



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS, MOBILE DISTRICT  
P.O. BOX 2288  
MOBILE, AL 36628-0001

CESAM-PD-EI

**DRAFT**  
**SECTION 404(B) (1) EVALUATION FOR**  
**LONG TERM RIPRAP REPAIR**  
**WALTER F. GEORGE DAM ON THE CHATTAHOOCHEE RIVER**  
**HENRY COUNTY, ALABAMA AND CLAY COUNTY, GEORGIA**

I. PROJECT DESCRIPTION:

a. Location. The eastern embankment of Walter F. George (WFG) Lock and Dam in Henry County, Alabama and Clay County, Georgia which impounds the Chattahoochee River at River Mile 75.0 (**Figure 1**).

b. General Description. The work to be performed consists of repairing the upstream armored face on two non-overflow earthen dikes (embankments) at Walter F. George Dam on the Chattahoochee River. The embankments are located on the west (Alabama side) and east (Georgia side). The approximate total length of the two embankments is 12,128 feet with approximately 6,124 feet (ft) located on the Alabama side and 6,004 ft on the Georgia side. The crest of the embankments is at elevation 215.0 with a 30-foot width to provide a 20 foot access roadway. The upstream slope of the embankments was originally protected by 24 inches of dumped armor stone on a 9-inch bedding stone from the crest to a berm at elevation 180 ft. The armored portion of the upstream slope is 1 vertical to 2.5 horizontal. Below the berm, the slope is 1 vertical to 3 horizontal. The new armoring system will be placed on both the Alabama and Georgia embankments (**Figure 2**). Construction shall be completed in three phases and staging areas are provided on both the Alabama and Georgia side. During the removal and placing of the new armor system, the contractor shall not penetrate the soil layer of the embankment.

Phase I will include the removal of the existing armor stone and bedding stone, and installation of the new armoring system from elevation 186 ft to elevation 190 ft. To facilitate removal of the existing armor system without damaging the impervious embankment, the reservoir pool will be lowered to elevation 186 ft for 6 weeks (September 15, 2020 to November 1, 2020). The Contractor shall remove the existing armor system and install the new armoring system from elevation 186 ft to elevation 190 ft in this 6 week period. The contractor shall not expose more than 6,500 square feet (sq ft) of impervious embankment at a time per crew, or as approved by the Contracting Officer's Representative (COR).

Phase II will include the removal of the existing armor stone and bedding stone, and installation of the new armoring system from elevation 190 ft to 205 ft. Normal summer/winter pool levels will be operated during this phase of construction. The contractor shall not expose more than 20,200 sq ft of impervious embankment at a time per crew, or as approved by the COR. All existing armor stone from elevation 195 ft to

205 ft shall be disposed of in the “lake disposal” area (referenced in **Figure 2**) atop existing accumulated riprap in order to create a platform from which to operate.

Phase III will include the milling or removal and/or reconstruction of pavements for the haul roads utilized and impacted throughout phase I and phase II Construction, as well as the final stabilization of the Georgia and Alabama laydown areas.

c. Authority and Purpose. The USACE first considered navigation locks and dams for the Apalachicola River Basin in the early 1930s in a report on the Apalachicola River System in accordance with House Document No. 308, 69th Congress, First Session. The report, which had a general plan for the overall development of the basin was submitted to Congress in 1934 but was immediately recalled to consider additional information. The Rivers and Harbors Act of 1945 approved the general plan presented in House Document No. 342, 76th Congress, First Session, and authorized the initiation and partial accomplishment of that plan by constructing two locks and dams, one of which was the Junction Project. No work was accomplished on the project authorized by the Rivers and Harbors Act of 1945. The Rivers and Harbors Act of 1946, House Document No. 300, 80th Congress (Public Law 79-525) approved modification of the general plan including the substitution for the authorized lock and dam at Junction of a higher lock and dam with normal pool elevation 77.0 ft consistent with the National Geodetic Vertical Datum of 1929. The modification also included an increase in the size of the locks at all navigation dams from 45 ft by 450 ft to 82 ft by 450 ft. On 19 May 19, 1953, the House of Representatives Committee on Public Works approved a plan consisting of a low navigation dam near Columbia, Alabama, and a high navigation and power dam near Fort Gaines, Georgia, in lieu of the Fort Benning Lock and Dam and the upper Columbia projects. In March 1958, the 85th Congress, Second Session, enacted Public Law 85-363 officially designating Fort Gaines Lock and Dam as the Walter F. George Lock and Dam in honor of the Senator Walter F. George of Georgia.

The WFG project incurred significant damage during the October 10, 2018 Hurricane Michael which produced excessive wave action that damaged both sides of the WFG dam. The proposed repair will be conducted as Operations and Maintenance of the WFG embankments.

d. General Description of Fill Material.

(1) General Characteristic of Material. Riprap will consist of bedding stone, R 50, and armor stone. Disposal material consists of bedding stone and armor stone.

Quantity of Material. See Table 1 for the quantities to be used for fill material to repair the Alabama and Georgia embankments. The maximum quantities for disposal of existing riprap from the Alabama embankment into the reservoir will exceed no more than 20,337.78 cubic yards (cy). The maximum quantities for disposal of existing riprap from the Georgia embankment into the reservoir will exceed no more than 14,236.44 cy.

Figure 1: Site Location

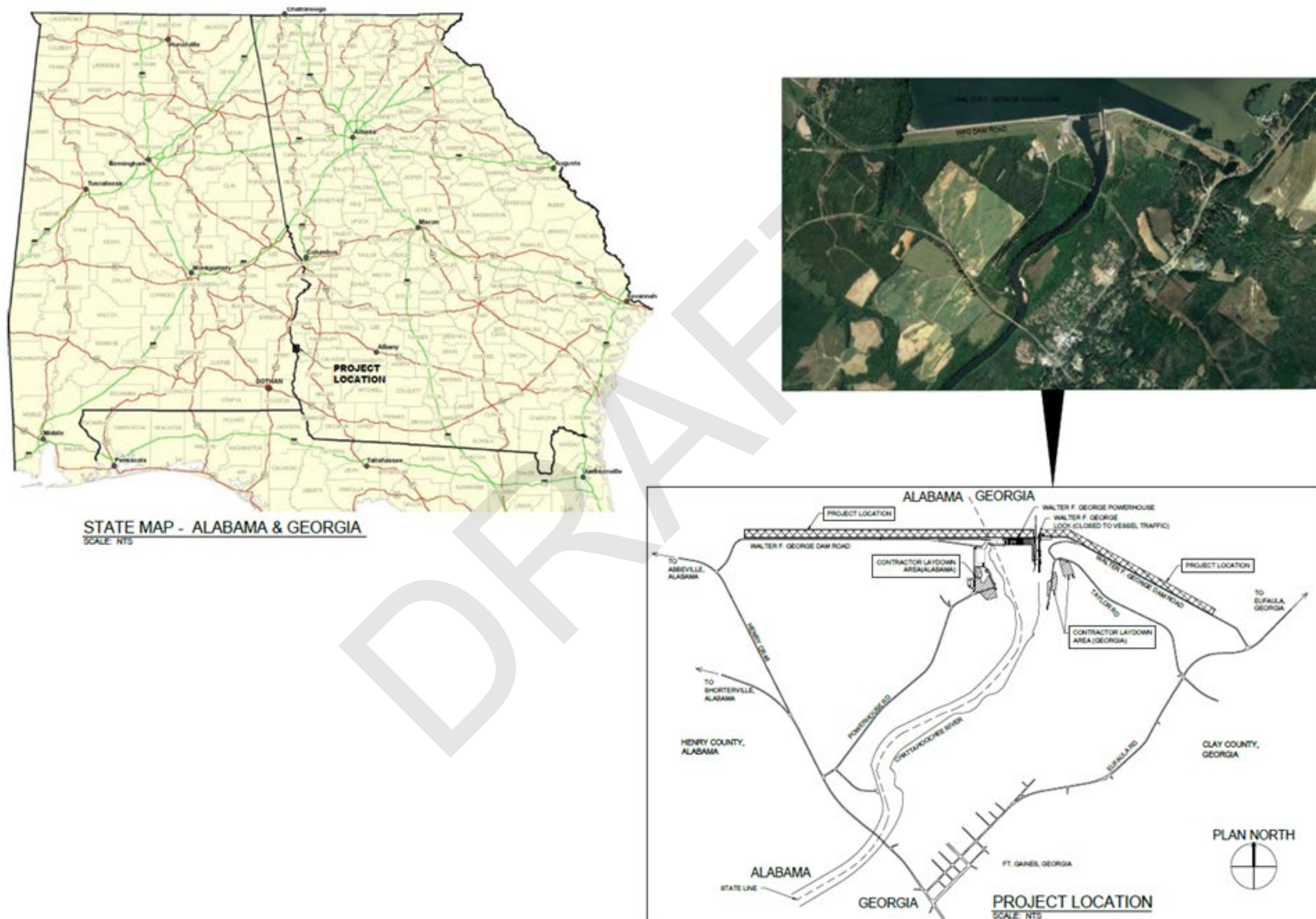
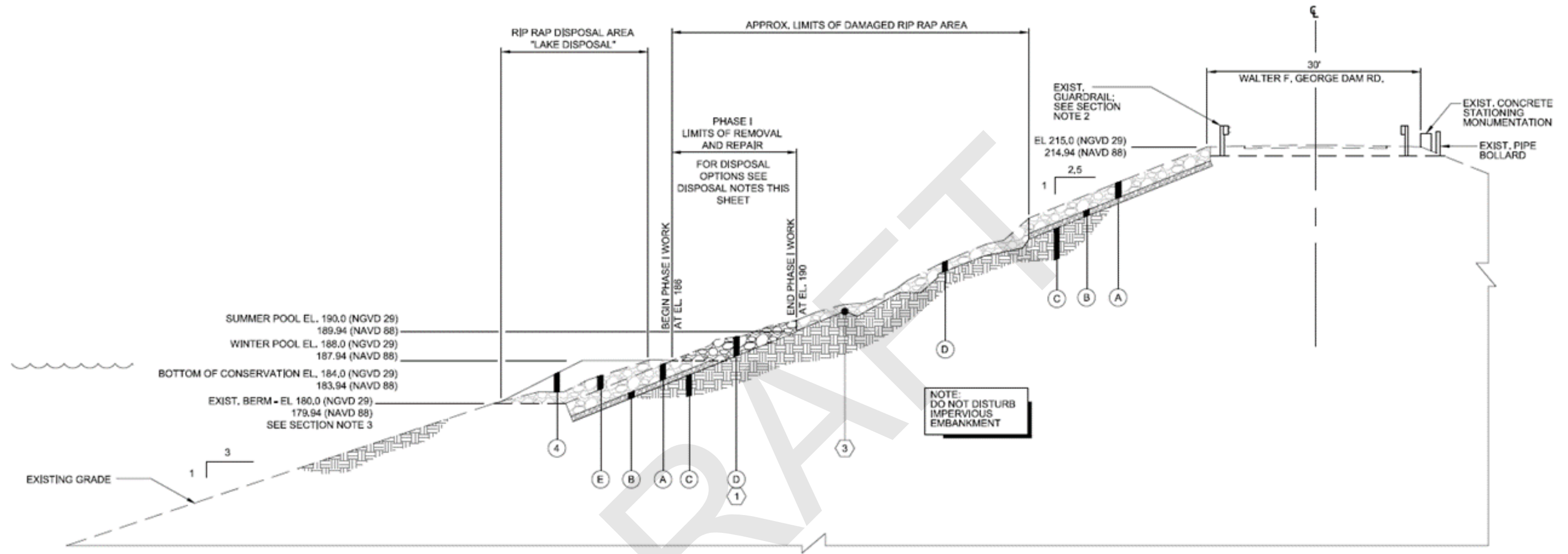


Figure 2: Example Cross-Section of Proposed Work



**D1 SECTION - TYPICAL PHASE 1 DEMOLITION FOR RIPRAP REPAIR**  
 CD502 NOT TO SCALE  
 WALTER F. GEORGE DAM ROAD (AL. SIDE) - STA 5+00 THRU STA 60+60±  
 WALTER F. GEORGE DAM ROAD (GA. SIDE) - STA 76+75± THRU STA 106+00±

PROJECT MATERIALS DESIGNATION LEGEND		
DESIGNATION	THICKNESS	DESCRIPTION
(A)	24 INCH	EXISTING RIP RAP (THICKNESS/SITE CONDITIONS NOT VERIFIED)
(B)	9 INCH	EXISTING BEDDING LAYER (DESIGN THICKNESS SHOWN, EXIST CONDITIONS VARY)
(C)	—	EXISTING IMPERVIOUS EMBANKMENT (DO NOT DISTURB)
(D)	VARIABLES	EXISTING DAMAGED RIP RAP AREA (THICKNESS VARIABLES)
(E)	VARIABLES	EXISTING ACCUMULATED RIP RAP FROM PAST SLUFFING & STORM DAMAGE (THICKNESS VARIABLES)
(4)	VARIABLES	OPTIONAL LAKE DISPOSAL OF RIP RAP: PHASE 1, SEE OPTIONAL RIP RAP DISPOSAL NOTES

- SECTION KEYNOTES**
- ① EXISTING RIP RAP FROM EL. 186 TO EL. 190 TO BE REMOVED; SEE OPTIONAL RIP RAP DISPOSAL NOTES.
  - ③ EXISTING TEMPORARY RIP RAP REPAIR W/GETEXTILE FABRIC. FABRIC TO BE REMOVED AS APPLICABLE IN APPROX. 31 LOCATIONS, APPROX. 6,600 SF AREA.

*Table 1: Quantities for Fill Material*

Fill Material	Alabama Vol. of Fill Material (cy)	Georgia Vol. of Fill Material (cy)
Bedding Stone	6,936.58	4,120.05
R 50	10,671.66	6,338.53
Armor Stone	32,014.98	19,015.60
<i>Total</i>	<i>288,134.84</i>	<i>171,140.43</i>

(2) Source of Material. The riprap will be selected from a commercial quarry in the region.

e. Description of the Proposed Discharge Site.

(1) Location. The existing riprap will be placed within the reservoir on top of accumulated riprap.

(2) Size. The proposed riprap mound will be approximately 1.0 miles long on the Alabama side and 0.7 miles long on the Georgia side.

(3) Type of Site. The proposed riprap placement will be along the edge of the WFG reservoir along lake elevations.

(4) Type of Habitat. The WFG embankments consist of an earthen embankment encapsulated with an impervious layer and capped with riprap. No vegetation is permitted to grow on the embankments as the roots would degrade the structural integrity of the dam.

(5) Timing and Duration of Discharge. Phase I of the project is project to begin no sooner than September 2020.

f. Description of Disposal Method. The existing riprap will be grabbed using heavy machinery. The machinery will operate on top of the embankments along Walter F. George Road and the proposed constructed riprap berm.

II. Factual Determinations:

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. The constructed riprap placement will occur from elevation 186 ft to 205 ft at a slope of 2:1. The disposal of existing riprap will vary and may occur up to elevation 190 ft.

(2) Sediment Type. No sediments will be used to repair the embankments. No disturbance to the impervious (clay) layer of the embankments will occur.

(3) Dredged/Fill Material Movement. No dredging will occur.

(4) Physical Effects on the Benthos. Some benthos may be indirectly impacted in the surrounding the lake bed as the disposal and construction may increase local turbidity.

(5) Actions Taken to Minimize Impacts (Subpart H). Construction Best Management Practices and an Erosion, Sediment, and Pollution Control Plan will be implemented to contain potential increased turbidity resulting from the disposal and construction.

b. Water Circulation, Fluctuation, and Salinity Determinations.

(1) Salinity. Not applicable.

(2) Water Chemistry. Water chemistry would not be significantly impacted.

(3) Clarity. Water clarity would be temporarily decreased in the vicinity of the construction activities. These impacts would subside once construction activities are completed.

(4) Color. Color would not be significantly impacted.

(5) Taste. Taste would not be significantly impacted.

(6) Dissolved Gas Levels. Dissolved gas levels should not be significantly affected.

(7) Nutrients. Nutrient levels would not be significantly impacted.

(8) Eutrophication. Eutrophication would not be significantly impacted.

c. Water Circulation, Fluctuation, and Salinity Gradient Determinations:

(1) Current Patterns and Circulation.

(a) Current Patterns and Flow. The disposal and construction of riprap along the embankments would not alter current and flow patterns.

(b) Velocity. No significant impacts to water velocity are anticipated from placement of the riprap.

(2) Stratification. There would be no impacts on water stratification.

(3) Hydrologic Regime. There would be no impacts on the hydrologic regime.

(4) Normal Water Level Fluctuations. There would be no impacts on water level fluctuations.

(5) Salinity Gradients. Not applicable.

d. Suspended Particulate/Turbidity Determinants.

(1) Expected Changes in Suspended Particulate and Turbidity Levels in Vicinity of Disposal Sites. A temporary increase in suspended particulates and turbidity levels would occur in the immediate vicinity of the construction zone. These impacts will subside when the activities are completed.

(2) Effects on Chemical and Physical Properties of the Water Column.

(a) Light Penetration. Increases in suspended solids concentrations will be nominal and temporary. No significant impacts to light penetration are anticipated.

(b) Dissolved Oxygen. Dissolved oxygen will not be significantly impacted.

(c) Toxic Metals and Organics. No significant increases in toxic metals and organics are expected to occur due to the construction activities.

(d) Pathogens. Pathogen levels will not be affected as a result of this project.

(e) Aesthetics. The area would be temporarily impacted during construction and placement of riprap. Aesthetics would return to pre-project conditions upon project completion.

(3) Effects on biota.

(a) Primary Production, Photosynthesis. Temporary, localized impacts to primary production or photosynthesis levels may result from turbidity plumes generated by construction activities. These effects would be localized and would subside upon project completion.

(b) Suspension/Filter Feeders. Suspension/filter feeders would not be significantly affected by this action. Increased turbidity will be contained using Best Management Practices and an Erosion and Sediment Control Plan.

(c) Sight Feeders. Sight feeders would be temporarily affected by increased turbidity. These effects would subside upon completion of the construction activities.

(4) Actions taken to Minimize Impacts (Subpart H). Construction Best Management Practices and an Erosion, Sediment, and Pollution Control Plan would be

implemented in order to minimize impacts.

e. Contaminant Determinations. No contaminants harmful to the environment are known to exist in the proposed construction zone where the riprap would be placed during construction and operation and maintenance activities. The riprap rock used for the repair is not contaminated.

f. Aquatic Ecosystem and Organism Determinations.

(1) Effects on plankton. There may be temporary effects on plankton in the immediate vicinity of the construction zone due to increased turbidity; however these effects would be localized and short-term.

(2) Effects on Benthos. Benthic organisms within the construction zone would be crushed underneath riprap disposal. Adjacent benthic communities would be indirectly impacted from increased turbidity. No significant impacts would result from this project.

(3) Effects on Nekton. Nektonic species are expected to be temporarily affected during disposal and construction and may evacuate the immediate vicinity; however they are expected to return once turbidity levels return to pre-project conditions. No significant impacts are expected.

(4) Effects on Aquatic Food Web. This project would pose no significant impacts to the aquatic food web.

(5) Effects on Special Aquatic Sites.

(a) Sanctuaries and Refuges. No sanctuaries or refuges occur within the proposed project area; therefore there would be no impacts resulting from this project.

(b) Wetlands. No jurisdictional wetlands are located within the proposed project area; therefore no wetland vegetation would be affected by this project.

(c) Mud Flats. No mud flats exist within the project vicinity; therefore there would be no impacts as a result of the project.

(d) Vegetated Shallows. No vegetated shallows would be affected by this

(e) Coral Reefs. Not applicable.

(f) Riffle and Pool Complexes. No riffle or pool complexes would be affected by this project.

(6) Threatened and Endangered Species. No federally threatened or endangered species occur within the proposed construction zone.



(7) Other Wildlife. No impacts to wildlife are anticipated.

(8) Actions to Minimize Impacts. Impacts to the species will be minimized by avoidance of the animal's habitat.

g. Proposed Fill Site Determination.

(1) Mixing Zone Determination. This activity does not require a mixing zone determination. The nature of the construction activities and constituent concentrations preclude the need for a mixing zone determination.

(2) Determination of Compliance with Applicable Water Quality Standards. The proposed action will comply with applicable water quality standards as established by the Alabama Department of Environmental Management and Georgia Department of Natural Resources. Water Quality Certification will be obtained prior to disposal and construction.

(3) Potential Effects on Human Use Characteristics.

(a) Municipal and Private Water Supply. This project would not significantly impact municipal or private water supplies.

(b) Recreation and Commercial Fisheries. Fishing activities at the sites would be temporarily interrupted during the construction activities. No long-term impacts are anticipated to result from this project.

(c) Water Related Recreation. The proposed action would temporarily disrupt water-related recreation at the construction site; however, no negative, long-term effects are anticipated from the action. Each dike will be marked at the end with a buoy.

(d) Aesthetics. Aesthetics would be temporarily impacted during construction activities. Aesthetics would return to normal when the project is complete.

(e) Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. No parks, national historic monuments, national seashores, wilderness areas, research sites and similar preserves in the vicinity will be adversely impacted as a result of this project.

(f) Other Effects. Not applicable.

(4) Determination of Cumulative Effects on the Aquatic Ecosystem. The impacts of the proposed action would be minor and temporary and, therefore, would not contribute to adverse cumulative impacts.

(5) Determination of Secondary Effects on the Aquatic Ecosystem.

Temporary and localized impacts may occur in the areas of the construction activities.

III. Findings of Compliance or Noncompliance with the Restrictions on Discharge.

- a. No significant adaptations of the guidelines were made relative to this evaluation.
- b. The proposed discharge represents the least environmentally damaging practicable alternative that would accomplish the project objectives.
- c. Based on the nature of the fill material, the placement of riprap would be in compliance with applicable state water quality standards. Furthermore, water quality certification will be obtained from the State of Alabama.
- d. The fill material would not violate the Toxic Effluent Standard of Section 307 of the Clean Water Act.
- e. The placement of fill material would not jeopardize the continued existence of any Federally listed endangered or threatened species or their critical habitat.
- f. The proposed discharge of fill material would not contribute to significant degradation of waters of the United States. Nor would it result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreation and commercial fishing; life stages of organisms dependent upon the aquatic ecosystem; ecosystem diversity, productivity and stability; or recreational, aesthetic or economic values.
- g. Appropriate and practicable steps to minimize potential adverse impacts of the discharge on the aquatic ecosystem include:
  - (1) Locations, times and duration of the project have been selected to minimize potential adverse impacts to the aquatic ecosystem.
  - (2) An interdisciplinary team has evaluated sites, and project designs have been altered per their recommendations.

DATE: \_\_\_\_\_

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Sebastien P. Joly  
Colonel, U.S. Army  
District Commander