 2 - Remove Dam Embankment and Road; Provide Stormwater Detention

Construction of Alternative 2 would not result in any significant or negative impacts to land use. Although this alternative would result in the loss of Semmes Lake, it would not have a significant impact on land use in the area. Land use designations would not change if this alternative was implemented.

###### Alternative 3 - Rebuild the Dam and Road; Dry dam

Construction of Alternative 3 would not result in any significant or negative impacts to land use. Although this alternative would result in the loss of Semmes Lake, it would not have a significant impact on land use in the area. Land use designations would not change if this alternative was implemented.

###### Alternative 4 (Preferred Alternative)

Construction of Alternative 4 would not result in any significant or negative impacts to land use. Construction of this alternative would generally return the area to its pre-flood condition. As such, no changes from historic (pre-flood) land uses in the area would occur with construction of this alternative.

## 3.2. Climate

### 3.2.1 Affected Environment

According to the Köppen climate classification, South Carolina is classified as a humid subtropical climate. The predominant climatic factors are the Installation's location in the lower latitudes and its proximity to the Appalachian Mountains to the west, which block the approach of unseasonable cold weather in the winter. Columbia, located in central South Carolina, typically experiences its coldest month in January with an average high of 55 °F and warmest month in July with an average high of 92 °F. The average annual temperature is approximately 75 °F while on average receiving 48 inches of precipitation per year, mostly during June, July, and August. During these months, the city of Columbia receives between five and five-and-one-half inches of rain per month. In general, the state of South Carolina has warmed by one-half to one degree (F) over the last century; however, this increase is less than that of most of the nation (USEPA 2016). It is expected that in the coming decades, changing climate in South Carolina will lead to an increase in the number of unpleasantly hot days, an increase in heat-related illness, an increase in inland flooding, a decrease in crop yields, and harm to livestock (USEPA 2016).

### 3.2.2. Environmental Consequences

#### Alternative 1 - No Action

The No Action Alternative would not result in any significant environmental impacts on climate because the greenhouse gas emission would not change significantly, over time, from the current condition. The No Action Alternative would lead to a minor long-term decrease in the climate change resiliency of the area by providing undependable stormwater detention. Adequate stormwater detention provides protection from more frequent severe storms and flooding associated with climate change, which increases the climate change resiliency of the area.

#### Alternative 2 - Remove Dam Embankment and Road; Provide Stormwater Detention, Alternative 3- Rebuild the Dam and Road; Dry dam, and Alternative 4 (Preferred Alternative)

Construction of any of the action alternatives would not result in any significant or negative environmental impacts on climate, and would not cause changes to the area's climate. Construction of any action alternative would increase the climate change resiliency of the area by providing reliable stormwater detention. Adequate stormwater detention provides protection from more frequent severe storms and flooding, associated with climate change, thereby increasing the climate change resiliency of the area. Minimal amounts of greenhouse gases would be created during construction of any action alternative. Best management practices (discussed in the air quality section) would be followed to reduce greenhouse gas emissions due to construction. Construction of any action alternative would lead to no long-term increase in greenhouse gas emissions.

## 3.3. Physiography, Geology, Topography, and Soils

### 3.3.1 Affected Environment

Fort Jackson contains two physiographic provinces: the Piedmont Plateau and the Atlantic Coastal Plain. Fort Jackson is located in the northwestern portion of the Atlantic Coastal Plain, referred to as the "Sand Hills", which joins with the Piedmont Province running north and west. The Sand Hills are a region of low to moderate relief and gently rolling plains with numerous streams and springs that are fed by groundwater. Local relief in the high plains of the reservation is largely between 165 and 250 feet. Slopes are predominately between three and eight percent at Fort Jackson. In the areas along narrow stream valleys, slopes commonly exceed 15 percent. The highest elevation on the Installation is 540



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feet above sea level in the west-central portion of Fort Jackson; the lowest point is less than 160 feet above sea level occurring in the floodplain of Colonels Creek in the southeastern portion of Fort Jackson. The second physiographic province, known as the Piedmont Plateau also contains numerous streams and water bodies. Ridge tops are broad sloping gentle to moderate toward the streams. The stream floodplains are often narrow. The Fall Line, a zone which marks the boundary between the younger, softer sediments of the Coastal Plain Province and the ancient, crystalline rocks of the Piedmont Province, lies approximately four miles west of the cantonment area.

Rocks in the Piedmont Plateau are shale and schist, rather than true slate. The principal rock type is argillite and fine-grained rock with a high content of silica and alumina. The principal geologic formation in the Sand Hills is the Tuscaloosa, which consists of unconsolidated marine deposits of light-colored sands and kaolin clays. Most of the soils at Fort Jackson are formed from sediment of the Tuscaloosa. A layer of Quaternary sand terrace overlies the Tuscaloosa formation, which lies upon a complex of old metamorphic and igneous rock. The Tuscaloosa complex generally consists of clay strata overlying unconsolidated sands. Near the northern boundary of the installation, the older crystalline rocks of the Carolina Slate Group outcrop at the surface. In the northwestern portions of Fort Jackson, Pleistocene sands and gravel are present at the ground surface.

Soils serve a critical role in the natural and human environment, affecting vegetation and habitat, water and air quality, and the success of the construction and stability of roads, buildings, and shallow excavations. A soil survey conducted by the United States Department of Agriculture (USDA) concluded that soils in the Fort Jackson coastal plain are predominantly well drained on the higher plains and side slopes and somewhat poorly drained in the valleys. These soils have a sandy surface layer and a predominantly loamy sub-soil.

#### **Semmes Lake Soils**

The soils surrounding Semmes Lake are classified as Pelion-Johnston-Vaucluse soils. The soils along the tail waters of Semmes Lake are classified as Urban Complex. Areas classified as Urban Complex generally consist of more than 85% impervious surfaces. However, this classification can also include areas that are mostly fill material other than soils and some areas in which the profile has only been slightly altered by cutting, filling or grading. A soil map and descriptions of Soil Classifications found adjacent to Semmes Lake are included in Appendix A.

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

##### **Alternative 1 - No Action**

The No Action Alternative would result in no significant impacts to physiography, topography, or geology. Erosion of the old dam and areas downstream of the old dam, would lead to minor negative impacts to soils. Erosion of the old dam and areas directly downstream of the old dam would result in transport of sediment downstream which would have negative, short-term impacts to soils until these areas are fully stabilized. Excessive sediment deposition can bury fish and wildlife habitat downstream of Semmes Dam and change the conveyance of stormwater during rain events.

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[Alternative 2 - Remove Dam Embankment and Road; Provide Stormwater Detention,](#)  
[Alternative 3 - Rebuild the Dam and Road; Dry dam, Alternative 4 \(Preferred Alternative\)](#)

Construction of any of the action alternatives would not result in any significant or negative environmental impacts on physiography, topography, geology, or soils. Construction of any of the action alternative would provide a long-term positive environmental impact by allowing sediments from runoff to settle out of suspension during high flow events, thereby reducing sedimentation downstream of the dam. During construction of any action alternative, best management practices would be followed to reduce erosion and runoff.

### 3.4. Surface Water and Stormwater

#### 3.4.1 Affected Environment

Fort Jackson lies within the boundaries of the Congaree River and the Wateree River basins in the City of Columbia. Streams at Fort Jackson are typical of those found in the Coastal Plain Province. The surface pattern is linear branching and streams occupy relatively broad valleys with gentle regional gradients to the south and southeast. Eventually, all streams leaving Fort Jackson flow into either the Wateree River or the Congaree River. The confluence of these rivers forms the Santee River. The Santee River continues in a southeasterly direction, eventually emptying into the Atlantic Ocean south of Georgetown, South Carolina.

There are four surface water drainage systems on the installation. All of the streams that are present on the eastern half of the reservation flow into Colonels Creek, a major tributary of the Wateree River, which flows southeastward across the installation. The other major surface water drainage system, Gills Creek, flows slightly southwestward across the northwestern quarter of the installation. After leaving the installation, Gills Creek flows south through a series of lakes and is joined by Wildcat Creek prior to reaching the Congaree River. Wildcat Creek drains the major portion of the cantonment area. Semmes Lake was located on Wildcat Creek. The southern part of the installation is drained by the upper reaches of Cedar Creek and Mill Creek.

Semmes Lake has a watershed of 1.56 square miles, see Appendix B (Figure 1). The drainage above the dam is defined by an urban network of concrete pipes, culverts and ditches. From the dam, Wildcat Creek flows south under Washington and Ewell Roads. The 3,700 feet reach between Semmes and Ewell Roads consist of a low-lying floodplain and is undeveloped.

Below Ewell Road, Wildcat Creek flows west to Fort Jackson Blvd. This 3,000 feet reach of Wildcat Creek roughly defines the boundary line of Fort Jackson. The Kings Grant residential sub division is located south of Wildcat Creek along this boundary. About 650 feet upstream of Fort Jackson Blvd is an abandoned railroad embankment with a single 10 feet by 10 feet box culvert. This embankment is over 40 feet high and was noted as a potential restriction to flow. From Fort Jackson Blvd, Wildcat Creek continues west under Interstate I-77 and Shady Lane to join with Gills Creek below Lake Katherine. Semmes Dam is 2.25 miles upstream of the confluence of Wildcat Creek with Gills Creek. Gills Creek continues to flow south to join the Congaree River and then the Santee River. Gills Creek has a watershed area of 74.5 square miles at its confluence with the Congaree River.

The Semmes Lake Dam watershed is highly developed with institutional facilities, low and high density housing, and grassed open park areas. Based on the 2011 National Land Cover Dataset, the percentage of developed area including grassed areas within the watershed is 82%. Additional development within

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the Semmes watershed is limited because most of the available land is within low-lying floodplains adjacent to Wildcat Creek. The streamflow characteristics of Wildcat Creek at the dam site are flashy and typical of urban watersheds with high impervious areas and a high percentage of piped storm drains.

Fort Jackson does not lie within an area controlled under a Coastal Zone Management Program (CZMP). Therefore, Fort Jackson’s on-Post operations and activities are not managed or controlled by the CZMP.

### 3.4.2. Environmental Consequences

#### Alternative 1 - No Action

The No Action Alternative would lead to no changes from the current, post-breach conditions of the stormwater and surface water at Semmes Lake; however, the No Action Alternative would result in making permanent a long-term change in the handling of storm and flood waters. Increases in turbidity and increased downstream sedimentation are expected to occur until remnants of Semmes Dam and areas just downstream of Semmes Dam stabilize. The historic detention function of Semmes Lake has been lost. Selection of the No Action Alternative would lead to an increase in the 1% annual chance exceedance (ACE) flood levels downstream of Semmes Dam (Table 3.1). In addition, nuisance flooding downstream would likely become more prevalent, as shown in Table 3.1.

**Table 3.1. Downstream Peak Surface Water Elevations,  
Previous Semmes Dam and No Dam**

No.	Location	Previous Semmes Dam				No Dam at Semmes Road				Difference			
		1%	4%	10%	50%	1%	4%	10%	50%	1%	4%	10%	50%
1	Below Semmes	200.1	199.6	199.5	199.2	200.8	200.5	200.3	199.7	0.7	0.9	0.8	0.5
2	Up Washington Rd	191.3	189.1	188.2	186.8	191.8	191.4	190.8	188.3	0.5	2.3	2.6	1.5
3	Dn Ewell Rd	182.9	180.0	179.2	178.1	184.8	180.6	179.5	178.5	1.9	0.6	0.3	0.4
4	Kings Grant	182.7	178.0	175.3	173.8	184.8	179.6	176.0	174.2	2.1	1.6	0.6	0.4
5	Up RR Embankment	182.6	177.3	171.3	166.4	184.7	179.1	173.3	167.1	2.1	1.8	2.0	0.7
6	Dn RR Embankment	168.6	167.6	166.0	165.0	168.8	167.9	166.2	165.3	0.2	0.3	0.2	0.3
7	Up I-77	158.1	156.9	155.9	154.4	158.1	156.8	156.0	154.8	0.0	0.0	0.0	0.4
8	Junction Gills Creek	158.2	156.9	156.0	153.6	158.2	156.9	156.0	153.6	0.0	0.0	0.0	0.0

(Difference in feet, elevations in feet, NAVD 88) (A 2-D HEC-RAS model was used to determine the peak water surface elevations downstream of Semmes Dam at the eight reference locations identified in Appendix B (Figure 2). The RAS model simulations included the SCS frequency storms. The two model scenarios included; 1) the previous Semmes Dam and 2) no dam embankment with Wildcat Creek flowing unregulated at Semmes Road. The results are provided in Table 3.1.)

#### Alternative 2 - Remove Dam Embankment and Road; Provide Stormwater Detention

Construction of Alternative 2 would cause temporary changes to stormwater and surface water during construction. These impacts would consist of a short-term increase in turbidity and increased downstream sedimentation during construction that would subside shortly after construction activities cease. After construction, Alternative 2 would have a long-term positive impact to surface water and stormwater by reinstating storm water detention, and allowing sediment to settle out of stormwater runoff. Several wetlands would be constructed or expanded in the footprint of Semmes Lake and downstream of Semmes Road. These wetlands would improve the quality of water moving through them. Stormwater detention would be increased from the current condition and would match that of

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Semmes Lake prior to the October 2015 breach. Best management practices such as silt fencing, mulching, temporary seeding and other erosion control practices would be implemented during construction to reduce impacts to water quality.

[Alternative 3 - Rebuild the Dam and Road; Dry dam](#)

Construction of Alternative 3 would cause temporary changes to stormwater and surface water during construction. These impacts would consist of a short-term increase in turbidity and increased downstream sedimentation during construction that would subside shortly after construction activities cease. After construction, Alternative 3 would have a positive long-term impact surface water and stormwater by reinstating stormwater detention, allowing sediment to settle out, and controlling erosion of the old dam and downstream areas. Stormwater detention would be increased from the current condition and would match that of Semmes Lake prior to the October 2015 breach. Best management practices such as silt fencing, mulching, temporary seeding, and other erosion control practices would be implemented during construction to reduce impacts to water quality.

[Alternative 4 \(Preferred Alternative\)](#)

Construction of Alternative 4 would cause temporary changes to stormwater and surface water during construction. These impacts would consist of a short-term increase in turbidity and increased downstream sedimentation during construction that would subside shortly after construction activities cease. After construction, Alternative 4 would have a positive long-term impact to surface water by reinstating storm water detention, allowing sediment to settle out of stormwater, and controlling erosion of the old dam and downstream areas. Stormwater detention would be increased from the current condition and would match that of Semmes Lake prior to the October 2015 breach. Best management practices such as silt fencing, mulching, temporary seeding and other erosion control practices would be implemented during construction to reduce impacts to water quality.

### [3.5 Ground Water](#)

#### [3.5.1. Affected Environment](#)

Fresh groundwater is generally plentiful at Fort Jackson. The Tuscaloosa Formation, of the Upper Cretaceous age, underlies all of Fort Jackson and is the primary source of groundwater in the area. The formation consists of inter bedded, generally unconsolidated, fine to coarse sand and clay, causing groundwater to occur under both unconfined and confined (i.e., artesian) conditions. Groundwater occurs under water table conditions in the upper part of the zone of saturation. At a depth ranging from 100 to 250 feet, the permeable sand zones are frequently overlain by less permeable clay zones, and the groundwater exists under artesian conditions. Small quantities of groundwater may be available in the alluvial deposits along major streams. Fort Jackson is not located within a recharge area for a sole-source aquifer.

#### [3.5.2. Environmental Consequences](#)

[Alternative 1 - No Action, Alternative 2 - Remove Dam Embankment and Road; Provide Stormwater Detention, Alternative 3 - Rebuild the Dam and Road; Dry dam, and Alternative 4 \(Preferred Alternative\)](#)

Selection of the No Action Alternative or construction of any of the Action Alternatives would not result in any significant or negative environmental impacts on ground water, as none of the alternatives would

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cause impacts to ground water. Semmes Lake did not provide a water source that would need to be replaced and the lake had no significant impact to ground water in the area.

### 3.6 Floodplains and Wetlands

#### 3.6.1. Affected Environment

One hundred-year floodplains have been designated along all of the major waterways on Fort Jackson. These include lands along Gills Creek, Mill Creek, Cedar Creek, Wildcat Creek, and Colonels Creeks. Sections of developed areas, downstream of Fort Jackson, within the Wildcat Creek floodplain are shown on excerpts from the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for Richland County (FEMA, 2017) (Appendix C).

Development activities in regulatory floodplain areas are limited in accordance with Executive Orders (EO) 11988 and 11990. An analysis of the preferred alternatives for Semmes Lakes' compliance with these EOs is included in Appendix C. Also included in Appendix C is a draft Finding of No Practicable Alternative (FONPA) required by EO 11988 and Army policy.

Wetlands are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. 33 CFR 328.3(c)(4). These areas are known to support both aquatic and terrestrial species. Wetlands and other surface water features, which may include intermittent and perennial streams, are generally considered "waters of the United States" by USACE, and under their definition of "jurisdictional waters," are protected under Section 404 of the Clean Water Act and EO 11990.

Wetlands on Fort Jackson are non-tidal and are defined as occurring on floodplains along rivers and streams, in isolated depressions surrounded by dry land, along the margins of lakes and ponds, and in other low-lying areas where precipitation sufficiently saturates the soil (USEPA, 2012c).

The focus of Fort Jackson's wetlands management program is protection and maintenance of habitat. Per EO 11990, Fort Jackson's goal is to ensure "no net loss" of wetland acreage. Wetlands are likely present within the former lakebed of Semmes Lake. The area is currently undergoing a significant shift in its hydrologic regime due to the loss of the dam. Many of these areas may ultimately dry out. However, as the new course of Wildcat Creek is established, wetlands will likely develop along the new floodplain, within the old lakebed.

A jurisdictional determination has been conducted for the Semmes Lake area, and areas defined as "waters of the United States" are present. Required authorizations have been verified by USACE.

#### 3.6.2. Environmental Consequences

##### Alternative 1 - No Action

Selection of the No Action Alternative would lead to changes from the current conditions regarding wetlands and floodplains within and around Semmes Lake. Wetlands are present within the bed of the former Semmes Lake site. With no action, the area will experience a significant shift in its hydrologic regime and waters of the United States due to the loss of Semmes Dam. Many of these areas may ultimately dry out; however, as Wildcat Creek establishes its new course, wetlands will likely develop

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along the new floodplain, within the old lake bed. Selection of the No Action Alternative will have negative impacts on floodplains/flood insurance mapping and would require a Letter of Map Revision for the effective FEMA Flood Insurance Rate Maps. Loss of stormwater detention capacity, when compared to stormwater detention before Semmes Dam failed, would likely lead to an increase in the footprint of the downstream floodplain (Table 3.1). While this may have a positive impact to the natural environment, it would likely have a negative impact to the socioeconomic well-being of downstream communities and residents due to changes in flood insurance requirements. By selecting the No Action Alternative, it is anticipated that there would be an increase in the downstream FEMA 100-year flood elevations. Selection of the No Action Alternative would also increase the downstream FEMA 1% annual chance flood elevation and would have negative consequences for safety due to the loss of stormwater detention.

[Alternative 2 - Remove Dam Embankment and Road; Provide Stormwater Detention](#)

Alternative 2 would have a long-term negative impact to some waters of the United States and a long-term positive impact to stormwater detention. Several stormwater detention areas would be constructed in the floodplain downstream of Semmes Road. The construction of these detention areas would result in permanent fill being placed in waters of the United States. Temporary negative impacts to the floodplain of Semmes Lake immediately down stream of Semmes Road would occur during construction of the downstream detention areas. After completion of construction stormwater detention would match that of Semmes Lake prior to the October 2015 breach. As such, the floodplain downstream of Semmes Lake would remain unchanged and there would be no change in the flood elevations. Prior to construction, any required authorizations under Section 404 of the Clean Water Act will be obtained and appropriate mitigation secured, as may be necessary.

[Alternative 3 - Rebuild the Dam and Road; Dry dam](#)

Construction of Alternative 3 would result in negative impacts to some waters of the United States as a small amount of jurisdictional areas (approximately 0.6 acres) would be permanently filled during construction to ensure the new structure meets current dam safety standards. Construction of Alternative 3 would have a positive long-term impact to stormwater detention as it would roughly match the detention capacity of Semmes Lake prior to the October 2015 breach. As such, the downstream floodplain of Semmes Lake would remain unchanged and there would be no change in flood elevations. Prior to construction, any required authorizations under Section 404 of the Clean Water Act will be obtained and appropriate mitigation secured, as may be necessary.

[Alternative 4 \(Preferred Alternative\)](#)

Alternative 4 would have negative long-term impact to some waters of the United States. These negative impacts are due to a small amount of jurisdictional areas being permanently filled during construction (approximately 0.6 acres). Construction of alternative 4 would return most of the footprint of Semmes Lake to the open water present prior to the breach of the dam, with a fringe of wetlands that would form along the banks of Semmes Lake once the lake was refilled. Impacts to waters of the United States from construction of this alternative are outlined in Table 3.2. Construction of Alternative 4 would have a positive long-term impact to stormwater detention as it would match that of Semmes Lake prior to the October 2015 breach. As such, the downstream floodplain of Semmes Lake would remain unchanged and there would be no change in the flood elevations. This alternative is authorized under Nationwide Permit (NWP) 3. This alternative is also in compliance with Section 401 of the Clean



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Water Act, as NWP 3 has been certified by the South Carolina Department of Health and Environmental Control.

**Table 3.2 – Approximate waters of the United States impacts from construction of Alternative 4**

Type and duration of impact to waters of the U.S.	Location	Approximate Acreage of waters impacted
Mechanized land clearing (permanent)	Downstream of Dam	1.3
Permanent Fill	Dam embankment and spillway	0.6
Temporary Fill	Earthen berm to divert Wildcat Creek during construction	0.5
Temporary Fill	Material stockpiles	5.6

### 3.7 Fish and Wildlife

#### 3.7.1. Affected Environment

There is a wide variety of wildlife, including mammals, birds, fish, reptiles, amphibians, and invertebrates found on Fort Jackson that utilizes the diverse ecosystems present.

The majority of fish and wildlife species found on Fort Jackson are typical of the Sand Hills region of South Carolina. Over the years, baseline and planning level surveys have been performed for various classifications of flora and fauna.

Although not currently listed as threatened or endangered, Fort Jackson provides habitat for four rare animal species: Southeastern Myotis (*Myotis austroriparius*), Rafinesque's big-eared Bat (*Plecotus rafinesquii*), Loggerhead Shrike (*Lanius ludovicianus*), and Bachman's sparrow (*Aimphila aestivalis*). These species may be listed in the future if their numbers continue to decline.

Wildlife commonly observed around Semmes Lake includes white-tailed deer (*Odocoileus virginianus*), coyote (*Canis latrans*), eastern gray squirrel (*Sciurus carolinensis*), wild turkey (*Melagris gallopavo*), great egret (*Ardea alba*), great blue heron (*Ardea herodias*), black rat snake (*Pantherophis obsoletus*) and bullfrog (*Lithobates catesbeiana*). Common fish species in the watershed include largemouth bass (*Micropterus salmoides*), Green sunfish (*Lepomis cyanellus*), and Mosquitofish (*Gambusia affinis*).

#### 3.7.2. Environmental Consequences

##### Alternative 1 - No Action

The No Action Alternative would not result in any significant or negative impacts to fish and wildlife. Wildcat Creek would remain in its current state and the lake bed of Semmes Lake would be allowed to continue to naturally revegetate. Fish and wildlife species would naturally recolonize the creek, and historic lake bed.

##### Alternative 2- Remove Dam Embankment and Road: Provide Stormwater Detention

Construction of Alternative 2 would result in temporary construction related impacts to wildlife. During construction, any wildlife in the area likely would leave, but would be expected to return following construction. Construction of Alternative 2 would not cause any long-term significant or negative impacts to fish and wildlife. Wildcat Creek would remain in its current state and the lake bed of Semmes Lake would be allowed to naturally revegetate in some areas and be planted with wetland vegetation in

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other areas. Downstream of Semmes Lake, additional stormwater detention areas would be constructed. These areas would be planted with native vegetation. Fish and wildlife species would continue to naturally recolonize the creek, wetlands, and historic lake bed.

[Alternative 3 - Rebuild the Dam and Road; Dry dam](#)

Construction of Alternative 3 would result in temporary construction related impacts to wildlife. During construction, any wildlife in the area likely would leave, but would be expected to return following construction. Construction of Alternative 3 would not cause any long-term significant or negative impacts to fish and wildlife. Wildcat Creek would remain in its current state and the lake bed of Semmes Lake would be allowed to continue to naturally revegetate in some areas, and be planted with wetland vegetation in other areas. No stormwater detention areas would be constructed downstream of Semmes Road, which would not lead to the creation of additional habitat for fish and wildlife to utilize. Fish and wildlife species would naturally continue to recolonize the historic lake bed.

[Alternative 4 \(Preferred Alternative\)](#)

Construction of Alternative 4 would result in temporary construction related impacts to wildlife. During construction, any wildlife in the area likely would leave, but would be expected to return following construction. Construction of Alternative 4 would not result in any long-term significant or negative impacts to fish and wildlife. Wildcat Creek would be dammed to restore Semmes Lake. Aquatic vegetation would reestablish in the bed of Semmes Lake and the edges of the lake would be allowed to naturally revegetate in some areas, and maintained as mowed grass in other areas (such as those adjacent to the picnic area). No stormwater detention areas would be constructed downstream of Semmes Road. Some species of fish and wildlife species would naturally recolonize the restored lake and other species of fish appropriate to pond/lake habitats (including sport fish such as largemouth bass, brim, and catfish) may be stocked to help establish self-sustaining populations.

## [3.8 Vegetation](#)

### [3.8.1. Affected Environment](#)

Fort Jackson contains a wide variety of vegetative communities ranging from upland hardwood forests to wetlands. Twelve vegetation cover types have been recognized for the purpose of cover type mapping, with at least 30 plant community types and 11 subtypes. The high diversity of plant communities includes the presence of some rare (G1 and G2) plant communities. These include the Sandstone Gravel Longleaf Pine Woodland and the South Carolina Central Longleaf Pine Woodland. The Installation's natural landscape is naturally vegetated except where development has cleared land, creating grassed areas in the cantonment area, along roadways, and on ranges. Over 720 flora species have been identified on Fort Jackson.

Fort Jackson can be classified generally into five primary terrestrial vegetative types: pine, pine/upland hardwood, upland hardwood, bottomland hardwood, and open field. Grassland areas on Fort Jackson include only a small amount in the cantonment area and alongside roads. Forest cover is the dominant vegetative type at Fort Jackson.

There are no significant vegetative resources within the footprint of Semmes Lake. Due to the recent change in condition from lake bed to intermittent dry ground, the footprint of Semmes Lake is covered in a mix of open ground and persistent aquatic plants in some areas and open ground and grass in other areas. Succession to more complex vegetative communities is likely to occur quickly in this area.



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### 3.8.2. Environmental Consequences

#### Alternative 1 - No Action

The No-Action Alternative would not result in any significant or negative impacts to vegetation. Wildcat Creek would remain in its current state and the lake bed of Semmes Lake would continue to naturally revegetate. Natural vegetation within the floodplain of Wildcat Creek would provide a buffering effect on stormwater during small rain events, which is a minor positive impact of a vegetated floodplain.

#### Alternative 2 - Remove Dam Embankment and Road; Provide Stormwater Detention

Construction of Alternative 2 would not result in any significant or negative impacts to vegetation. Some mature hardwood trees would be removed downstream of Semmes Road to create additional stormwater detention areas. These areas would be replanted with native vegetation. The lake bed of Semmes Lake would be allowed to naturally revegetate in some areas and be planted with native wetland vegetation in other areas. Natural vegetation within the floodplain of Wildcat creek would provide a buffering effect on stormwater during small rain events, which is a minor positive impact of a vegetated floodplain.

#### Alternative 3 - Rebuild the Dam and Road; Dry dam

Construction of Alternative 3 would not result in any significant or negative impacts to vegetation. The lake bed of Semmes Lake would be allowed to continue to naturally revegetate in some areas, and be planted with wetland vegetation in other areas. Natural vegetation within the floodplain of Wildcat creek would provide a buffering effect on stormwater during small rain events, which is a minor positive impact of a vegetated floodplain.

#### Alternative 4 (Preferred Alternative)

Construction of Alternative 4 would not result in any significant or negative impacts to vegetation when compared to historic conditions at Semmes Lake. Wildcat Creek would be dammed to restore Semmes Lake. Existing terrestrial vegetation would die out, aquatic vegetation would reestablish in the bed of Semmes Lake and the edges of the lake would be allowed to naturally revegetate. No wetlands would be constructed downstream of Semmes Road.

## 3.9 Threatened and Endangered Species

### 3.9.1. Affected Environment

Under Section 7 of the Endangered Species Act (ESA), the Army must ensure that any Army action authorized, funded, or carried out is not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of habitats on Fort Jackson. Appendix D contains a list of at-risk, candidate, endangered, and threatened species that have been listed by the USFWS as occurring or possibly occurring in Richland County, SC (lists last updated January 11, 2017) (USFWS 2017). Two federally listed endangered plant species are located on Fort Jackson, along with one endangered animal species; they are: Rough-leaved Loosestrife (*Lysimachia asperulaefolia*) and the Smooth Coneflower (*Echinacea laevigata*) and the Red-cockaded Woodpecker (RCW) (*Picooides borealis*). However, no threatened or endangered species occur in the immediate vicinity of Semmes Lake. No land within Fort Jackson has been identified as critical habitat for any federally listed endangered or threatened species.

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### 3.9.2. Environmental Consequences

Surveys for endangered species are regularly conducted by Fort Jackson and have revealed no endangered species in the vicinity of Semmes Lake. Habitat for the RCW is absent from the areas that would be impacted by the construction of any action Alternative. Three abandoned Red-cockaded woodpecker cavity trees are located near Semmes Lake. Appropriate habitat for Smooth Coneflower and Rough-leaved Loosestrife could exist within the now exposed bed of Semmes Lake; however, neither of these species have been observed in the area. The nearest population of Smooth Coneflower is approximately 11.5 miles away and the nearest population of Rough-leaved Loosestrife is approximately 9.5 miles away. Though the endangered plants species mentioned above have existed on the base for many years, there is no evidence that they have spread from their single known populations within Fort Jackson to other areas of Fort Jackson.

[Alternative 1 - No Action, Alternative 2- Remove Dam Embankment and Road; Provide Stormwater Detention, Alternative 3- Rebuild the Dam and Road; Dry dam, and Alternative 4 \(Preferred Alternative\)](#)

Due to the lack of habitat and the lack of proximity of known populations to Semmes Lakes, Fort Jackson has determined that neither RCW, Smooth Coneflower, nor Rough-leaved Loosestrife nor appropriate habitat for these species are present with the project area. Three abandoned Red-cockaded woodpecker cavity trees are located near Semmes Lake. These trees will not be impacted by construction of the preferred alternative. Therefore, there will be no effect to listed species from acceptance of the No Action Alternative or construction of any of the action alternatives.

## 3.10 Air Quality

### 3.10.1. Affected Environment

This section describes the existing air quality conditions at and surrounding Fort Jackson. Air quality is determined by the type and concentration of pollutants in the atmosphere, the size and topography of the air basin, and local and regional meteorological influences. The significance of a pollutant concentration in a region or geographical area is determined by comparing it to federal and/or state ambient air quality standards. Under the authority of the CAA (42 USC7401-7671q), the EPA has been given the responsibility to establish the primary and secondary National Ambient Air Quality Standards (NAAQS) (40 CFR part 50) for pollutants considered harmful to public health and the environment, with an adequate margin of safety.

The EPA developed NAAQS for six “criteria pollutants” to represent the maximum allowable atmospheric concentrations. The six “criteria pollutants” include: particulate matter (measured as both particulate matter [PM10] and, fine particulate matter [PM2.5]), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), ozone (O<sub>3</sub>), and lead (Pb). Short-term NAAQS (1-, 8-, and 24-hour periods) have been established for pollutants contributing to acute health effects, while long-term NAAQS (annual averages) have been established for pollutants contributing to chronic health effects. Federal regulations designate Air Quality Control Regions (AQCRs) in violation of the NAAQS as nonattainment areas. Federal regulations designate AQCRs with levels below the NAAQS as attainment areas. According to the severity of the pollution problem, nonattainment areas can be categorized as marginal, moderate, serious, severe, or extreme.

South Carolina represents one of 28 eastern US states under the Clean Air Interstate Rule (CAIR), a program to permanently cap emissions of SO<sub>2</sub> and NO<sub>x</sub>. CAIR assists South Carolina in meeting and

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maintaining NAAQS for ground-level ozone and fine particle pollution (SO<sub>2</sub> and NO<sub>x</sub> contribute to the formation of fine particles (PM), and NO<sub>x</sub> contributes to the formation of ground-level ozone).

In 2004, Richland County exceeded the ozone standard and joined the “Early Action Compact” (EAC) with the EPA. This was an option provided by the EPA for areas currently meeting the one-hour ozone standard, like those in South Carolina, to attain the eight-hour ozone standard by December 31, 2007, and obtain cleaner air sooner than federally mandated. This option required an expeditious time line for achieving emissions reductions sooner than expected under the eight-hour ozone implementation rulemaking, while providing “fail-safe” provisions for the area to revert to the traditional SIP process if specific milestones are not met. By signing the EAC, EPA agreed to defer the effective date of the nonattainment designation for the participating area. In 2007, Richland County met all the milestones associated with the EAC and was classified as in attainment for all six criteria pollutants again. Today, the majority of South Carolina is in attainment for air quality.

### 3.10.2. Environmental Consequences

#### Alternative 1 - No Action

The No Action Alternative would not result in any significant or negative impacts to air quality.

#### Alternative 2 - Remove Dam Embankment and Road; Provide Stormwater Detention, Alternative 3 - Rebuild the Dam and Road; Dry dam, and Alternative 4 (Preferred Alternative)

Construction of any action alternative would lead to a short-term and insignificant increase in emissions during construction from the operation of construction equipment. No long-term increases in emissions would occur from construction of any action alternative, as construction equipment would no longer be in use once construction was completed. Best management practices such as reducing fugitive dust emissions, avoiding the unnecessary idling of construction equipment, and maintaining construction equipment in good operating condition would be implemented to reduce impacts to air quality.

## 3.11 Noise

### 3.11.1. Affected Environment

Noise is generally defined as undesirable sound. Sound is all around us, becoming noise when it interferes with normal activities such as speech, concentration, or sleep, is intense enough to damage hearing, or is otherwise intrusive. The type and characteristics of the noise, distance between the noise source and the receptor, the receptor sensitivity, and time of day all cause variations in human response. Noise is often generated by human activities that are fundamental to the quality of life, such as construction or vehicular traffic.

Noise associated with military installations is a factor in land use planning both on- and off-Post. Noise emanates from vehicular traffic associated with new facilities and from project sites during construction. Ambient noise (the existing background noise environment) can be generated by a number of noise sources, including mobile sources, such as automobiles and trucks, and stationary sources such as construction sites, machinery, or industrial operations. In addition, there is an existing and variable level of natural ambient noise from sources such as wind, streams and rivers, and wildlife.

Existing sources of noise around Semmes Lake include traffic, noise from residential areas and noise from adjacent community areas.

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### 3.11.2. Environmental Consequences

#### Alternative 1 - No Action

The No Action Alternative would not result in any significant or negative impacts to noise levels.

#### Alternative 2- Remove Dam Embankment and Road; Provide Stormwater Detention,

#### Alternative 3 - Rebuild the Dam and Road; Dry dam and Alternative 4 (Preferred Alternative)

Construction of any of the action alternatives would lead to a short-term increase in noise during construction. Best management practices such as limiting work to daylight hours and avoiding the unnecessary idling of construction equipment would be implemented to reduce noise during construction.

## 3.12 Cultural Resources

### 3.12.1. Affected Environment

A total of 702 archaeological sites have been identified on Fort Jackson, the majority resulting from timber tract surveys in the late 1980's and early 1990's. There are currently 66 archaeological sites eligible for listing on the National Register of Historic Places (NRHP) with the remaining 636 sites determined ineligible. These sites represent a time period extending back approximately 8000 years to the historic present (1966). There are 27 historic period cemeteries at Fort Jackson. There are no known Traditional Cultural Properties or Sacred Sites on Fort Jackson at this time.

A cultural resources survey was conducted by the South Carolina Institute for Archaeology and Anthropology at Semmes Lake. The field work was done during fall 2016 and a cultural resources site was found within the lake bed. After consulting with interested parties, site 38RD1447 will be managed as "unevaluated" due to partially inaccessible deposits (see SC State Historic Preservation Office 30OCT17 letter). This unevaluated status means the Army will monitor this site for impacts until such time a full evaluation is made.

### 3.12.2. Environmental Consequences

#### Alternative 1 - No Action

The No Action Alternative would not affect historic properties or cultural resources.

#### Alternative 2- Remove Dam Embankment and Road; Provide Stormwater Detention,

#### Alternative 3 - Rebuild the Dam and Road; Dry dam, and Alternative 4 (Preferred Alternative)

None of the action alternatives would have an effect on historic properties or cultural resources as all known cultural sites would be avoided during construction.

## 3.13 Hazardous Materials and Hazardous Waste Management.

### 3.13.1. Affected Environment

For purposes of this EA, hazardous materials are those regulated under federal, state, Department of Defense, and Army regulations. Hazardous materials are required to be handled, managed, treated, or stored properly by trained personnel under the following regulations: Occupational Safety and Health Administration (OSHA) Hazardous Communication, 29 CFR 1900.1200 and 29 CFR 1926.59; and Department of Transportation Hazardous Materials, 49 CFR 172.101; EPA, 40 CFR 260, *et seq.*

The Installation is required to track annually the amount of hazardous materials used on the Installation and report to the regulatory agencies. Fort Jackson no longer has a permitted on-Post Hazardous Waste



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storage facility. Fort Jackson is a RCRA Large Quantity Generator of hazardous waste and operates under permit number SC 3210020449, which was issued February 2010 and expires March 2020. Facility inspections are conducted each year by South Carolina Department of Health and Environmental Control (SCDHEC) and every four to five years by the EPA.

Military operations have been on-going at Fort Jackson for over 90 years. During that time the industrial operations have grown in support of the training programs. Former industrial activities generated wastes, which were stored, treated or disposed of at the Post according to standard practices at that time. As a result, there are multiple contaminated soil and/or groundwater sites on Fort Jackson. No contaminants are known to exist and no evidence of contaminants is present within the footprint of or vicinity of Semmes Lake.

### 3.13.2. Environmental Consequences

#### Alternative 1 - No Action

There are no known hazardous waste or hazardous material sites within the immediate vicinity of Semmes Lake. The No Action alternative would not result in any hazardous or toxic waste being created.

#### Alternative 2- Remove Dam Embankment and Road; Provide Stormwater Detention, Alternative 3 - Rebuild the Dam and Road; Dry dam, and Alternative 4 (Preferred Alternative)

There are no known hazardous waste or hazardous material sites within the immediate vicinity of Semmes Lake. As is typical with large rehabilitation projects, on-site hazardous materials will be present to support equipment operations. The majority of those materials will be in the form of petroleum-based fuels, oils, and lubricants. These materials will be handled and stored in accordance with all applicable state and federal laws and no negative environmental impacts resulting from these materials are expected as a result of construction. Best management practices, such as keeping equipment in good operating condition, properly storing and handling fuels, and cleaning leaks and spills immediately, would be implemented to reduce the risk of spills or other means of contamination during construction.

### 3.14. Environmental Justice and Socioeconomic Condition

#### 3.14.1 Affected Environment

Semmes Lake and its tailwaters pass through or are adjacent to 4 census block groups (450790115012, 450790115011, 450790116031, and 450790115021) (Figure 3.1). Key demographic measures for these census block groups are given in Table 3.3. The total population from the US Census Bureau's American Community Survey (ACS) within these census block groups is 8776. The percent minority within the analyzed census block groups ranges from a low of 30% to a high of 58% (Table 3.3). The mean percent minority of the five census block groups is 48%. The percent low income within the analyzed census block groups ranges from a low of 0% to a high of 41% (Table 3.3). The mean percent below the poverty level within the census block groups of interest is 25%.

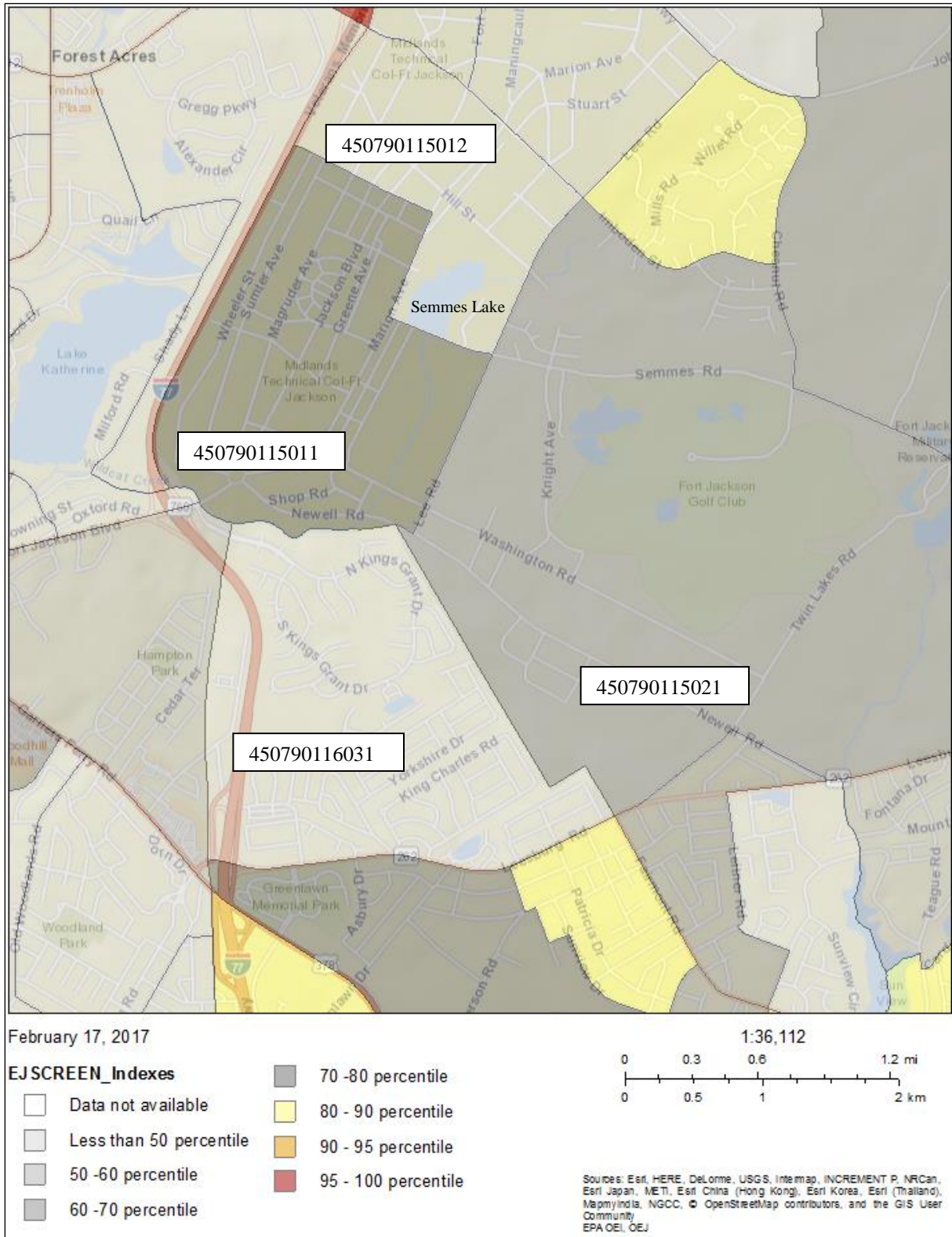
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**Table 3.3. Demographic data for census tracts near Semmes Lake.**

<b>Blockgroup ID:</b>	450790115012	450790115011	450790116031	450790115021
<b>State:</b>	SC	SC	SC	SC
<b>Total Population (ACS):</b>	909	1861	4192	1814
<b>Supplementary Demographic Index:</b>	9% (16%ile)	16% (52%ile)	12% (28%ile)	18% (57%ile)
<b>% minority:</b>	55% (71%ile)	58% (73%ile)	30% (52%ile)	48% (67%ile)
<b>% low income:</b>	0% (0%ile)	41% (64%ile)	19% (28%ile)	40% (63%ile)
<b>% linguistic isolation:</b>	0% (44%ile)	0% (44%ile)	0% (44%ile)	0% (44%ile)
<b>% less than high school:</b>	0% (3%ile)	0% (3%ile)	1% (7%ile)	4% (21%ile)
<b>% under age 5:</b>	0% (3%ile)	0% (3%ile)	5% (37%ile)	14% (95%ile)
<b>% over age 64:</b>	0% (0%ile)	0% (0%ile)	13% (56%ile)	1% (1%ile)
<b>Demographic Index:</b>	28% (46%ile)	49% (73%ile)	25% (40%ile)	44% (68%ile)

All data is taken from the USEPA's environmental justice mapping and screening EJSSCREEN. Definitions of table metrics are available online at: <https://www.epa.gov/ejscreen/overview-demographic-indicators-ejscreen>

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**Figure 3.1 – Map of Semmes Lake showing EJ Screen Indexes for census block groups adjacent to and immediately downstream of the lakes.**

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### 3.14.2. Environmental Consequences

#### Alternative 1 - No Action

The No Action Alternative would not result in any disproportionately high and adverse effects on low income or minority populations. Selection of the No Action Alternative could have an impact on socioeconomic conditions if flood maps are changed to reflect the lost stormwater detention that Semmes Lake historically provided.

Alternative 2- Remove Dam Embankment and Road; Provide Stormwater Detention, Alternative 3- Rebuild the Dam and Road; Dry dam, and Alternative 4 (Preferred Alternative)

According to Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, each federal agency must conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities, because of their race, color, national origin, or income level. Agencies must assess whether disproportionately high and adverse effects would be imposed on minority or low-income areas by federal actions. In addition, Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks, requires Federal agencies to assess the environmental health and safety risk of their actions on children.

The area of impact from all action alternatives does not contain disproportionate populations of minority, juvenile, elderly, or low-income communities when compared to the surrounding area. The construction area is entirely within the boundaries of Fort Jackson.

Alternatives 2, 3, and 4 are not designed to create a benefit for any group or individual. There are no indications that construction of any action alternative would be contrary to the goals of Executive Order 12898, or would create disproportionately high and adverse human health or environmental impacts on minority or low-income populations of the surrounding community. Implementation of the proposed project would cause no significant adverse environmental impacts to any of the residents in the area regardless of race, national origin, or level of income of residents. In all, Fort Jackson has determined that in the absence of adverse impacts to human health, environmental health risks, and safety risk, construction of Alternatives 2, 3, or 4 would have no significant or disproportional negative impacts to any communities, including environmental justice communities or children. Schools/childcare facilities and hospitals are not disproportionately located near Semmes Lake.

### 3.15. Aesthetics, Recreation

#### 3.15.1. Affected Environment

Historically, recreational opportunities were available on the Semmes Lake and the area was frequently used by residents of Fort Jackson and visitors to the installation. A small park is adjacent to the western side of Semmes Lake and a community for soldiers is located on the eastern side of the Lake. Since the Semmes Lake dam breached, the lake bed has been intermittently wet/dry. Vegetation has grown in the footprint of the Lake resulting in a dramatic change aesthetically. Wildcat Creek generally flows down the center of the exposed lakebed.



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### 3.15.2. Environmental Consequences

#### Alternative 1 - No Action

Selection of the No Action Alternative would leave Semmes Lake in its current state. Natural revegetation of the area would continue. To some, this could be considered as a negative impact to the aesthetics of the park and adjacent communities, as views of water, such as lakes, are generally highly valued.

#### Alternative 2- Remove Dam Embankment and Road; Provide Stormwater Detention

Construction of Alternative 2 would create a series of wetlands in the area and remove what is left of Semmes Dam and the road bed. This alternative would provide more aesthetic benefits to the park and surrounding communities than the No Action Alternative. Natural revegetation of the area would continue and some standing water would be present. To some, this could be considered as a negative impact to the aesthetics of the park and adjacent communities, as views of water, such as lakes, are generally highly valued. This alternative would also have a long-term negative impact to recreation by leading to a loss of fishing and other water based recreational opportunities for soldiers and their families.

#### Alternative 3 - Rebuild the Dam and Road; Dry dam

Alternative 3 would create a series of wetlands and stormwater detention areas in the footprint of Semmes Lake. This alternative would provide more aesthetic benefits to the park and surrounding communities than the No Action Alternative. Natural revegetation of the area would continue and some standing water would be present. To some, this could be considered as a negative impact to the aesthetics of the park and adjacent communities, as views of water, such as lakes, are generally highly valued. This alternative would also have a long-term negative impact to recreation by leading to a loss of fishing and other water based recreational opportunities for soldiers and their families.

#### Alternative 4 (Preferred Alternative)

Alternative 4 would restore the aesthetics of the area to pre-flood conditions. Construction of this alternative would also restore fishing and other water-based recreational opportunities for soldiers and their families at the lake.

## 3.16. Maintenance

### 3.16.1. Affected Environment

All alternatives would require some type of maintenance. General maintenance requirements for each alternative are discussed below.

### 3.16.2. Environmental Consequences

#### Alternative 1 - No Action

Selection of the No Action Alternative would not result in an increase in maintenance activities at Semmes Lake. Selection of the No Action Alternative would result in Semmes Lake being left in its current state

#### Alternative 2- Remove Dam Embankment and Road; Provide Stormwater Detention

Maintenance for this alternative would include required maintenance to the storm water detention structures, particularly after storm events, management of vegetation on the earthen dikes, and likely mosquito abatement. Maintenance would include vegetation management and control of vegetation

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on the earthen dikes that create the detention areas. Roots from large shrubs and trees would weaken the integrity of the earthen embankments and would be periodically removed. As the total length of berms is much longer than the length of the dry [Alternative 3] or wet [Alternative 4] dams this alternative would require the most maintenance and management of vegetation of the 4 alternatives. Any over washing of the berms, during high flow events, would require repairs to the structures. Debris and sediment would also need to be periodically removed from the stormwater detention areas. Measures to control mosquitos would likely include spraying for adult mosquitos and/or treatment of standing water for larval mosquitos.

[Alternative 3 - Rebuild the Dam and Road; Dry dam](#)

Maintenance for this alternative would include required maintenance to the dry dam, particularly after storm events, periodic maintenance and inspections, and management of vegetation on the dry dam, and likely mosquito abatement. Maintenance will require vegetation management on the earthen dam. Roots from large shrubs and trees would weaken the integrity of the earthen embankments of the dry dam and would be periodically removed. Additionally, any debris in the control structure or spillway would need to be periodically removed. Measures to control mosquitos would likely include spraying for adult mosquitos and/or treatment of standing water for larval mosquitos.

[Alternative 4 \(Preferred Alternative\)](#)

Maintenance for this alternative would include periodic maintenance and inspection. The labyrinth weir and spillway would need periodic debris removal but, no other maintenance after storm events would be required. Maintenance will require vegetation management on the dam. Roots from large shrubs and trees would weaken the integrity of the dam and would be periodically removed. This alternative would require the least maintenance of the considered alternatives. Additionally application of additional mosquito control measures to the area is not anticipated with this alternative, as the amount of stagnant water would be minimal and the presence of fish and other aquatic life that eat mosquito larva would further control mosquito populations.

[3.17. Best Management Practices and Mitigation Measures](#)

In order to reduce environmental impacts, best management practices and mitigation measures will be used during construction of any Action Alternative. These measures are outlined in Table 3.4.

**Table 3.4. Best Management Practices (BMP) and Mitigation Measures**

Resource	Impact	BMP and Mitigation Measures
Climate	Greenhouse gas emission	To reduce greenhouse gas emissions, the following BMPs will be utilized: reducing fugitive dust emissions, avoiding the unnecessary idling of construction equipment, and maintaining construction equipment in good operating condition.
Physiography, Geology, Topography, and Soils	Soil erosion during construction	To reduce soil erosion, the following BMPs will be utilized as needed: silt fencing and/or other control devices, mulching, removing sediment from pavement, temporary seeding, minimizing exposed soil during construction, and other applicable erosion control practices. All erosion control and sedimentation control measures must be in place prior to land disturbance. Thereafter, all controls will be maintained and functioning until the area is permanently stabilized. Materials used for erosion control [hay bales, straw, etc.] will be certified as weed free from the supplier. Weekly inspections will be performed to safeguard against failures. Once the project is initiated, it will be carried out expeditiously to minimize the period of disturbance. Upon project completion, all disturbed areas will be

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		permanently stabilized with vegetative cover, riprap, or other erosion control methods. Where vegetation is removed, supplemental plantings will be installed following completion of the project. Such plantings will consist of appropriate native species.
Surface Water and Stormwater	Increased turbidity and sedimentation during construction	To reduce stormwater velocity, the following BMPs will be utilized as needed: limiting the amount of area disturbed at a time, staging and/or phasing of the construction sequence, installing sediment basins and sediment traps, diverting off-site flow around the construction site, and controlling the drainage patterns within the construction site. To reduce stormwater velocity, the following BMPs will be utilized as needed: surface roughening along slopes, sediment basins and traps, level spreaders, erosion control blankets, turf reinforcement mats, riprap, and staging and/or phasing of the construction sequence. All stormwater controls will be inspected on a weekly basis.
Air Quality	Emissions during construction	To reduce impacts to air quality, the following BMPs will be utilized: reducing fugitive dust emissions by taking the following measures; avoiding the unnecessary idling of construction equipment, imposing a strict slow speed limit for vehicular traffic in the construction site, wetting areas to reduce dust, and maintaining construction equipment in good operating condition.
Noise	Noise during construction	To reduce noise, the following BMPs will be utilized: limiting work to daylight hours and avoiding the unnecessary idling of construction equipment.
Hazardous Materials and Hazardous Waste Management	Waste during construction	To reduce Hazardous Materials and Hazardous Waste, the following BMPs will be utilized: keeping equipment in good operating condition, properly storing and handling fuels, and cleaning leaks and spills immediately. Measures will be taken to prevent POL products, trash, debris etc. from entering adjacent areas, wetlands and surface waters.
Cultural Resources	Erosion, wave action once water pool level is re-established	To protect the site known as 38RD1447, Ft. Jackson will complete a site protection project in the vicinity of the berm prior to the water level returning to full pool level. The project may include installing a geo-fabric, rip rap or other methods suitable for protection/stabilization. After full pool level is established this site shall be periodically monitored for impacts.

#### 4. Cumulative Impacts

Cumulative impacts are defined in the Council on Environmental Quality (CEQ) regulation (40 CFR § 1508.7) as:

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

ENVIRONMENTAL ASSESSMENT  
REPLACEMENT OF SEMMES LAKE DAM  
Fort Jackson, South Carolina

There are two known future projects within the Wildcat Creek watershed. Fort Jackson is currently evaluating alternatives to replace Upper Legion Lake and Lower Legion Dike, which were also damaged during the October 2015 flooding event. An EA has been released for public and agency review and comment. It is expected that the selected alternative from that analysis will not result in any loss of stormwater detention when compared to pre-flood (October 2015) conditions. Fort Jackson is also currently designing a new privatized army lodging hotel and associated parking for near term construction. A drawing giving an overview of the project can be found in Appendix E. An assessment of this action is provided in the Final Environmental Assessment for Implementation of the Privatization of Army Lodging Program at Fort Jackson, South Carolina, 2012. Construction of the hotel would lead to an increase in the amount of impervious surfaces and stormwater runoff within the Wildcat Creek watershed. However, measures to mitigate these increases, such as storage of stormwater, are planned to ensure that no net increase in stormwater runoff occurs.

The impacts of the preferred alternative for Semmes Lake, when considered along with present and future actions, are cumulatively insignificant because all impacts from the preferred alternatives are minor, temporary, construction related impacts and known present and future actions in the Wildcat Creek watershed are expected to be minor and largely construction related. The hotel development within the watershed will not negatively impact or increase storm water runoff and replacing Semmes Lake is also expected not to increase runoff. No additional development within the Wildcat Creek watershed is known at this time. Areas outside the drainage area of Semmes Lake, especially in the City of Columbia, are growing. If development trends in these areas continue and the amount of impermeable surfaces increases, the adequate stormwater detention provided by the preferred alternative would have a positive benefit to areas downstream of Semmes Lake. The overall lack of impacts associated with the preferred alternative, as documented here, demonstrates both the benign nature and limited impacts of this project. No significant negative impacts would occur from implementation of the preferred alternative. Restoration of positive impacts to recreation, aesthetics, erosion prevention, water resources, and stormwater detention would occur with construction of the preferred alternative. Any impacts associated with the preferred alternative, when added to other past, present, and reasonably foreseeable future actions, are collectively insignificant as the preferred alternative would return Semmes Lake to pre-storm conditions.

## 5. Public Involvement and Coordination

The CEQ regulations require that agencies “(a) make diligent efforts to involve the public in preparing and implementing their NEPA procedures and (b) Provide public notice of NEPA-related hearings, public meetings, and the availability of environmental documents so as to inform those persons and agencies who may be interested or affected.” (40 CFR 1506.6(a) and (b)). As such, this document has been coordinated with Federal, State, and local government agencies having jurisdictional responsibilities, or otherwise having an interest in the project; Native American Tribes; Local Home Owners Associations; media outlets; and the members of the public. All comments received during the comment period are included in Appendix F of the Final EA and responses to comments will be incorporated into the Final EA. In addition to required coordination, a public meeting was held on December 14, 2016 to inform the public of alternatives being considered for the rehabilitation of Semmes Lake. A summary of comments received from this meeting is included in Appendix G.



ENVIRONMENTAL ASSESSMENT  
REPLACEMENT OF SEMMES LAKE DAM  
Fort Jackson, South Carolina

## 6. Conclusion

This EA evaluates the potential effects on the natural and human environment from the proposed rehabilitation of Semmes Lake. The EA examines the proposed action (preferred alternative), other viable alternatives, and a No Action Alternative. This EA evaluates potential long- and short-term effects on Land Use, Climate, Physiography, Geology, Topography, and Soils, Surface Water and Storm Water, Ground Water, Floodplains and Wetlands, Fish and Wildlife, Vegetation, Threatened and Endangered Species, Air Quality, Noise, Cultural Resources, Hazardous Materials & Hazardous Waste Management, Environmental Justice and Socioeconomic Conditions, Aesthetics and Recreation, and Cumulative Impacts.

Based on the foregoing, the proposed action (the preferred alternative) will not result in a significant effect on the quality of the human environment. Additionally, the implementation of best management practices and related mitigation measures (see section 3.16) will help to ensure that the minor negative effects to the individual factors discussed above are further minimized to the extent practicable. Therefore, an Environmental Impact Statement will not be required. If this conclusion is confirmed following circulation of this EA and consideration of comments, A Finding of No Significant Impact would be signed. Fort Jackson selected the preferred alternative for Semmes Lake by considering the following criteria (Table 6.1):

- Does the alternative meet dam safety standards (where applicable)?
- Does the alternative restore historic stormwater storage functions?
- Does the alternative have no significant impacts to environmental resources?
- Does the alternative cause no impacts and/or minimize impacts to the floodplain?
- Does the alternative provides recreational opportunity and aesthetic value for the community and visitors?
- Does the alternative minimize maintenance requirements?

ENVIRONMENTAL ASSESSMENT  
REPLACEMENT OF SEMMES LAKE DAM  
Fort Jackson, South Carolina

**Table 6.1 - Summary of Each Alternative’s Ability to Meet Selection Criteria**

<b>Criterion</b>	<b>No Action</b>	<b>Alternative 2</b>	<b>Alternative 3</b>	<b>Alternative 4 (Preferred Alternative)</b>
Does the alternative meet dam safety standards	Meets Criteria*	Meets Criteria*	Meets Criteria	Meets Criteria
Does the alternative restore historic stormwater storage functions	Does Not Meet Criteria	Meets Criteria	Meets Criteria	Meets Criteria
Does the alternative have no significant impacts to environmental resources	Meets Criteria	Meets Criteria	Meets Criteria	Meets Criteria
Does the alternative cause no or minimize impacts to the floodplain	Does Not Meet Criteria	Meets Criteria	Meets Criteria	Meets Criteria
Does the alternative provides recreational opportunity and aesthetic value for the community and visitors	Does Not Meet Criteria	Does Not Meet Criteria	Does Not Meet Criteria	Meets Criteria
Does the alternative minimize maintenance requirements**	Meets Criteria	Does Not Meet Criteria	Does Not Meet Criteria	Meets Criteria

\*Does not involve construction or maintenance of a dam so dam safety standards are not applicable.

\*\*Information on maintenance requirements for each alternative is included in section 3.16.

ENVIRONMENTAL ASSESSMENT  
REPLACEMENT OF SEMMES LAKE DAM  
Fort Jackson, South Carolina

## 7. References

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2016. Endangered, Candidate and At-Risk Species County Listings.

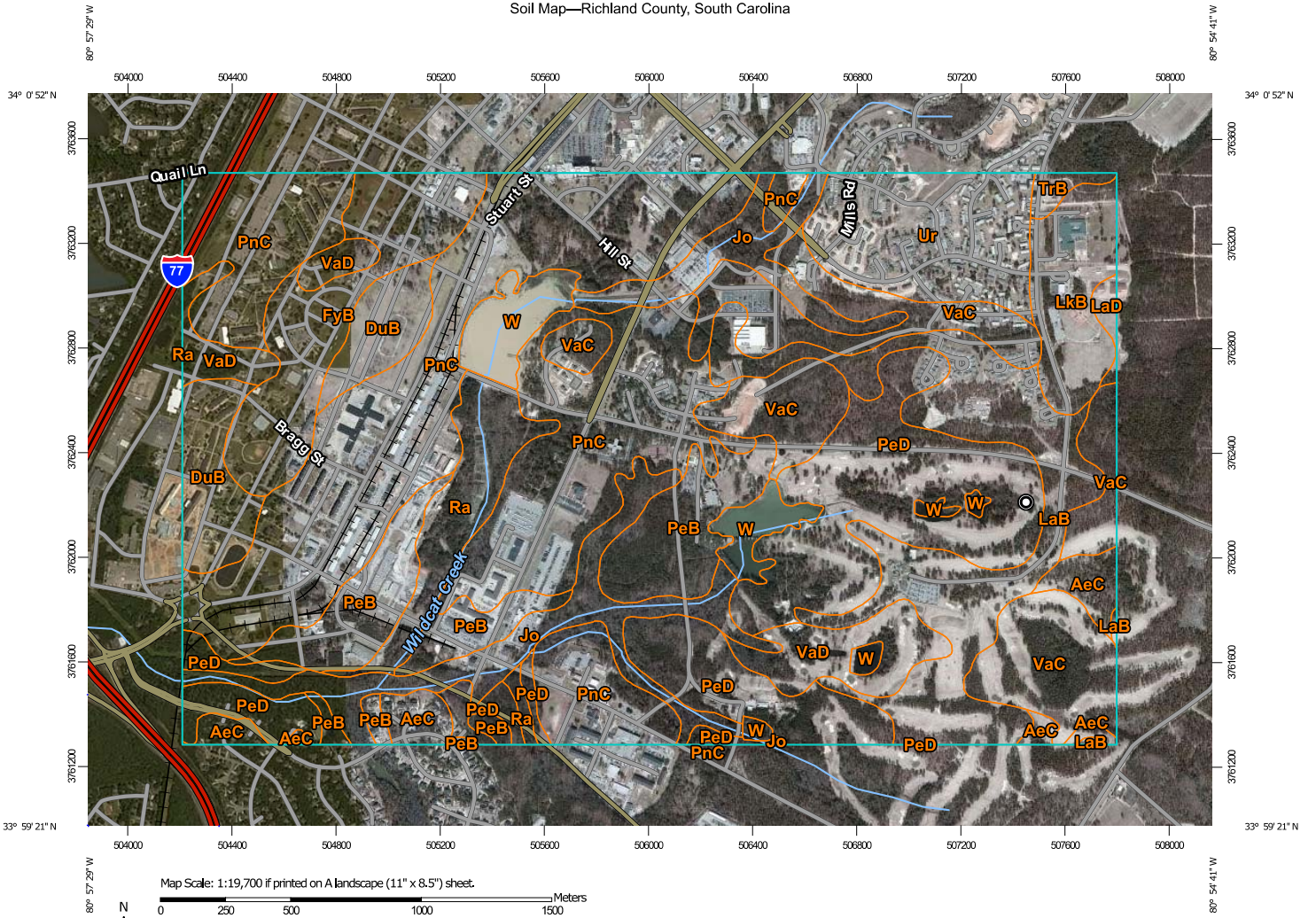
[http://www.fws.gov/charleston/EndangeredSpecies\\_County.html](http://www.fws.gov/charleston/EndangeredSpecies_County.html). Accessed February 7, 2017.

# Appendix A





































## Soils



Soil Map—Richland County, South Carolina



### MAP LEGEND

- |  |                        |   |                       |
|--|------------------------|---|-----------------------|
| <b>Area of Interest (AOI)</b>  |                        |  | Spoil Area            |
|   | Area of Interest (AOI) |  | Stony Spot            |
| <b>Soils</b>   |                        |  | Very Stony Spot       |
|   | Soil Map Unit Polygons |  | Wet Spot              |
|   | Soil Map Unit Lines    |  | Other                 |
|   | Soil Map Unit Points   |  | Special Line Features |
| <b>Special Point Features</b>  |                        | <b>Water Features</b>   |                       |
|   | Blowout                |  | Streams and Canals    |
|   | Borrow Pit             | <b>Transportation</b>   |                       |
|   | Clay Spot              |  | Rails                 |
|   | Closed Depression      |  | Interstate Highways   |
|   | Gravel Pit             |  | US Routes             |
|   | Gravelly Spot          |  | Major Roads           |
|   | Landfill               |  | Local Roads           |
|   | Lava Flow              | <b>Background</b>   |                       |
|   | Marsh or swamp         |  | Aerial Photography    |
|   | Mine or Quarry         |   |                       |
|   | Miscellaneous Water    |   |                       |
|   | Perennial Water        |   |                       |
|   | Rock Outcrop           |   |                       |
|   | Saline Spot            |   |                       |
|   | Sandy Spot             |   |                       |
|   | Severely Eroded Spot   |   |                       |
|   | Sinkhole               |   |                       |
|   | Slide or Slip          |   |                       |
|  | Sodic Spot             |   |                       |

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Richland County, South Carolina  
 Survey Area Data: Version 18, Sep 29, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 26, 2010—Jun 14, 2013

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

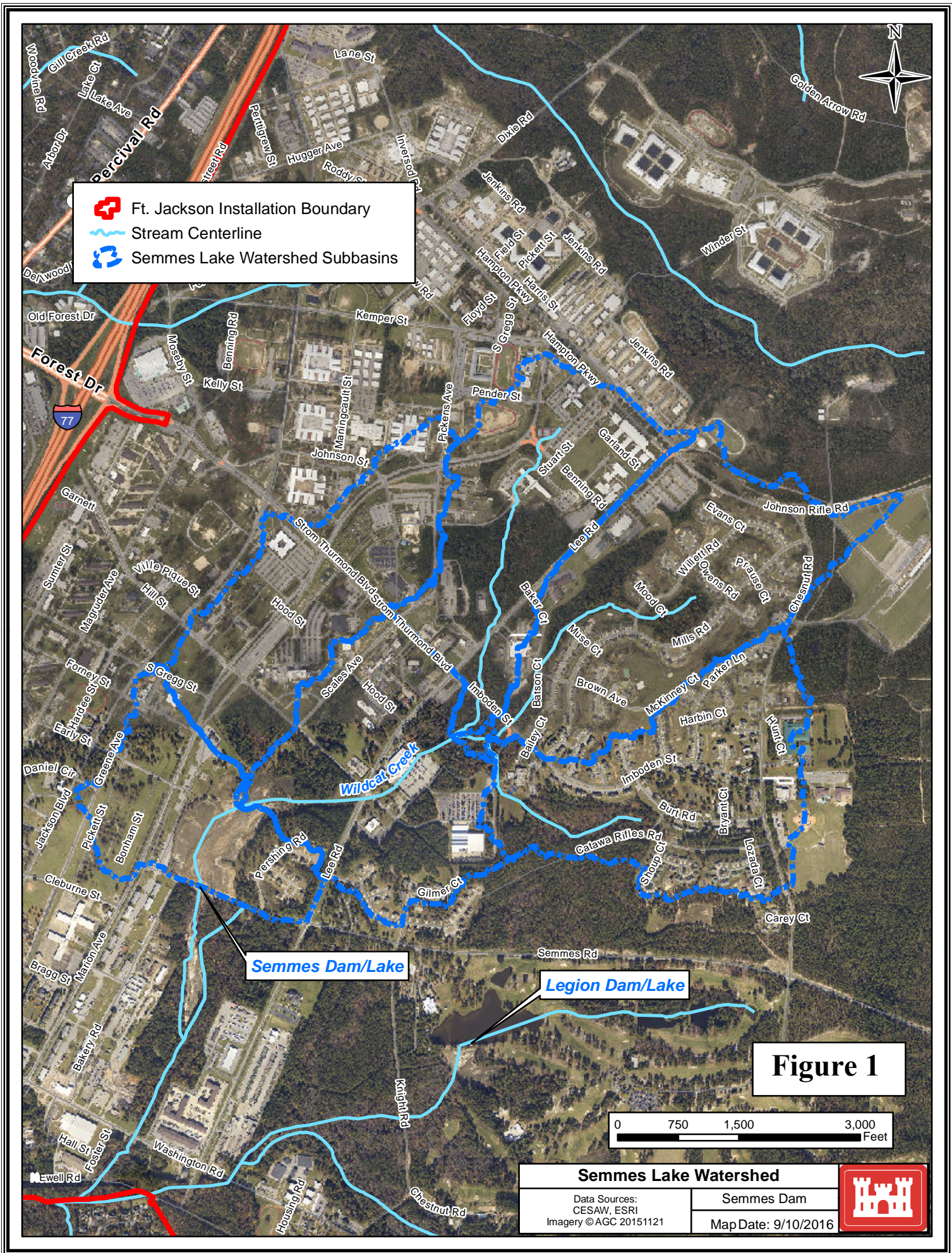
## Map Unit Legend

Richland County, South Carolina (SC079)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AeC	Ailey loamy sand, 2 to 10 percent slopes	38.1	2.0%
DuB	Dothan-Urban land complex, 0 to 6 percent slopes	71.8	3.7%
FyB	Fuquay-Urban land complex, 0 to 6 percent slopes	96.7	5.0%
Jo	Johnston loam	124.8	6.4%
LaB	Lakeland sand, 2 to 6 percent slopes	167.3	8.6%
LaD	Lakeland sand, 10 to 15 percent slopes	5.2	0.3%
LkB	Lakeland-Urban land complex, 2 to 6 percent slopes	56.8	2.9%
PeB	Pelion loamy sand, 2 to 6 percent slopes	130.8	6.7%
PeD	Pelion loamy sand, 6 to 15 percent slopes	253.8	13.0%
PnC	Pelion-Urban land complex, 2 to 10 percent slopes	531.3	27.3%
Ra	Rains sandy loam	58.4	3.0%
TrB	Troup sand, 0 to 6 percent slopes, Carolina and Georgia Sand Hills	6.9	0.4%
Ur	Urban land	97.6	5.0%
VaC	Vaucluse loamy sand, 6 to 10 percent slopes	188.1	9.7%
VaD	Vaucluse loamy sand, 10 to 15 percent slopes	66.4	3.4%
W	Water	53.3	2.7%
<b>Totals for Area of Interest</b>		<b>1,947.3</b>	<b>100.0%</b>

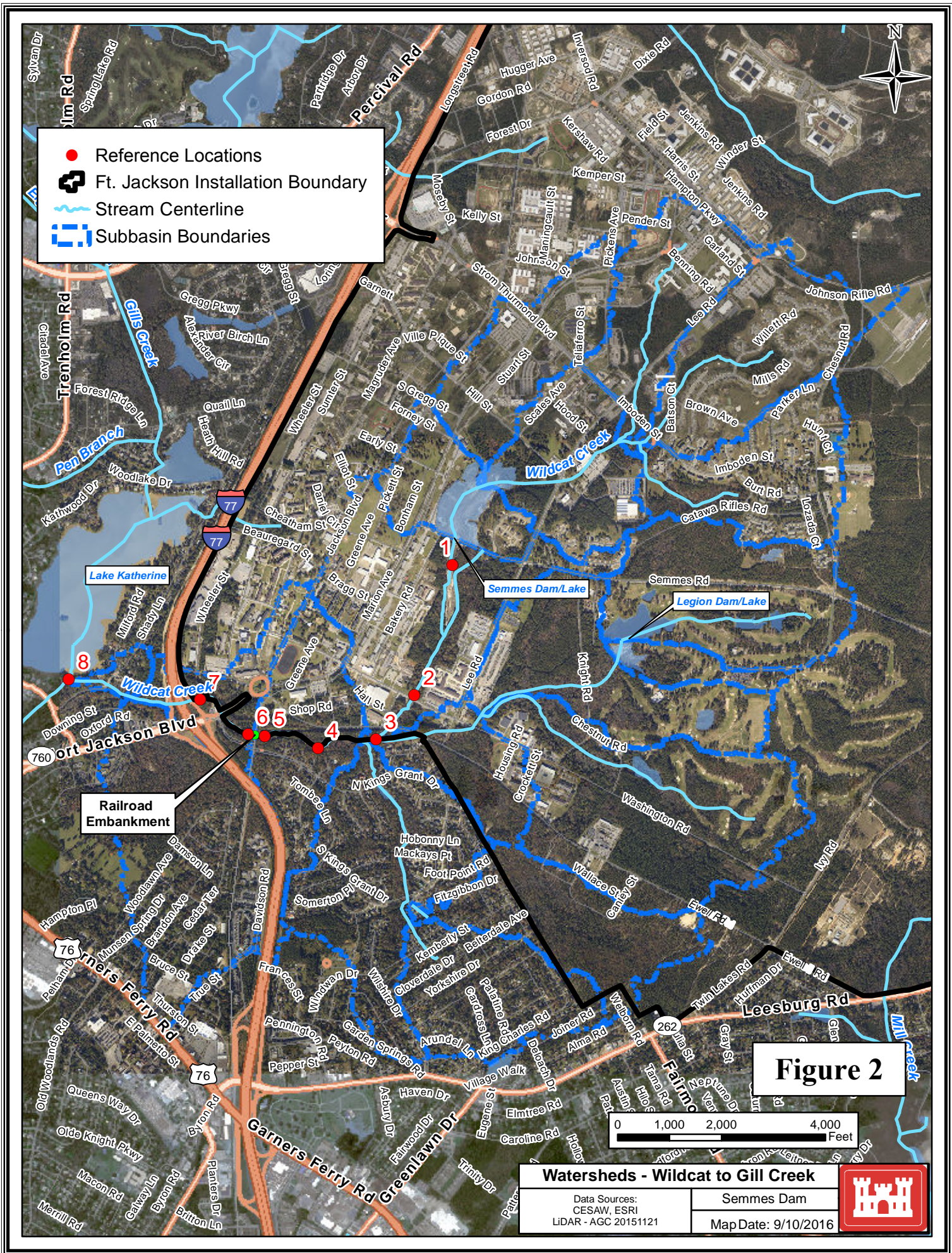
## Appendix B

### Wildcat Creek Watershed









**Figure 2**

<b>Watersheds - Wildcat to Gill Creek</b>		
Data Sources: CESAW, ESRI LiDAR - AGC 20151121	Semmes Dam	
Map Date: 9/10/2016		



## Appendix C

### Floodplain Data

**EO 11988 Evaluation**  
**SEMMES LAKE DAM REPAIRS**

**Ft. Jackson, South Carolina**

**May 2017**

Below is the eight-step process that agencies should carry out as part of their decision-making on projects that have potential impacts to or within the floodplain. The eight steps reflect the decision-making process required in Section 2(a) of the Order.

1. Determine if a proposed action is in the base floodplain (that area which has a one percent or greater chance of flooding in any given year).

The preferred alternative and all other evaluated alternatives are within a floodplain.

2. Conduct early public review, including public notice.

In addition to ongoing coordination as part of the NEPA process, a public meeting was held on December 14, 2016 to inform the public of alternatives being considered for the rehabilitation of Semmes Lake and Upper and Lower Legion Lakes. The public was notified of both the public meeting and the upcoming availability of the draft EA.

3. Identify and evaluate practicable alternatives to locating in the base floodplain, including alternative sites outside of the floodplain.

As all action alternatives consist of measures to address damages from flooding to structures existing in the floodplain. No non-floodplain alternatives exist.

4. Identify impacts of the proposed action.

All action alternatives (this excludes the No Action Alternatives) will restore structures within the floodplain to pre-flood (October 2015) conditions or construct storage within the floodplain so no stormwater detention is lost when compared to pre-flood (October 2015 conditions).

5. If impacts cannot be avoided, develop measures to minimize the impacts and restore and preserve the floodplain, as appropriate.

The floodplain would be restored to pre-flood (October 2015) conditions.

6. Reevaluate alternatives.

No non-floodplain alternative exists.

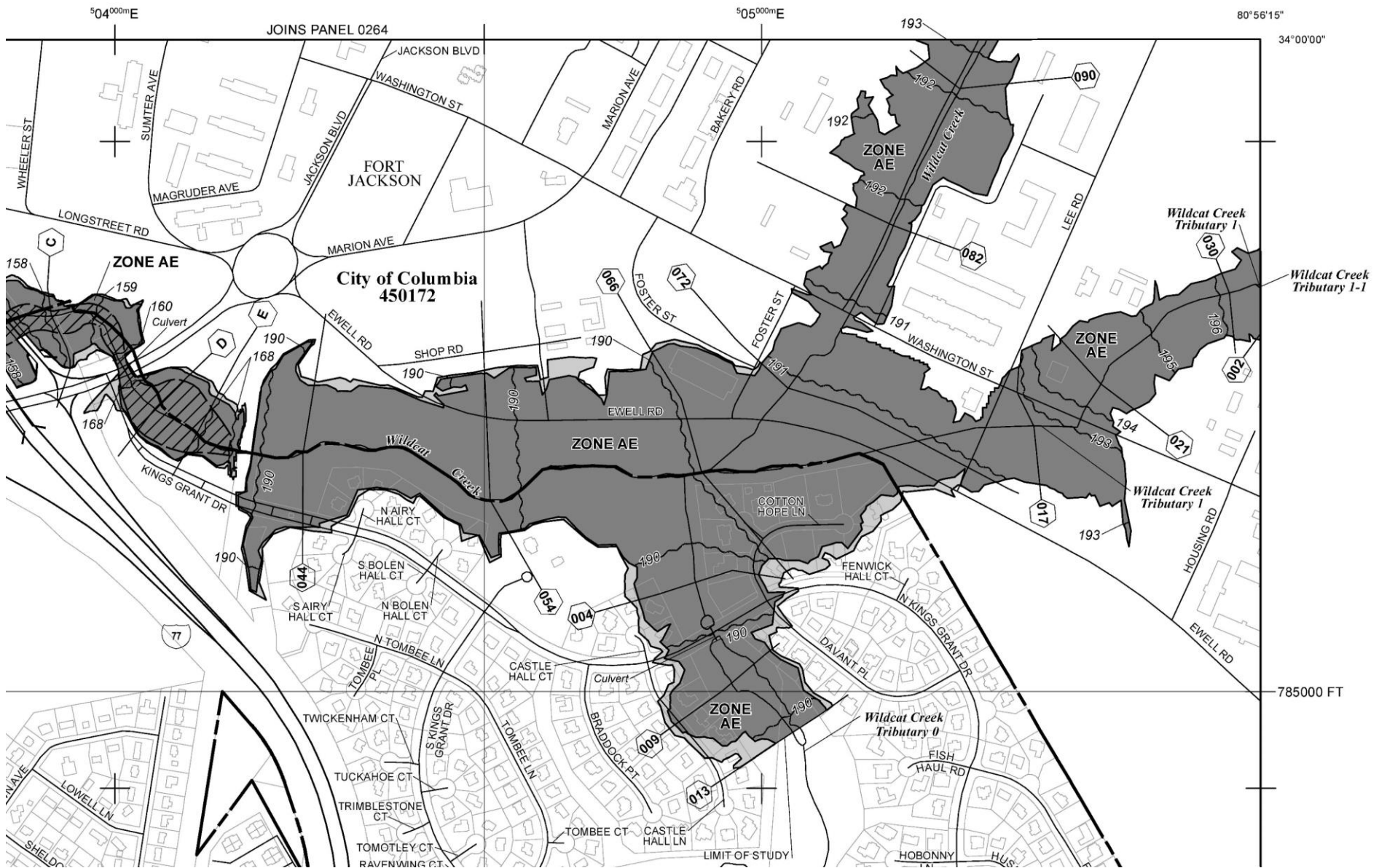
7. Present the findings and a public explanation.



Ft. Jackson has determined that there is no practicable alternative for locating the project out of the flood zone. This is due to the location of Semmes Dam within the floodplain. Details of the proposed action are available, to the public, in the draft EA. Additionally, a public meeting was held on December 14, 2016 to inform the public of alternatives being considered for the rehabilitation of Semmes Lake and Upper and Lower Legion Lakes and environmental impacts from those alternatives.

#### 8. Implement the action

The proposed project cannot be implemented until the NEPA process is complete and funding is available. However once an action is initiated Ft. Jackson will also take an active role in monitoring the construction process to ensure no unnecessary impacts occur nor unnecessary risks are taken.



Portion of the FEMA FIRM in the Developed Area Downstream of Semmes Lake.

**DEPARTMENT OF DEFENSE  
UNITED STATES ARMY**

**FINDING OF NO PRACTICABLE ALTERNATIVE FOR  
REPLACEMENT OF SEMMES LAKE DAM  
FORT JACKSON, SC**

**1.0 Introduction**

The Department of the Army (Army) proposes to replace infrastructure associated with Semmes Lake at Fort Jackson, South Carolina. Because the remnants of the Semmes Lake dam are located within the 100-year floodplain, the proposed action must be located within the 100-year floodplain. Pursuant to Section 2(a)(2) of Executive Order (EO) 11988, *Floodplain Management*, the Army must evaluate whether there is a practicable alternative to locating the proposed action in a floodplain. The practicability of a given alternative is evaluated by determining whether it is available and capable of being done after considering pertinent factors, such as community welfare, environmental impact, statutory authority, legality, cost, technology, and engineering within the context of the project purpose. If the only practicable alternative requires siting in a floodplain, the Army must design or modify its action to minimize harm to or within the floodplain. Thereafter, the Army must prepare and circulate a notice containing an explanation of why the action is proposed to be located in the floodplain. This Finding of No Practicable Alternative incorporates the analysis and conclusions of the Semmes Lake Environmental Assessment (including Appendix C, EO 11988 Evaluation).

**2.0 Notice of Floodplain Involvement**

Executive Order 11988 requires Federal agencies to first determine whether a proposed action would occur within a floodplain. “Floodplain” is defined in the EO as “the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year.” The 100-year floodplain represents those areas that could be inundated in the event of high flood water levels expected to occur once every 100 years from the combination of heavy rainfall, high tides, and storm surges. Based on existing Federal Emergency Management Agency Flood Insurance Rate Maps and an engineering-level analysis, it was concluded that the proposed action is within the 100-year floodplain.

**3.0 Description of the Proposed Action, Floodplain Impacts, and Minimization**

Fort Jackson is proposing to rebuild the Semmes Lake dam. This is alternative 4 from the EA. This alternative would maintain the stormwater detention capacity that existed prior to October 2015. The dam would be an earthen embankment constructed to current dam safety standards and designed to not overtop during storms up to the calculated Inflow Design Flood (IDF) which is based on the Probable Maximum Precipitation (PMP – approximately equal to 0.001% chance storm {i.e., a one in 100,000 year event}), and, in turn, the Probably Maximum Flood (PMF – the runoff from the PMP). Consistent with dam safety standards, the PMF was appropriately reduced to

the discharge at which dam failure will not significantly increase the downstream hazard. Analysis indicated that dam failure for the 80% PMF resulted in the same downstream hazard as the 100% PMF, so the 80% PMF was used as the IDF for the spillway design. The dam would have a top elevation of 224½ feet above mean sea level and a top width of 48 feet. The upstream face of the dam would be protected by rip-rap. The spillway for the dam would be moved to the western end of the dam and would be constructed as a labyrinth weir. A labyrinth weir is designed to progressively pass more water with increasing inflow into the lake. The weir would be designed to maintain a normal pool elevation in the lake of 215 feet above mean sea level. Semmes Road and a pedestrian sidewalk would be re-constructed on top of the dam. The dam would be listed on the National Inventory of Dams and would undergo periodic inspections and maintenance as required by dam safety standards.

### **Assessment of Direct Impact to 100-Year Floodplain**

Under the proposed action at Semmes Lake, the project would occur within the 100-year floodplain (the area of Semmes Lake, the Semmes Lake dam, and the downstream portions of Wildcat Creek are physically located within the 100-year floodplain). The Army has evaluated the proposed action pursuant to EO 11988 and determined that there are no practicable alternatives outside of the floodplain that will meet the project purpose. The purpose of the project is to rebuild the Semmes Lake dam to current safety standards and to continue to manage stormwater flows to minimize downstream impacts. Because the lake bed and dam footprint are situated in the floodplain, and because the management of stormwater has an impact on conditions in the floodplain, the proposed action and all of the evaluated action alternatives are necessarily within the floodplain. The proposed action will ensure that the infrastructure associated with Semmes Lake meets current safety standards and will appropriately minimize the potential for flooding and stormwater impacts to structures existing in the floodplain. The proposed action would return the floodplains in the project area to essentially pre-flood (October 2015) conditions once construction activities are completed. The dam removal alternative would require siting stormwater detention ponds within the floodplain and, if designed to manage the same volume of stormwater, would similarly impact downstream flows and stormwater management. Construction of a dry dam and lakebed detention areas to manage a comparable volume of stormwater would have similar floodplain impacts to the proposed action. Even the no action alternative would have an effect on the floodplain because it would leave Semmes Lake and Dam in a condition where the stormwater management function is compromised. The cost and engineering required to craft an alternative somehow situated wholly outside of the floodplain would be excessive (and no such alternatives were identified). Such an alternative would not be technically feasible, would not meet the needs of the community downstream in terms of structural safety and stormwater management, would involve substantial environmental impact, and would fail to meet the purpose of the project.

### **Minimization of Impact from the Proposed Action**

The proposed action would minimize the impacts to the floodplain. The proposed action would generally use the existing infrastructure configuration and footprint to rebuild the Semmes Lake dam to meet applicable safety standards. Upgrading Semmes Lake Dam to current safety standards, will benefit downstream interests subject to stormwater impacts. Once completed, the proposed action will ensure that the current management of downstream flows and stormwater reliably continues.



#### 4.0 Finding

Following an evaluation of the impacts associated with the proposed action and the impacts of alternatives to implement the proposed action, I find that there is no practicable alternative to the proposed action located outside of the floodplain. Furthermore, pursuant to EO 11988, and as described above, the Army will take all practicable measures to minimize impacts associated with the proposed action to and within the floodplain environment.

---

Date

---

Mr. Paul D. Cramer  
Deputy Assistant Secretary of the Army  
Installations, Housing & Partnerships

DRAFT

## Appendix D

### Endangered Species

**South Carolina List of At-Risk, Candidate, Endangered, and Threatened Species - Richland County**

CATEGORY	COMMON NAME/STATUS	SCIENTIFIC NAME	SURVEY WINDOW/ TIME PERIOD	COMMENTS
<b>Amphibian</b>	Chamberlain's dwarf salamander (ARS)	<i>Eurycea chamberlaini</i>	Spring/Fall surveys	Breeding survey: November to February
<b>Bird</b>	American wood stork (T)	<i>Mycteria americana</i>	February 15-September 1	Nesting season
	Bald eagle (BGEPA)	<i>Haliaeetus leucocephalus</i>	October 1-May 15	Nesting season
	Red-cockaded woodpecker (E)	<i>Picoides borealis</i>	April 1-July 31	Nesting season
<b>Crustacean</b>	Broad River spiny crayfish (ARS)	<i>Cambarus spicatus</i>	November-April	
<b>Fish</b>	American eel (ARS)	<i>Anguilla rostrata</i>	March 1-May 30; October 1-December 15	Temperature dependent: normally (17-20°C); can be found between 13-25°C
	Atlantic sturgeon* (E)	<i>Acipenser oxyrinchus*</i>	February 1-April 30	Spawning migration
	Blueback herring (ARS)	<i>Alosa aestivalis</i>	Mid-January-mid May	Peak: March-April
	Robust redhorse (ARS)	<i>Moxostoma robustum</i>	Late April-early May	Temperature dependent: 16-24°C
	Shortnose sturgeon* (E)	<i>Acipenser brevirostrum*</i>	February 1-April 30	Spawning migration
<b>Insect</b>	None Found			
<b>Mammal</b>	Rafinesque's big-eared bat (ARS)	<i>Corynorhinus rafinesquii</i>	Year round	Found in mines, caves, large hollow trees, buildings, and bat towers
	Tri-colored bat (ARS)	<i>Perimyotis subflavus</i>	Year round	Found in mines and caves in the winter
<b>Mollusk</b>	Savannah lilliput (ARS)	<i>Toxolasma pullus</i>	March 1-September 30	
<b>Plant</b>	Bog spicebush (ARS)	<i>Lindera subcoriacea</i>	March-August	
	Canby's dropwort (E)	<i>Oxypolis canbyi</i>	Mid-July-September	
	Carolina-birds-in-a-nest (ARS)	<i>Macbridea caroliniana</i>	July-November	
	Ciliate-leaf tickseed (ARS)	<i>Coreopsis integrifolia</i>	August-November	
	Georgia aster (ARS*)	<i>Symphotrichum georgianum</i>	Early October-mid November	
	Michaux's sumac (E)	<i>Rhus michauxii</i>	May-October	
	Purple balduina (ARS)	<i>Balduina atropurpurea</i>	August-November	
	Rocky shoals spider lilly (ARS)	<i>Hymenocallis coronaria</i>	May-June	Found in rocky shoals of large streams and rivers; showy and fragrant
	Rough-leaved loosestrife (E)	<i>Lysimachia asperulaefolia</i>	Mid May-September	
	Sandhills lily (ARS*)	<i>Lilium pyrophilum</i>	Late July-August	
	Smooth coneflower (E)	<i>Echinacea laevigata</i>	Late May-October	
	Spathulate seedbox (ARS)	<i>Ludwigia spathulata</i>	June-October	
Wire-leaved dropseed (ARS)	<i>Sporobolus teretifolius</i>	August-September	Following fire	
<b>Reptile</b>	Southern hognose snake (ARS)	<i>Heterodon simus</i>	Most of the year	

## South Carolina List of At-Risk, Candidate, Endangered, and Threatened Species - Richland County

- \* Contact National Marine Fisheries Service (NMFS) for more information on this species
- \*\* The U.S. Fish and Wildlife Service (FWS) and NMFS share jurisdiction of this species
- ARS Species that the FWS has been petitioned to list and for which a positive 90-day finding has been issued (listing may be warranted); information is provided only for conservation actions as no Federal protections currently exist.
- ARS\* Species that are either former Candidate Species or are emerging conservation priority species
- BGEPA Federally protected under the Bald and Golden Eagle Protection Act
- C FWS or NMFS has on file sufficient information on biological vulnerability and threat(s) to support proposals to list these species
- CH Critical Habitat
- E Federally Endangered
- P or P - CH Proposed for listing or critical habitat in the Federal Register
- S/A Federally protected due to similarity of appearance to a listed species
- T Federally Threatened

These lists should be used only as a guideline, not as the final authority. The lists include known occurrences and areas where the species has a high possibility of occurring. Records are updated as deemed necessary and may differ from earlier lists.

For a list of State endangered, threatened, and species of concern, please visit <https://www.dnr.sc.gov/species/index.html>.

1/11/2017

## Appendix E

### Cumulative Impacts Documents



Rest Easy would build a new 331-room Candlewood Suites (CWS) hotel and associated parking lot (277 spaces) on an undeveloped, mostly grass covered open space. Tennis courts, basketball courts, and parking lots existing with the footprint of the proposed hotel and parking lot would also be conveyed and converted to parking. The Army also would grant Rest Easy a 46-year lease on the parcel. Figure 1 shows the current condition of the proposed location for the new hotel and associated parking. Figure 2 shows parking in the area a more detailed drawing of the proposed new hotel and associated parking.

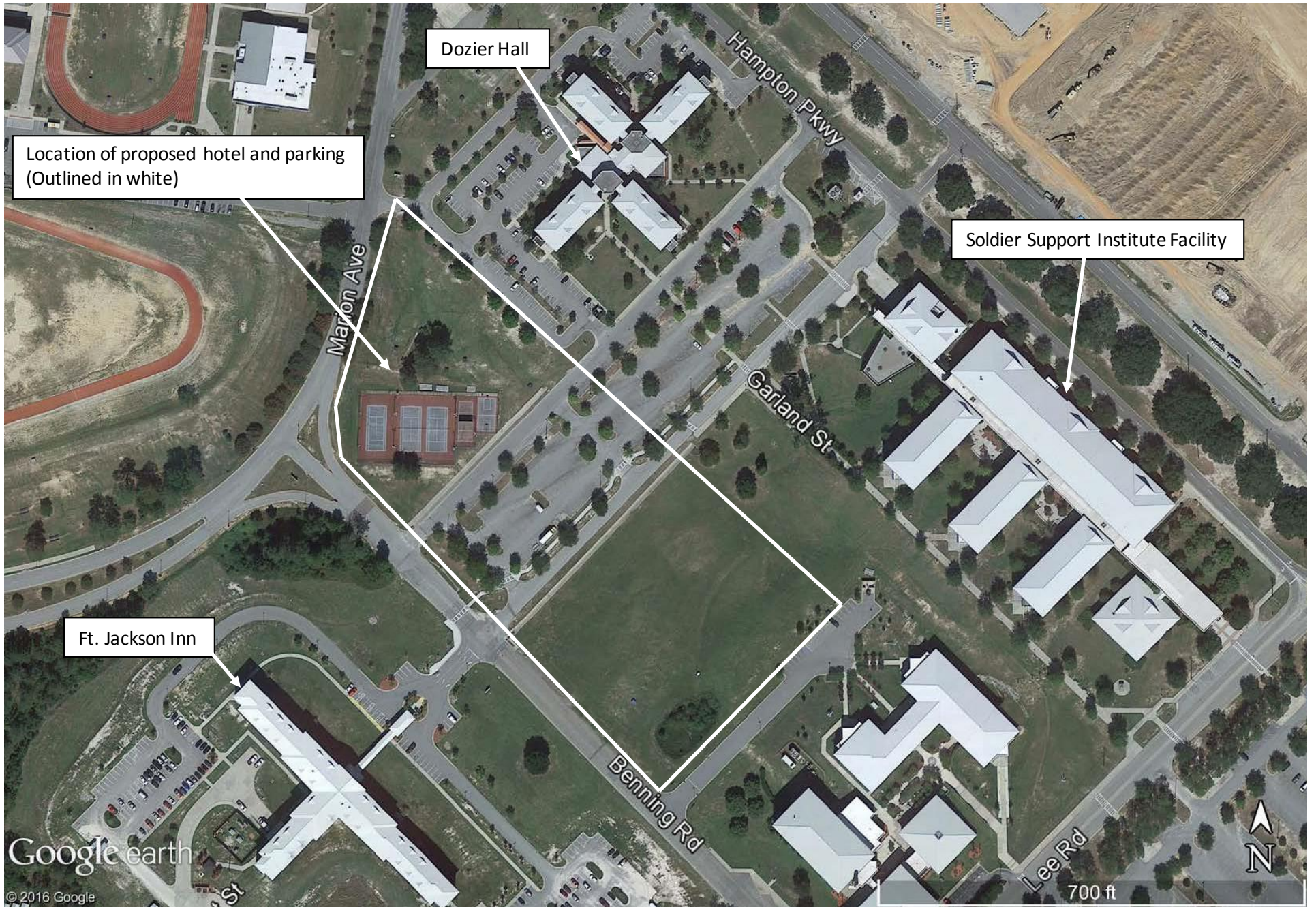


Figure 1 - current condition of the proposed new hotel and associated parking



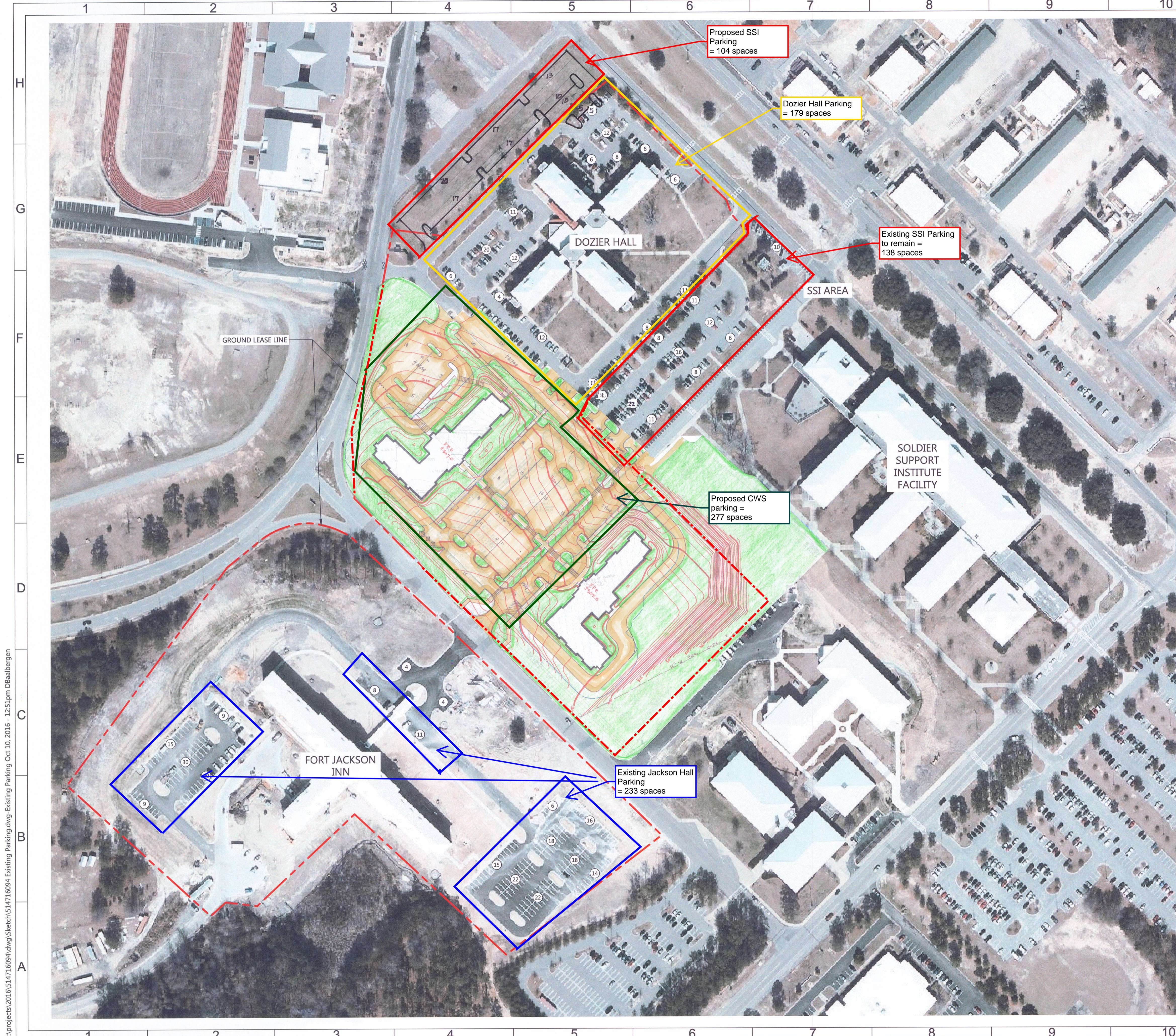
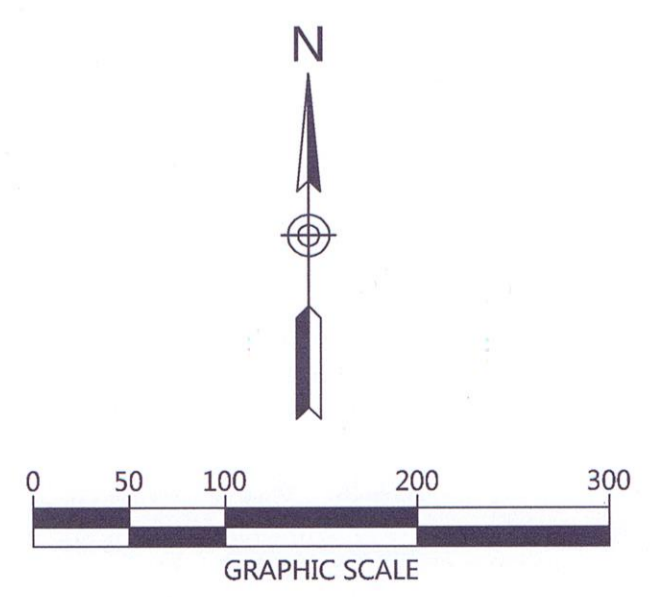


Figure 2.

**Existing Parking Summary:**  
 Dozier Hall: 136 rooms / 187 Parking Spaces  
 Jackson Inn: 209 Rooms / 241 Spaces  
 Existing SSI Parking = 272 Spaces  
**TOTAL EXISTING PARKING: 700 Spaces**

**Proposed Parking Summary**  
 Dozier Hall: 136 rooms / 179 spaces  
 Jackson Inn: 209 rooms / 233 Spaces  
 New CWS - 331 rooms / 277 Spaces  
 (net 676 rooms / 689 spaces)  
 Proposed NEW SSI parking - 104 spaces  
 Proposed EXISTING SSI parking to remain - 138 spaces  
 (net SSI ONLY spaces - 242 spaces)  
**TOTAL PROPOSED SPACES = 931 Spaces**



G:\projects\2016\514716094\Sketch\514716094-Existing Parking.dwg - Existing Parking Oct 10, 2016 - 12:51pm DBaalbergen



INCIDENT & INJURY FREE  
 SIN LESIÓN O ACCIDENTE  
 LIVE SAFE WORK SAFE  
 VIVE SEGURO TRABAJE SEGURO

Issue:	
Date:	
Issue:	
Date:	
Issue:	
Date:	

OCTOBER 10, 2016

**Littlejohn**  
 An S&ME Company  
 1935 21st Avenue South, NASHVILLE, TENNESSEE 37212  
 T 615.385.6144 F 615.385.4020 www.littlejohn.com

NOT FOR CONSTRUCTION

PAL - NEW BUILD  
 FORT JACKSON, SOUTH CAROLINA  
 PARKING EXHIBIT

Project No: 514716094  
 Drawn:  
 Checked:  
 Approved:  
 \*Scale:  
 \*use graphic scales if sheet size varies from 22 x 34

SHEET 1 OF 1  
**FTJK-NBLD**  
**EX. 2**



## Appendix F

### Comments Regarding the Draft EA

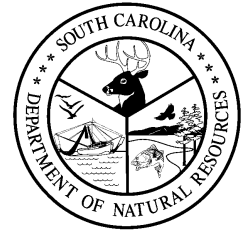
Date	Comment Summary
8/29/2017	South Carolina Department of Natural Resources (SCDNR) outlined several measures to reduce and manage environmental risk to water quality. The SCDNR comment letter is included in this appendix.
	<p style="text-align: center;"><b>Response</b></p> Mitigation measures for the project have been outlined on pages 6-7 of the Final FNSI and on pages 31-32 of the Final EA.
8/29/2017	<p style="text-align: center;"><b>Comment Summary</b></p>
	US Environmental Protection Agency (EPA) comments included the following topics: <ol style="list-style-type: none"> <li>1. Compliance with water quality certifications</li> <li>2. Impacts to Native American resources</li> <li>3. Impacts to stormwater detention</li> <li>4. Questions regarding the measurements units used to present the height of the dam</li> <li>5. Request to include SHPO coordination in the EA</li> </ol> The EPA Comment letter is included in this appendix
8/29/2017	<p style="text-align: center;"><b>Response</b></p>
	<ol style="list-style-type: none"> <li>1. Additional information regarding water quality certification was added to section 3.6.2 of the Final EA.</li> <li>2. Additional coordination with Native American tribes was conducted (correspondence included in this appendix). Additionally, section 3.12 of the Final EA was updated to reflect this coordination.</li> <li>3. Information regarding the history of the dam is given on page 2. Detailed information regarding stormwater is presented in section 3.4 of the Final EA.</li> <li>4. Presenting the dam height as feet above mean sea level is an accepted engineering practice.</li> <li>5. Additional coordination with the SHPO was conducted (correspondence included in this appendix). Section 3.12 of the Final EA and table 3.4 of the EA was updated to reflect this coordination. The FNSI has also been updated with this information (Cultural Resource section and page 7 summary table).</li> </ol>
9/11/2017	<p style="text-align: center;"><b>Comment Summary</b></p>
	Thlopthlocco Tribal Town had comments regarding the Section 106 compliance and tribal coordination for the proposed project. The Thlopthlocco Tribal Town comment letter is included in this appendix.
9/11/2017	<p style="text-align: center;"><b>Response</b></p>
	Since the closure of the public comment period on 13 Sept 17 Ft. Jackson has been in contact with the THPO's from the Thlopthlocco Tribal Town, the SC SHPO and the SC Institute for Archeology and Anthropology [SCIAA]. During Sept/Oct 2017 Ft. Jackson provided draft documents to the THPO's. Ft. Jackson discussed the comments made by the THPO's with SCIAA. The end result was that one of the discovered cultural resources site was changed to now being considered as "unevaluated". The SC SHPO agrees with this change as stated in their letter dated 3 Oct 17. The text in Section 3.12.1 of the EA was revised to reflect this change. The text in the FONSIS was also revised accordingly and as a mitigation measure for the site, Ft. Jackson will execute



	a protection project in the vicinity of the berm to protect the site from wave or erosion damage. This project will be completed prior to the water at Semmes lake bed returning to its full pool level.
8/24/2017	<b>Comment Summary</b>
	Muscogee (Creek) Nation had comments regarding the cultural resources survey reports for the proposed project and the status of SHPO concurrence. The Muscogee (Creek) Nation comment letter is included in this appendix.
	<b>Response</b>
	Since the closure of the public comment period on 13 Sept 17 Ft. Jackson has been in contact with the THPO from the Muscogee Creek Nation Tribe, the SC SHPO and the SC Institute for Archeology and Anthropology [SCIAA]. During Sept/Oct 2017 Ft. Jackson provided draft documents to the THPO's. Ft. Jackson discussed the comments made by the THPO's with SCIAA. The end result was that one of the discovered cultural resources site was changed to now being considered as "unevaluated". The SC SHPO agrees with this change as stated in their letter dated 3 Oct 17. The text in Section 3.12.1 of the EA was revised to reflect this change. The text in the FONSI was also revised accordingly and as a mitigation measure for the site, Ft. Jackson will execute a protection project in the vicinity of the berm to protect the site from wave or erosion damage. This project will be completed prior to the water at Semmes lake bed returning to its full pool level.
8/13/2017	<b>Comment</b>
	"I don't trust the U S Army or representatives of Ft. Jackson to maintain any dam that is built or re-built or repaired. You couldn't maintain what you had when you knew it to be in poor condition and were warned the dam was a hazard. You chose not to spend your time or financial resources to maintain it so why would I trust you to maintain it now or later? I thought our military was here to protect the citizens of this country but instead you put lives and property at substantial risk and in fact lives were lost and property was destroyed because [sic] of your negligence. My home had 4 feet of water inside the residence and over 12 feet of water in the back yard as a result of your lake emptying out into my neighborhood. It cost well over \$250,000 for us to repair and replace our home and belongings. Why don't you take the money you are going to spend on the dam repairs and help your neighbors. Do the right thing."
	<b>Response</b>
	The preferred alternative will rebuild Semmes Lake dam to current dam safety standards. The structure and related facilities will be constructed to facilitate oversight and maintenance. Semmes Lake dam will be maintained pursuant to Army regulation. All other action alternatives considered in the EA would also require oversight and maintenance. The reconstructed Semmes Lake dam will continue to be only one component of water management in the overall Gills Creek watershed. As in the past, future precipitation rates and volumes may be sufficient to subject the watershed to flood events.

# South Carolina Department of Natural Resources

1000 Assembly Street Suite 336  
PO Box 167  
Columbia, SC 29202  
803.734.3282 Office  
803.734.9809 Fax  
mixong@dnr.sc.gov



Alvin A. Taylor  
Director  
Robert D. Perry  
Director, Office of  
Environmental Programs

August 29, 2017

*Submitted via electronic mail*

REFERENCE: Draft Environmental Assessment  
Replacement of Semmes Lake Dam  
Fort Jackson, South Carolina

Personnel with the South Carolina Department of Natural Resources (SCDNR) have reviewed the Draft Environmental Assessment, the Draft Finding of No Significant Impact, and the Draft Finding of No Practicable Alternative for the proposed project and offer the following comments.

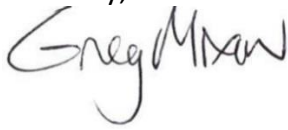
According to SCDNR data, there are currently no records of threatened and endangered species in the project area; however, there are records of several State Wildlife Action Plan (SWAP) priority species located approximately two miles downstream near the confluence of Wildcat Creek and Gills Creek. These include two fish species which are Flat Bullhead (*Ameiurus platycephalus*) and Snail Bullhead (*Ameiurus brunneus*), and the Cedar Creek Crayfish (*Procambarus chacei*). Appropriate measures should be taken to minimize or avoid impacts to these species and their habitat within the project area and in downstream areas. Please keep in mind that information in regards to the presence or absence of species is derived from existing databases, and SCDNR does not assume that it is complete. Areas not yet inventoried by SCDNR biologists may contain significant species or communities. However, the SCDNR does not have an objection to this project provided the following recommendations are abided.

- Prior to beginning any land disturbing activity, appropriate erosion and siltation control measures (i.e. silt fences, curtains or barriers) must be in place and maintained in a functioning capacity until the area is permanently stabilized.
- Materials used for erosion control (e.g., hay bales or straw mulch) will be certified as weed free by the supplier.
- Inspections of temporary erosion control measures should occur on a weekly basis to safeguard against failures.
- All necessary measures must be taken to prevent oil, tar, trash and other pollutants from entering the adjacent offsite areas/wetlands/water.
- Once the project is initiated, it must be carried to completion in an expeditious manner to minimize the period of disturbance to the environment.
- Upon project completion, all disturbed areas must be permanently stabilized with vegetative cover (preferable), riprap or other erosion control methods as appropriate.

- Where necessary to remove vegetation, supplemental plantings should be installed following completion of the project. These plantings should consist of appropriate native species for this ecoregion.
- The project must be in compliance with any applicable floodplain, stormwater, land disturbance, dam safety or riparian buffer ordinances.
- SCDNR reserves the right to review and comment on any required federal or state permits, mitigation proposals or other documents at the time of public notice.

Thank you for the opportunity to review this project and provide comments. Should you have any questions or need more information, please do not hesitate to contact me by email at [mixong@dnr.sc.gov](mailto:mixong@dnr.sc.gov) or by phone at 803.734.3282.

Sincerely,

A handwritten signature in black ink that reads "Greg Mixon". The signature is written in a cursive style with a large, stylized "G" and "M".

Greg Mixon  
Office of Environmental Programs

**Replacement of Fort Jackson Semmes Lake Dam Environmental Assessment  
Columbia, SC**

**US Environmental Protection Agency (EPA) Comments**

**August 29, 2017**

- The EPA notes that the Environmental Assessment (EA) does not discuss the proposed project's impacts associated with water quality. Specifically, there is no discussion of the Army obtaining a state water quality certification as required by Section 401 of the Clean Water Act (CWA). Recommendation: The EPA recommends the Final EA have a discussion regarding the proposed project's impacts to water quality and if/when the U.S. Army will obtain a 401 water quality certification.
- As with water quality (see above statement), the EA does not contain a discussion regarding potential impact to Native Americans. The EPA understands that the proposed project will occur in the same footprint as the existing lake; however, the EPA is concerned that the U.S. Army has not coordinated with the appropriate Native American tribes regarding potential impacts to Native American resources. Additionally, the EPA is concerned with the lack of discussion regarding the proper handling of Native American human remains that could be unearthed during construction (as required by the Native American Graves Protection and Repatriation Act (NAGPRA)). Recommendation: The EPA encourages the U.S. Army to coordinate with the appropriate Native American tribes concerning potential impacts to tribal cultural resources. The EPA also recommends the U.S. Army discuss NAGPRA protocols for properly handling of Native American remains in the Final EA.
- On page 6 (1.4), the EA discusses alternatives eliminated from further study. In discussing the "Removed Breached Embankment" alternative, the U.S. Army states, "This alternative was rejected because it would provide little in the way of effective stormwater detention and because post-dam discharge rates would increase the 1% annual chance event (ACE) flood elevations downstream by approximately 2.1 feet." Additionally, all the action alternatives moved forward for further evaluation include discussions regarding the function and capacity of the reservoir for stormwater detention. The EPA notes that the stated purpose and need (page 5) is "...to analyze and evaluate the environmental impacts of alternatives to address the loss of Semmes Dam due to historic flooding...". There is no reference of the project acting as a stormwater detention facility within this purpose and need statement. Recommendation: If the "purpose" of the project (and preferred alternative) is to serve as a stormwater detention facility, then the EPA recommends the U.S. Army better describe the purpose to reflect this criteria. Additionally, the EPA recommends the Army better discuss the "need" for having this stormwater detention facility by providing more details and data within the Final EA especially given the communities concerns regarding the safety of the new reservoir.
- On page 10 (2.4 Alternative 4), the EPA notes the EA describes the dam in the preferred alternative as "224 ½ feet above mean sea level and a top width of 48 feet". The EPA is concerned that describing the height of the dam in terms of mean sea level will lead to

confusion and is not easily understood by the public. Recommendation: To better inform stakeholders and the public, the EPA recommends that the Final EA describe the dam not only in terms of mean sea level, but also include the height of the dam from the ground to the top.

- On page 25 (3.12.1 Affected Environment), the EA discusses coordination with the South Carolina State Historic Preservation Officer (SHPO) regarding three cultural resource sites that the U.S. Army has determined to not be eligible for listing in the national register. Recommendation: For NEPA disclosure, the EPA recommends that the SHPO's final determination and all correspondence to and from the SHPO be listed in the Final EA.



**Poppen, Andrew G CIV USARMY IMCOM ATLANTIC (US)**

---

**From:** Section106 <Section106@mcn-nsn.gov>  
**Sent:** Thursday, August 24, 2017 11:00  
**To:** Poppen, Andrew G CIV USARMY IMCOM ATLANTIC (US)  
**Subject:** [Non-DoD Source] RE: Fort Jackson releases draft Environmental Assessment and Finding of No Significant Impact for Semmes Lake dam replacement- we seek your input

All active links contained in this email were disabled. Please verify the identity of the sender, and confirm the authenticity of all links contained within the message prior to copying and pasting the address to a Web browser.

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Mr. Poppen,

Thank you for contacting the Muscogee (Creek) Nation concerning the EA for the Semmes Lake Dam in Fort Jackson, Richland County, South Carolina. This project is located within our historic area of interest and is of importance to us. After reviewing the material provided, the Muscogee (Creek) Nation requests copies of the cultural resource survey reports for the area. Also, we would like to know what the South Carolina SHPO's determination is concerning the three sites that were found. Should any further information or comment be needed, please do not hesitate to contact me at (918) 732-7852 or by email [atlwendt@mcn-nsn.gov](mailto:atlwendt@mcn-nsn.gov) < Caution-mailto:lwendt@mcn-nsn.gov > .

Regards,

LeeAnne Wendt

LeeAnne Wendt, M.A., RPA

Historic and Cultural Preservation Department, Tribal Archaeologist

Muscogee (Creek) Nation

P.O. Box 580 / Okmulgee, OK 74447

T 918.732.7852

F 918.758.0649

lwendt@MCN-nsn.gov < Caution-mailto:lwendt@MCN-nsn.gov >

Caution-<http://www.muscogeenation-nsn.gov/> < Caution-  
<http://www.muscogeenation-nsn.gov/> >

From: Poppen, Andrew G CIV USARMY IMCOM ATLANTIC (US) [Caution-mailto:andrew.g.poppen.civ@mail.mil]  
Sent: Friday, August 11, 2017 2:05 PM  
To: cwhite@pci-nsn.gov; Section106  
Cc: Morrow, Douglas M CIV USARMY USAG (US); Funk, Paul S CTR (US)  
Subject: Fort Jackson releases draft Environmental Assessment and Finding of No Significant Impact for Semmes Lake dam replacement- we seek your input

The original message is attached because it is signed.



# THLOPTHLOCCO TRIBAL TOWN

## *Tribal Historic Preservation Office*

*Terry Clouthier, Tribal Historic Preservation Officer*

P.O. Box 188  
Okemah, OK 74859  
(918) 560-6113  
[thpo@ttown.org](mailto:thpo@ttown.org)

September 11, 2017

THPO File Number: 2017-23

**RE: draft Environmental Assessment and Finding of No Significant Impact for Semmes Lake dam replacement**

To Whom It May Concern,

Thank you for contacting the Thlopthlocco Tribal Town Tribal Historic Preservation Office (THPO) soliciting comments regarding the draft Environmental Assessment and Finding of No Significant Impact for the Semmes Lake dam replacement at Fort Jackson, South Carolina. Our office has reviewed the documents provided and offers the following comments.

Prior to the current notification for the completion of both the draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FoNSI); what notifications, if any, were sent out to initiate Section 106 consultation with Tribes who may attach traditional religious and cultural significance to historic properties that may be affected by this undertaking?

Page 25 of the draft EA:

“A cultural resources survey has been conducted by the South Carolina Institute for Archeology and Anthropology at Semmes Lake. Three cultural resource sites were found within the lake bed of Semmes Lake; however, the preliminary determination is that these sites are not eligible for listing on the national register. This determination is currently being coordinated with the South Carolina State Historic Preservation Officer.”

Were the Tribes ever consulted pertaining to the cultural resources survey identification efforts, results and determinations of eligibility and effects for this undertaking? Section 106 requires the Tribes to be consulted for all of these actions. There is simply insufficient information contained within the EA or provided to the Tribes to determine a proper recommendation as it relates to cultural resources for this undertaking.

From the email dated 08/11/2017:

“Cultural resource surveys have been completed within the Area of Potential Effect. Three cultural resource sites were found within the lake bed of Semmes Lake; however, the preliminary determination is that these sites are not eligible for listing on the national register. This determination is currently being coordinated with the South Carolina State Historic Preservation Officer. Regardless of the outcome, these 3 sites will be avoided during any construction and therefore will not be disturbed.”

The three sites will be avoided during construction but what possible future and cumulative effects could potentially impact them? As the THPO does not have any information on the site types or locations and cultural resources are not addressed in the cumulative effects section it is therefore impossible for us to address these types of concerns for this undertaking.

The Thlopthlocco Tribal Town Tribal Historic Preservation Office (THPO) does not agree with the findings or recommendations contained within the EA or FoNSI based upon our concerns outlined within this letter. We look forward to working with your agency to address these concerns.

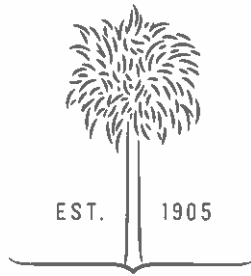
Please refer to THPO file number 2017-23 in all correspondence for this proposed undertaking.

Please feel free to contact the THPO at [thpo@tttown.org](mailto:thpo@tttown.org) or (918) 560-6113 if you have any questions.

Sincerely,



Terry Clouthier  
Thlopthlocco Tribal Town  
Tribal Historic Preservation Officer



October 3, 2017

SOUTH CAROLINA DEPARTMENT OF  
**ARCHIVES • HISTORY**

Ann Garner, P.E.  
Department of the Army  
US Army Installation Management Command  
Directorate of Public Works, Environmental Division  
2562 Essayons Way  
Fort Jackson, SC 29207-5608

Re: Boundary Delineation and National Register Evaluation of Seven Late Discoveries  
FY 2016, U.S. Army Garrison  
Fort Jackson, South Carolina  
SHPO Project No. 17-KL0040

Dear Ann Garner:

Thank you for your letter of September 19, 2017, which we received on September 20, 2017, regarding the above-referenced undertaking. We also received the draft report *Boundary Delineation and National Register Evaluation of Seven Late Discoveries, FY 2016, US Army Garrison, Fort Jackson, South Carolina* as supporting documentation for this undertaking. The State Historic Preservation Office is providing comments to the Department of the Army pursuant to Sections 106 and 110 of the National Historic Preservation Act and its implementing regulations, 36 CFR 800. Consultation with the SHPO is not a substitution for consultation with Tribal Historic Preservation Offices, other Native American tribes, local governments, or the public.

The investigations determined eligibility recommendations for seven archaeological sites on the Fort Jackson Military Installation (38RD1447, 38RD1448, 38RD1449, 38RD1450, 38RD1451, 38RD1452, and 38RD1453). Sites 38RD1448, 38RD1449, 38RD1450, 38RD1451, and 38RD1452 were recommended as not eligible for the National Register of Historic Places (NRHP). Site 38RD1453 was recommended as eligible for the NRHP under Criteria A and D. Our office concurs with these recommendations.

Site 38RD1447 was recommended as not eligible for the NRHP but the report states that it was “unable to fully evaluate the area underneath the berm” and recommends in the future that “plans be made to examine more thoroughly the interface between the berm fill and the original ground surface” (pg. xiii). As additional investigations are recommended to fully evaluate the eligibility of 38RD1447, our office does not concur with the recommendation of the site as not eligible for the NRHP. Our office recommends Site 38RD1447 as unevaluated, requiring additional testing. This term should be applied until additional field evaluation can be completed to adequately assess eligibility. The report recommends monitoring of the site if the berm protecting it is removed in the future. Our office concurs that the site should be monitored for impacts if the berm is altered or removed. As the report states that “the buried surface tapers off as one moves



away from the berm, suggesting surrounding soils have been scoured away by lake and possible flood action” (pg. 96) we additionally recommend that the site be monitored for impacts if Semmes Lake is restored.

Our office has additional technical comments on the report that we ask to see addressed (please see below). Please address these comments in a revised final report to be submitted to this office.

If you have any questions, please contact me at (803) 896-6181 or [KLewis@scdah.sc.gov](mailto:KLewis@scdah.sc.gov).

Sincerely,



Keely Lewis  
Archaeologist  
State Historic Preservation Office

#### **Technical Comments**

- Pg. 4-States that no additional work is recommended for sites recommended as not eligible for the NRHP but additional work is recommended for 38RD1447 on pg. xiii. Please clarify.
- Pg. 8-38RD602 is referenced in the third paragraph but not discussed. Did the author mean to refer to 38RD603?
- Pg.12-52 Middle Archaic projectile points listed (38 Morrow Mountains, 11 Guilfords, 1 Stanly, 1 Brewerton, 1 Guilford/Morrow Mountain); 30/52 = 58%, not 75% as listed for the majority recovered from Colonels Creek drainage. Please clarify.
- Pg.19-States that 38RD789 was tested as part of the current project and is discussed later in the report. Does not appear to be tested as part of the current project. Please clarify.
- Pg.92-TYPO: “these maps were maps [made]”.
- Pg.120-TYPO: “221 artifacts made on [of]”.
- Pg.122-TYPO: “may warrant edibility [eligibility]”.

**From:** [Olds, Melanie](#)  
**To:** [Helton, Jesse S CIV USARMY CESAC \(US\)](#)  
**Subject:** [EXTERNAL] Draft Semmes Lake EA & FONSI - FWS Log. No. 2017-CPA-0058  
**Date:** Friday, October 27, 2017 1:25:27 PM

---

Jesse,

The U.S Fish and Wildlife Service has reviewed the Draft Environmental Assessment for the Replacement of Semmes Lake Dam, dated August 2017 as well as the draft Finding of No Significant Impact and No Practicable Alternative. Upon review of these documents the Service offer no comments or objections at this time.

The Service appreciates the opportunity to review and provide comments for this EA and stands ready to provide further assistance if required.

Thanks,

Melanie

---

Melanie Olds | Fish & Wildlife Biologist/FERC Coordinator

U.S. Fish and Wildlife Service

South Carolina Ecological Services Field Office  
176 Croghan Spur Road, Suite 200  
Charleston, SC 29407  
843-727-4707 ext. 205  
843-727-4218 fax

NOTE: This email correspondence and any attachments to and from this sender is subject to the Freedom of Information Act (FOIA) and may be disclosed to third parties.

## Appendix G

Comments from Public Meeting  
Held December 14, 2016



Date	Comment
12/14/2016	These lakes are purely recreational. They serve no benefit in mitigating storm damage to the wetlands. Rebuilding the damn is a mistake. They should be removed and the creeks would run its normal course. No lake means no flooding downstream.
12/14/2016	I would recommend returning all these area to natural wetlands as they would better serve to reduce flooding.
12/15/2016	. my comments is .i have tried to get fort jackson to fix this problem,they had me to write a letter to the military corp of engr. and there responce was its not a military problem and they have nothing to do with it.i would like to talk to someone about my personal project about this matter to give them a full picture of whats going on.please reply.
12/16/2016	Hope dams are rebuilt to help with flood control.
12/17/2016	I have lived in Forest Acres since July 2002. I understand the terrain and Hydrology Science behind this issue. I am not a Structural Engineer, so I defer Engineering suggestions to the Professionals. I learned Maintenance in my twenty years serving in the Military. I believe in routine Maintenance and Inspection as the Military taught and demanded of me and the Equipment I was responsible to Maintain. MY suggestion to you Is. build a safe dam. routine Inspection and Maintenance, and Action if needed must be part of this solution. If you decide to rebuild a retention structure, and hold water behind it, I expect that the Events of October 2015 and an unplanned release of a large body of water and the destruction of Civilian Property, not be repeated.
12/18/2016	FT. JACKSON AND THE U.S. ARMY HAVE PROVEN TO BE INCAPABLE OF AND IN FACT NEGLIGENT MAINTAINING PREVIOUS DAMS SO THAT THE SAFETY AND SECURITY OF NEIGBORS AND CITIZENS IS GUARANTEED. WHAT ASSURANCE DO WE HAVE THAT THEY WON'T ALLOW THE DAMS TO FALL INTO DISREPAIR AND DISREGARD INSPECTION REPORTS? SADLY THEY ARE NOT TO BE TRUSTED. THEY CHOSE NOT TO SPEND FUNDS TO MAKE THE NECESSARY REPAIRS TO THE DAMES WHEN THEY WERE MADE AWARE OF THE POTENTIAL DAM FAILURES. ANY FUNDS THAT WOULD BE SPENT TO REPAIR THE DAMS ON FT, JACKSON SHOULD BE GIVEN TO THE HOMEOWNERS WHOSE HOMES WERE DAMAGED AND CARS AND POSSESSIONS LOST WHEN THE LAKES EMPTIED INTO THEIR HOMES.
12/19/2016	As a resident of Kings Grant, and after having my house flooded, I am against the rebuild. My resason for this is how can you guarantee maintenance in the future. Based on what I know, Wildcat Creek is a Raparian creek and you have responsibility to maintain not only the dam, but your portion of the creek as well. I have lived in muy house for 16 years, with the exception of the repairs, and not once have I seen anyone lift a hand. My vote is to let the former lake return to its natural state. I understand that graduation families love to see the lake, but it is nothing more than recreational. I have no confidence in the army to standby the construction and maintenance of another dam.