

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/.

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/.

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Date



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Figure 1 - Semmes Location Map.

Table 1. 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, 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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<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>