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U.S. ARMY CORPS OF ENGINEERS, VICKSBURG DISTRICT
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MEMORANDUM FOR Assistant Secretary of the Army for Civil Works, Department of the Army, Washington, D.C. 20310

SUBJECT: Pearl River Basin, Mississippi, Federal Flood Risk Management Project – Commander's Report and Environmental Impact Statement

1. PURPOSE. To submit the U.S. Army Corps of Engineers (USACE) Commander's Report for the Pearl River Basin, Mississippi project to the Assistant Secretary of the Army of Civil Works (ASA-CW) to support decisions authorized under Section 3104 of the Water Resources Development Act (WRDA) of 2007 (Public Law 110-114) for the *Pearl River Basin, Mississippi Federal Flood Risk Management Project*. The report is accompanied by the Draft Environmental Impact Statement (DEIS) by USACE, Mississippi Valley Division, Vicksburg District. This study is an initial response to the authorization in Section 3104 WRDA of 2007.

> Section 3104 WRDA of 2007 provides that *the project for flood damage reduction, Pearl River Basin, including Shoccoe, Mississippi, authorized by section 401(e)(3) of the Water Resources Development Act of 1986 (100 Stat. 4132), is modified to authorize the Secretary, subject to subsection (c), to construct the project generally in accordance with the plan described in the ''Pearl River Watershed, Mississippi, Feasibility Study Main Report, Preliminary Draft'', dated February 2007, at a total cost of $205,800,000, with an estimated Federal cost of $133,770,000 and an estimated non-Federal cost of $72,030,000.*
> *(b) Comparison of Alternatives- Before initiating construction of the project, the Secretary shall compare the level of flood damage reduction provided by the plan that maximizes national economic development benefits of the project and the locally preferred plan, referred to as the Lefleur Lakes plan, to that portion of Jackson, Mississippi, and vicinity, located below the Ross Barnett Reservoir Dam.*
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> *(c) Implementation of Plan-*
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> *(1) IN GENERAL- If the Secretary determines under subsection (b) that the locally preferred plan provides a level of flood damage reduction that is equal to or greater than the level of flood damage reduction provided by the national economic development plan and that the locally preferred plan is environmentally acceptable and technically feasible, the Secretary may construct the project identified as the national economic development plan, or the locally preferred plan, or some combination thereof.*
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> *(2) CONSTRUCTION BY NON-FEDERAL INTERESTS- The Non-Federal interest may carry out the project under section 211 of the Water Resources Development Act of 1996 (33 U.S.C. 701b-13).*

(d) Project Financing- In evaluating and implementing the project under this section, the Secretary shall allow the non-Federal interests to participate in the financing of the project in accordance with section 903(c) of the Water Resources Development Act of 1986 (100 Stat. 4184) if the detailed project report evaluation indicates that applying such section is necessary to implement the project.

(e) Non-Federal Cost Share- If the locally preferred plan is selected for construction of the project, the Federal share of the cost of the project shall be limited to the share as provided by law for the elements of the national economic development plan.

Congressional resolutions adopted 9 May 1979 authorized studies of the Pearl River Watershed, Mississippi. The authorizations read as follows:

Resolved by the Committee on Public Works and Transportation of the House of Representatives, United States, That the Board of Engineers for Rivers and Harbors is hereby requested to review the reports of the Chief of Engineers on Pearl River Basin, Mississippi and Louisiana, published as House Document Number 282, Ninety-Second Congress, Second Session, and other pertinent reports, with a particular view toward determining whether any further improvements for flood damage prevention and related purposes are advisable at this time. The alternatives are to be reviewed with local interests to insure a viable, locally supported project.

Resolved by the Committee on Public Works and Transportation of the House of Representatives, United States, That the Board of Engineers for Rivers and Harbors is hereby requested to review the report of the Chief of Engineers on the Pearl River and Tributaries, Mississippi, contained in House Document 441, 86th Congress, and other reports with a view to determining whether measures for prevention of flood damages and related purposes are advisable at this time, in Rankin County, Mississippi.

Resolved by the Committee on Environment and Public Works of the United States Senate, That the Board of Engineers for Rivers and Harbors, created under Section 3 of the River and Harbor Act, approved June 13, 1902, and is hereby requested to review the reports of the Chief of Engineers on Pearl River Basin, Mississippi and Louisiana submitted in House Document Numbered 92-282, 92d Congress, 2nd Session and other pertinent reports with a view to determining whether any further improvements for flood damage prevention and related purposes are warranted at this time.

2. USACE conducted a review and analysis on the final array of alternatives in the Non-Federal Interest (NFI), Rankin-Hinds Pearl River Flood and Drainage Control District (RHDD) Section 211 draft Final Integrated Feasibility Report and Environmental Impact Statement titled, "Pearl River Basin, Mississippi Federal Flood Risk Management Project, Hinds & Rankin Counties Integrated Final Feasibility Study & Environmental Impact Statement (NFI Section 211 Report)" dated June 22, 2022. The NFI final array of alternatives included a "nonstructural plan" (Alternative A), a "levee plan" (Alternative B) and a "channel improvement/weir/levee plan" (Alternative C). In addition to these alternatives, USACE, in collaboration with the NFI, developed new flood risk management alternatives based on analytical findings, public comment, and agency coordination. These additional alternatives include a modified

nonstructural plan proposing elevating/floodproofing/acquisition of structures (Alternative A1) and Combination Thereof (CTO) Alternatives which may combine features of Alternative A1 and flood damage risk reduction structural features with consideration of including a new weir (Alternative D) or no weir (Alternative E).

3. *NFI Final Array of Alternatives.* The USACE assessment of the NFI Final Array of Alternatives included the following:

- *Alternative A* – Alternative A is a nonstructural plan including the acquisition (buyout) of structures with subsequent relocation or demolition of each structure. This alternative removes structures out of the 0.2% annual exceedance probability (AEP) floodplain and acquires the land where they reside. The total number of structures is more than 3,000, including residential, commercial, government and public buildings, schools, and hospitals. The alternative does not include structures behind existing levees, although risk in these areas may still exist. The NFI determined, and USACE concurs, that this alternative is impractical due to the impacts to the local population, detriment to the tax base, and total costs associated with implementation. Due to this, no further evaluation of Alternative A, the nonstructural plan, was completed.

- *Alternative B* – Alternative B is a levee plan alternative which was part of the final array in the NFI Section 211 Report and was not identified as the national economic development plan (NED) nor the locally preferred plan (LPP). USACE concurs that the levee plan is economically inefficient. Due to this, no further evaluation of Alternative B, the levee plan, was completed.

- *Alternative C* – Per the NFI Section 211 Report, Alternative C, is the LPP, and the NFI recommended plan. Alternative C consists of clearing and expanding a cross-sectional area of the river channel corridor to increase hydraulic conveyance, demolition of the existing weir near the J. H. Fewell Water Treatment Plant (WTP), construction of a new weir with a low-flow gate structure further downstream to create a year-round recreational lake and provide an alternative raw water supply intake location should one be needed in the future, improvements to Federal levees (excavated material plan), and upgrading an existing non-Federal levee into a Federalized ring levee around the Savanna Street Wastewater Treatment Plant (WWTP). Alternative C includes features to avoid and/or minimize impacts to Federally listed threatened, endangered, and protected species. This alternative would have adverse impacts to the environment requiring compensatory habitat mitigation along with associated monitoring and adaptive management plans. Alternative C, as presented in the Section 211 Report, is not justified under the traditional USACE benefit-cost analysis.

USACE also qualitatively evaluated the implications of removing the weir feature of Alternative C with preliminary findings of avoidance of HTRW sites; therefore, reducing construction costs and mitigation requirements for implementation of the alternative. For instance, removal of the weir reduces the riverine habitat impacts; therefore, reducing mitigation and the need for water monitoring. Even with reduced total project costs, this revised Alternative C remains unjustified by the traditional USACE benefit-cost analyses.

4. *USACE Refined Nonstructural Alternative A1.* Alternative A1 includes elevation of residential structures to the future 1% Annual Exceedance Probability (AEP) flood stage extending up to 13 feet (NAVD88) above ground level, and floodproofing of nonresidential structures up to 3 feet above the ground level within the cumulative percent AEP floodplain. Based on incremental cost analysis, the maximum number of structures impacted for the 4% flood event is 143, which includes 81 residential and 62 nonresidential. The option of nonstructural property acquisition (buyout) on a voluntary basis is also included in the implementation plan. Participation in the non-structural plan would be on a voluntary basis by the individual property owners. This alternative would not require habitat mitigation nor would it have any impacts on federally listed species.

Alternative A1 was assessed as a standalone nonstructural plan and as a combination nonstructural plan with construction of the Canton Club Levee. The Canton Club Levee is a levee segment of approximately 1.5 miles proposed on the west bank of the Pearl River in northeast Jackson. This levee would provide additional flood risk reduction for approximately 100 acres of high density developed neighborhoods and reduce flood risk for over 250 homes.

5. *Combination Thereof Alternatives.* In accordance with Section 3104 of WRDA 2007, the Secretary may construct the NED plan, LPP, or a CTO, provided that the project to be implemented provides the same or better flood risk reduction as the NED plan. The Secretary may select any or all of the features associated with the presented alternatives to create a final project array for a CTO, so long as this final project array provides the same or better flood risk reduction as the NED plan. Various combinations of features were evaluated, resulting in Alternatives D and E. These alternatives are identical but for the inclusion of the construction of a new weir in Alternative D which is not included in Alternative E. These potential combinations of features consists of viable features from Alternative A1, reduced excavation of the main channel, Federal levee improvements (excavated material plan), construction of a new weir with a low-flow gate structure and fish ladder further downstream for future potential water supply while simultaneously creating an area of surface water for recreational opportunities, utilization of the existing weir, raising an existing non-Federal ring levee (the Savanna Street WWTP Levee), additional levee construction, bridge countermeasures (a major evaluation will be a Pre-construction Engineering and Design (PED) effort), features to avoid and/or minimize impacts to Federally listed threatened, endangered, and protected species, and compensatory habitat mitigation along with associated monitoring and adaptive management plans. A mitigation plan will be developed in coordination with resource agencies and the NFI, prior to construction and assessed in a subsequent NEPA document.

The economic summary contained within Table 1 indicates that the Alternative E (CTO without new weir), provides the highest net benefits when assuming high project costs. The anticipated costs of the alternatives are provided as an estimated range of low to high costs due to limited design maturity and the inability to sufficiently refine alternative costs. Should the high costs be reduced by as little as 15% for both CTO alternatives, a small reduction considering the wide range of cost and conservative nature of these anticipated costs, the CTO with a new weir,

Alternative D, would provide the highest net benefits of the two CTO alternatives and could be considered the likely NED plan as a result.

6. *Implementation of Considered Alternatives.* Section 3104 of WRDA 2007 authorizes a flood damage reduction project at a total cost of $205,800,000 based on 2007 dollars. The ASA-CW may choose a flood damage reduction alternative to implement under this authority. Recalculated for fiscal year (FY) 2024 using the Civil Works Construction Cost Index System (CWCCIS), which includes in it factors for FY2023 inflation, the total updated authorized project cost is $370,495,000. The maximum project cost limit imposed by Section 902 of WRDA 1986, as amended (Section 902 Cost Limit) recalculated for FY 2024 is $440,103,000.

a. *Implementation of Nonstructural Plan Alternative A1.* The Nonstructural Plan Alternative A1 may be executed immediately under the current Section 3104 authority once the EIS is finalized. Based on current cost estimates, the Nonstructural Plan could be implemented in its entirety and would require minimal additional analysis during the PED phase.

Significant risks are associated with the implementation of Alternative A1 including a potentially reduced participation rate from the assumed rate, the inability of residents to address ineligible project costs, inaccessible or unusable structures and emergency services due to roadways impacted by flood events, and impacts to water and sewage systems resulting from flood events preventing structure owners and residents from returning or utilizing impacted structures during and post flood event. Net benefits for Alternative A1, which included an assumed rate of 100% participation from residents within the project footprint, were the highest among the assessed alternatives. However, these significant residual risks and the inability of this alternative to address the stated problems and objectives of the Project may prohibit its selection.

b. *Implementation of NFI Alternative C: Channel Clearing/Weir/Levee Plan.* Preliminary analysis of Alternative C identifies downstream impacts requiring analysis prior to implementation. Alternative C implementation costs exceed the authorized costs, as well as funds allocated under the Bipartisan Infrastructure Law. As a result, additional authorization and appropriations are required for full implementation. Separable elements of the Alternative C that can be executed within existing authorization can be considered.

To reduce project cost and requirements for mitigation, USACE analyzed Alternative C with removal of the non-flood risk reduction features such as the weir, as this likely would substantially reduce the riverine impacts, thereby eliminating the need for extensive riverine mitigation and post construction long-term water velocity and water quality monitoring. The revised Alternative C plan (i.e., the plan with non-flood risk reduction features removed) would also remain unjustified by traditional benefit-cost analysis.

c. *Implementation of the CTO Alternatives D and E.* Implementation of other flood risk reduction measures or a combination of measures may be implemented under Section 3104, subject to the maximum project cost limit imposed by Section 902 of WRDA 1986, as amended. To implement multiple flood risk management measures and a more comprehensive solution, additional authority is required—either an increase in the total authorized project cost under

Section 3104 or a programmatic authority to implement small scale flood risk management measures in the Pearl River Basin similar to CAP Section 205 projects. Additional analysis and design, feasibility level decision documents, and NEPA documentation will be required during the PED phase if such solutions are recommended.

7. *Comparison of Alternatives: Level of Flood Risk Reduction*.

a. *Damage Reduction*. Alternative A1 would accrue annual flood damage reductions of $4,010,090 at a 100% participation rate, approximately 15 percent of the without-project damages. CTO Alternatives D and E would further reduce the residual damages that would remain with the Alternative A1 in place. CTO Alternative D accrues annual flood damage reductions of $27.7 million, reducing the future without-project damages by approximately 50 percent. CTO Alternative E accrues annual flood damage reductions of $22.4 million, also reducing the future without-project damages by approximately 50 percent.

USACE also qualitatively evaluated the removal of the non-flood risk reduction features from Alternative C that would reduce the quantities and total project costs. Not only would removal of the weir reduce construction costs, but also mitigation for implementation of the project. Removal of the weir would likely substantially reduce the riverine impacts which would reduce mitigation costs and eliminate the need for post construction long-term water velocity and water quality monitoring. With the reduction of quantities and total project costs described in Section 3.4.4., a revised Alternative C to only include flood risk reduction project features would not be considered the NED Plan.

Table 1 below provides an economic analysis summary of proposed alternatives.

Table 1. Summary of Economic Assessment at FY24 Price Level and Discount Rate

	CTO, Alternative D		**CTO, Alternative E**		**A1-NS Only***	**A1 with Canton Levee***
	Low	**High**	**Low**	**High**		
Project First Cost	$487,328,569	$655,391,345	$399,498,775	$508,474,363	$50,072,903	$60,072,903
IDC	$18,613,297	$25,161,141	$15,305,461	$19,748,644	$170,090	$306,657
Total Investment Cost	$505,941,865	$680,552,487	$414,804,236	$528,223,006	$50,242,993	$60,379,561
Benefits	$27,718,600	$27,718,600	$22,409,565	$22,409,565	$4,010,090	$4,828,250
AA Investment Cost	$18,740,500	$25,208,300	$15,403,200	$19,738,400	$1,861,000	$2,236,500

	CTO, Alternative D		CTO, Alternative E		A1-NS Only*	A1 with Canton Levee*
	Low	High	Low	High		
AA O&M Cost	$729,936	$891,122	$196,976	$421,372	$0	$20,340
Total AA Cost	$19,470,436	$26,099,422	$15,600,176	$20,159,772	$1,861,000	$2,256,840
Net Benefits	$8,248,164	$1,619,178	$6,809,389	$2,249,793	$2,149,090	$2,571,410
BCR	1.4	1.1	1.4	1.1	2.2	2.1

*Economic assessment of alternative assumed a 100% participation rate.

b. *Induced Flooding*. Alternative A1 would not induce flooding. Alternative C would induce flooding to approximately 83 structures from the 1% AEP event within the study area and potentially more structures south of the study area. All 83 structures at risk of inducements are in areas of environmental justice (EJ) concern. CTO Alternatives D and E offer the opportunity to prioritize alleviating or reducing the induced flooding modeled as part of implementing Alternative C by offering those induced structure owners the opportunity to take part in the non-structural plan.

8. *Comparison of Alternatives: Downstream Impacts*. Downstream impacts refer to changes in river conditions (e.g., flood stage, sedimentation, water quality) that can be downstream of the project area that can be attributed to projects constructed within the project area. Alternative A1 would not have downstream impacts because it does not change hydrology or hydraulics of the Pearl River channel. Alternative C would have downstream impacts due to increased channel conveyance and other elements of these alternatives. The modeling performed by USACE for CTO Alternatives D and E showed a reduction in flooding, consistent with Alternative C (similar flows downstream of project though different project features). Modeling of CTO Alternatives D and E indicates that areas with low income and/or minority population are still experiencing flooding. These flooding areas are reduced in comparison to Alternative C.

a. *Flow and Stage Downstream Impacts with Alternatives C, D, and E.* USACE assessed downstream flow impacts during the 20% AEP and 1% AEP flow frequencies, to represent both a relatively frequent event and an infrequent, more extreme event. There were downstream flow and stage increases at both flow frequencies. (Table 2). Downstream impacts during a 20% AEP event resolve in the vicinity of the Copiah Creek confluence, approximately 32 river miles downstream of the project.

Table 2. Impacted Areas from Project Area to Confluence with Copiah Creek

Total Acres Included by Increment of Inducement to Confluence with Copiah Creek	**1 % AEP Acres**	**20% AEP Acres**
0 – 0.25 Feet	Up to 16,200	Up to 33,200
0.25 – 0.5 Feet	38,800	2,330

The table above shows estimated acres impacted due to construction of Alternative C or CTO for both the 5-and 100-year events. These are total area of raised water surface elevation, not areas of additional inundation. These total impact areas were classified as either expected inducements or unlikely inducements. Modeled areas with an additional 0.25 feet or more of inundation are considered to be a measurable inducement. (Approximately 38,800 acres at the 100-year Frequency, and 2,330 acres at the 5-year frequency) Impacted areas in the 0.25 feet or less range are considered not likely to have any measurable negative impacts. These areas will require further modeling in PED to confirm this initial assessment.

An additional assessment of the changes to the downstream flooding was conducted for the 1% AEP event. Any major impacts to the downstream watershed beyond the RM 200 (approximately 5 miles north of Monticello, MS) are highly unlikely. In accordance with ER-1105-2-100 and ER-1105-2-101, upon selection of the final project features and design comprehensive downstream analysis will be completed and available to the public.

b. *Sediment Analysis and Management Downstream with Alternatives C, D, and E*. Potential direct impacts to water supply and flood conveyance include deterioration of water quality and quantity. The existence of the proposed weir could impact sediment load within the newly formed reservoir due to reduced velocities and entrainment potential. A sedimentation study would be necessary to assess the viability of project features. The impacts to water quality and conveyance to the proposed project are inconclusive due to the lack of data, and modeling efforts within the project area. No sediment samples have been provided or analyzed from the Ross Barnett Reservoir or downstream project area either on the main Pearl River channel or tributaries for use in this study. To determine if impacts are acceptable, additional analysis is needed. Verification would be needed to demonstrate that adding a large weir slowing velocities would not induce sediment loads to alter the incoming chemistry in such a way to induce failure at the existing J.H. Fewell Plant or any other proposed structure along the newly ponded area. Additional analysis is needed to make a determination of Sediment Oxygen Demand (SOD) for Pearl River sediments that would lie under preferred project lake. Impoundment would increase the depth over the sediments potentially decreasing DO in water column immediately adjacent to sediments. Deeper waters when combined with SOD could possibly result in bottom water hypoxia and anoxia.

Verification also would be needed to verify that remaining sedimentation passing through the Ross Barnett Reservoir (sediment is reduced from upstream to downstream of the Ross Barnett Reservoir Dam) within a proposed ponded feature would not impact storage or conveyance of flood waters. Assessment of the tributaries for sediment load as well as the requirement of Hard Points in tributary channels to prevent incision and additional sediment into newly constructed lake would be needed.

c. *Water Quality Downstream with Alternatives C, D, and E.* The NFI provided two distinct modeling studies, which used available data to evaluate water quality impacts of construction of a new lake (Alternative C) on the Pearl River below Ross Barnett Reservoir. One model used an existing model developed for the Mississippi Department of Environmental Quality in 2018. A

major premise of the efforts is that the waters filling the new lake are essentially those of Ross Barnett, so no significant water quality issues are expected. The studies concluded that within and below the proposed lake, including downstream, water quality impacts in the Pearl River due to any flow alterations are muted and not substantial. A key aspect of these studies is that the waters of the proposed lake are essentially those released from Ross Barnett and that the waters receive no loadings which may degrade water quality conditions. The study concluded that the three existing point sources that contribute to the project area are either not significant enough or don't directly contribute to the proposed lake waterbody, so as to not degrade the new lake water quality. The impact of stormwater loads upon the receiving waters of the proposed lake will require additional analysis although existing stormwater flows into the proposed lake do not necessarily result in any changes to downstream water quality. Another factor for consideration is the ongoing corrective action of the City of Jackson sewer collection and transportation system. Sanitary sewer overflows and bypasses which may reach the river have been an ongoing concern. Current efforts to repair and reduce these discharges are continuing. Further review and analysis of the current and planned corrective actions and how they related to river water quality, should be conducted.

9. *Environmental Justice (EJ) Assessment.* Most of the study area consists of disadvantaged residents in communities of EJ concern who would significantly benefit from flood risk management. Continued risk of flooding to EJ communities in the study area could result in disproportionate economic losses including impacts to urban structures and property, damage to property, and/or reduction in land values. A structure in a flood prone area may or may not receive flooding at and above its first floor, but that flooding does, at a minimum, impact transportation networks in the study area causing economic impacts including flooding of vehicles and travel delays for critical services.

a. *Benefit Comparison*. Potential adverse disproportionate impacts are identified for Alternative C, D, and E that include flood inducements that occur predominately in areas of EJ concern. Alternative A1 is a NS plan that may require those eligible participants to undertake financial burdens such as relocation costs during elevation that those in disadvantaged communities may not be able to afford. Another consideration is that nearly 50% of the structures in this area are considered rental property. Mitigation of adverse disproportionate impacts is required. Potential impacts to homeowners in disadvantaged communities may occur from Alternative A1, if at the time of implementation, it is determined that low-income residents cannot afford the costs to participate in the elevation plan. Using a whole-of-government approach that would identify other public entities that can provide financial assistance may be required to bridge the financial gap so eligible residents in disadvantaged communities can participate in the elevation plan. Other options should be explored, possibly voluntary buyouts, and offered to those in disadvantaged communities who cannot afford to participate in the plan. Alternatives D and E do offer voluntary buyouts as part of the NS Plan. If a buyout program is successful in removing homes from a hazardous area, the property tax base of the local government may be reduced if buyout participants do not relocate locally and if no additional housing is developed in conjunction with the program. Alternatives D and E offer the opportunity to prioritize alleviating or reducing the induced flooding modeled as part of

implementing Alternative C by offering those induced structure owners the opportunity to take part in the NS plan.

b. *Participation in Nonstructural Alternatives*. To increase participation rates for Alternative A1, for homeowners who cannot afford the cost associated with the nonstructural plan (where socially vulnerable and or income criteria may be developed), the following items may be considered, but may require additional Congressional authority:

- Allowances, such as those referenced in the WRDA 2022, Section 8154, to provide temporary relocation assistance to voluntary homeowner participants in nonstructural projects.

- Future agreements developed with a NFS may include provisions seeking to reduce the expenses that can be required of landowners who want to make their properties eligible for participation in the nonstructural project.

- Develop an assistance program to help connect preliminary eligible homeowners to other programs in order to meet some of the USACE secondary eligibility criteria such as repair condition of the structure. An example would be the Mississippi Disaster Recovery Division Elevation Grant program currently in coastal Mississippi Counties.

- Investigate potential utilization of programs similar to the Homeowner Elevation Grant Program which provided grants of $30,000 to approved applicants of the Homeowner Assistance Program (Phase I and Phase II) in Hancock, Harrison, Jackson, and Pearl River counties. This grant program helps these homeowners defray the cost of elevating their homes to the most recent FEMA elevation requirements.

10. *Additional Findings and Considerations*. Public testimony and comment from across the Pearl River watershed and within the study area reveal a multitude of concerns that may be addressed through other authorities or by other entities. No one authority can solve all the problems immediately; therefore, a systematic approach involving multiple projects from several different programs and under several different authorities will be required to effectively deal with the array of issues in the watershed.

a. *Reconnecting the Community to the River*. Multiple testimonies, comments from interests within the study area, and presented conceptual plans speak to improving the connection of communities to the river. Within the study area, there are few immediate access points to the river and few green spaces for the public. LeFleur's Bluff State Park is a large public space adjacent to the river corridor and includes a restricted connection to the river. Entities associated with economic and community development, colleges, the medical center, and employers are all seeking improved public spaces and greenways that can retain and attract a new generation of workforce. Furthermore, expanded public spaces and greenways serve as recreation areas where existing communities come together and connect with nature, activities with proven physical, mental, spiritual, and social benefits. Community leaders from south Jackson and other economically struggling areas, see opportunity in economic development associated with a

reconnection to the river. Local entities are considering projects that reconnect the community to the river and could benefit from Alternatives D or E.

b. *Operation of the Ross Barnett Reservoir*. The Pearl River Valley Water Supply District (PRVWSD) operates the water control features of the Ross Barnett Reservoir and in their vision for operation of the reservoir acknowledges there is a flood reduction capability associated with the reservoir. The Ross Barnett Reservoir is a non-Federal project operated by the PRVWSD primarily for water supply and recreation. Although the reservoir was not designed for flood control nor does the PRVWSD have a requirement to implement flood reduction in any specific way, the PRVWSD has been controlling the discharge to actively reduce peak flows during large inflow events since at least 1979 with an estimate that peak flows are reduced by as much as 28% due to these operations. Public comments across the watershed highlighted concerns with reservoir operations. State and local entities may consider operational impact at the Ross Barnett Reservoir and revising the Ross Barnett Water Control Manual to formalize continued flood reduction capacity inform future discharge operations. A sensitivity analysis shows that reducing the flows from the Ross Barnett Reservoir by 20 percent, would reduce damages, but not prevent (flooding, erosion, bank caving) impacts to the project area. The goal of this consideration is to formalize the current future informed release regime which delays and decreases peak releases for events with a forecasted peak discharge above 35,000 cfs.

c. *Water Supply and Water Quality*. The U.S. Environmental Protection Agency and USACE are currently working with the City of Jackson to address local water and wastewater infrastructure under existing Federal authorities. This work addresses the immediate and to some extent long standing problems with aging local environmental infrastructure. The J.H. Fewell WTP is 90 years old and remains in service, and under court order is being upgraded. The Ross Barnett Reservoir and Pearl River surface water are the two primary sources of drinking water for the surrounding communities. Flood control projects in the area must directly account for substantive work occurring and ensure alignment with such infrastructure modernization work.

d. *Downstream Concerns on the Pearl River*. Below Jackson, the Pearl River consists of the Middle Pearl River (including the Strong River discharging to the Pearl), Bogue Chitto River (discharging into the Pearl) and the Lower Pearl River, where the river splits into the East Pearl and West Pearl, with extensive marsh and other coastal wetlands ecosystems. Public testimony and comments from communities south of the project area demonstrated numerous existing problems on the lower Pearl River. Public testimony included observations of extended periods of flooding and extended periods of low water, sand bars forming in the river threatening tributary access, low water flows impacting the Louisiana Wildlife Management Areas, and low water flows enabling saltwater intrusion into fishing grounds and oyster beds. Concerns included the impacts of legacy Federal projects (weirs, locks and dams) on public safety, downstream water quantity and quality, and the loss of wildlife habitat. Highwater impacts are also a concern. Since the deauthorization of the Pearl River as a Federal navigation project, USACE executes maintenance of waterway features with funding available and as authorized by caretaker status. The following considerations have potential to improve downstream conditions and inform a strategy to restore the lower Pearl River.

(1) *Comprehensive Watershed Study*. A comprehensive watershed study of the Pearl River is necessary to fully understand the basin's hydrology, hydrodynamics, and ecosystem. The scope of the study should be from the headwaters to the terminus at the Gulf of Mexico. A watershed study would inform disposition of legacy Federal infrastructure, opportunities for sustaining and managing flowrates through the basin, and enhancement of habitat for the basin's wildlife, flora and fauna. Authorization via a Water Resources Development Act is required.

(2) *Improved Monitoring.* To provide for additional information to better understand how the various sections of the Pearl River perform during flood events, additional instrumentation is desired at specified river miles and would require both authorization and funding to implement and perform O&M activities. USACE can support acquisition, installation, and continuous monitoring.

11. *Environmental Compliance Activities*. The USACE prepared accompanying DEIS provides an environmental evaluation of the final array of flood risk management alternatives for the Pearl River. The EIS may be supplemented prior to construction pending the outcome of design and environmental compliance activities.

a. *Cooperating Agencies*. Cooperating agencies include the United States Fish and Wildlife Service (The Service) Jackson, MS and Lafayette, LA offices; Federal Emergency Management Agency Region IV (FEMA); United States Environmental Protection Agency (EPA) Region 4; and Mississippi Department of Environmental Quality (MDEQ).

b. *Habitat Impacts Analysis and Mitigation*. The final array of alternatives would result in unavoidable fish and wildlife habitat impacts that require mitigation per 404(b)(1) of the Clean Water Act. A mitigation plan will be developed in coordination with resource agencies and the NFI, prior to construction and assessed in a subsequent NEPA document.

c. *Section 106 National Historic Preservation Act (NHPA) Consultation*. USACE continues to follow its Section 106 NHPA procedures to develop a project-specific Programmatic Agreement in furtherance of USACE Section 106 NHPA responsibilities for this Undertaking. The PA will govern USACE's subsequent NHPA compliance efforts. Participants in the Section 106 NHPA consultation process include Rankin-Hinds DD, Mississippi Department of Achieves & History (MDAH; SHPO), the Advisory Council on Historic Preservation (ACHP), and the following Federally-Recognized Tribes that have expressed aboriginal interest in Mississippi and the Study Area: Alabama-Coushatta Tribe of Texas (ACTT), Chickasaw Nation (CN), the Choctaw Nation of Oklahoma (CNO), the Chitimacha Tribe of Louisiana (CTL), the Jena Band of Choctaw Indians (JBCI), the Mississippi Band of Choctaw Indians (MBCI; also holds reservation lands in close proximity to the Study Area), the Muscogee (Creek) Nation (MCN), Quapaw Nation (QN), and the Tunica-Biloxi Tribe of Mississippi (TBTL). The RHDD, MDAH, ACHP, QN, MBCI, and CNO are participating as consulting parties and are invited as signatory parties to the Section 106 Programmatic Agreement (PA).

d. *Tribal Resources*. USACE is continuing to consult with Federally-Recognized Tribal Governments on a Government-to-Government basis as required in E.O. 13175 ("Consultation

and Coordination with Indian Tribal Governments;" U.S. President 2000) and USACE Tribal Consultation Policy (December 05, 2023), as described in Section 2 of this report.

e. *Section 7 Endangered Species Act Consultation*. USACE continues to coordinate with the USFWS to meet requirements of Section 7 of the Endangered Species Act. A biological assessment (BA) was submitted to USFWS on January 22, 2024. USFWS responded to the draft BA via letter dated February 13, 2024. Based on comments from the USFWS and further coordination, the USACE revised the draft BA and submitted it to the USFWS by letter dated February 26, 2024. Since the February submission, the CTO Alternatives D and E were further refined and USACE submitted a revised the BA to the Service May 28, 2024.

f. *Fish and Wildlife Coordination Act*. The Service provided a Draft Coordination Act Report (CAR) on August 23, 2023. USACE responses to the draft CAR recommendations are located in Section 7 of the DEIS. USFWS will provide a Final CAR that will include consideration of the since developed CTO for the FEIS.

12. *Federal Responsibilities for the Implemented Plan*. The Federal government will be responsible for Pre-construction Engineering and Design (PED) and construction of the project in accordance with the applicable provisions of Public Law 99-662 (WRDA of 1986), as amended. The Government, subject to Congressional authorization, the availability of funds, and the execution of a binding agreement with a NFS in accordance with Section 221 of the Flood Control Act of 1970, as amended, and using those funds provided by the NFS, shall expeditiously construct the project, applying those procedures usually applied to Federal projects, pursuant to Federal laws, regulations, and policies.

13. *Non-Federal Responsibilities for the Implemented Plan*. Through the implementation and completion of the NFI Section 211 Report, RHDD has demonstrated the ability to fund and complete project tasks and has expressed strong interest in participating in a significant role beyond those outlined below, including but not limited to, execution of Preconstruction Engineering and Design, Final Design/Plans/Specifications and Construction phases of the selected project. Federal implementation of the project would be subject to a NFS agreeing in a binding written project partnership agreement to comply with applicable Federal laws and policies, and to perform the following non-Federal obligations, including, but not limited, to:

a. The NFS shall contribute 35 percent of total project costs.

b. The NFS shall provide the real property interests, placement area improvements, and relocations required for construction, operation, and maintenance of the Project.

c. As functional portions of the work are completed, the NFS shall begin operation and maintenance of such work.

d. When the District Commander determines that construction of the Project, or a functional portion thereof, is complete, within 30 calendar days of such determination, the District Commander shall so notify the NFS in writing and the NFS, at no cost to the

Government, shall operate, maintain, repair, rehabilitate, and replace the Project, or such functional portion thereof.

e. The NFS shall conduct its operation, maintenance, repair, rehabilitation, and replacement responsibilities in a manner compatible with the authorized purpose of the Project and in accordance with applicable Federal laws and specific directions prescribed by the Government in the Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R) Manual.

f. Not less than once each year, the NFS shall inform affected interests of the extent of risk reduction afforded by the Project.

g. The NFS shall participate in and comply with applicable Federal floodplain management and flood insurance programs.

h. In accordance with Section 402 of the WRDA of 1986, as amended (33 U.S.C. 701b-12), the NFS shall prepare a floodplain management plan for the Project within one year after the effective date of this Agreement and shall implement such plan not later than one year after completion of construction of the Project. The NFS shall provide an information copy of the plan to the Government.

i. The NFS shall publicize floodplain information in the area concerned and shall provide this information to zoning and other regulatory agencies for their use in adopting regulations, or taking other actions, to prevent unwise future development and to ensure compatibility with the Project.

j. The NFS shall prevent obstructions or encroachments on the Project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) that might reduce the level of flood risk reduction the Project affords, hinder operation and maintenance of the Project, or interfere with the Project's proper function.

k. The NFS shall not use Federal program funds to meet any of its obligations under this Agreement unless the Federal agency providing the funds verifies in writing that the funds are authorized to be used for the Project.

l. The NFS shall comply with all the requirements of applicable Federal laws and implementing regulations, including, but not limited to: Section 601 of the Civil Rights Act of 1964 (P.L. 88-352), as amended (42 U.S.C. 2000d), and Department of Defense Directive 5500.11 issued pursuant thereto; the Age Discrimination Act of 1975 (42 U.S.C. 6102); and the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Army Regulation 600-7 issued pursuant thereto.

m. If the NFS requests that the Government perform any betterments on behalf of the NFS and the Government agrees to such request, the NFS must provide funds sufficient to cover the costs of such work in advance of the Government performing the work.

n. The NFS shall acquire the real property interests that the Government has determined are required for the construction, operation, and maintenance of the Project and shall provide the Government with authorization for entry thereto in accordance with the Government's schedule for construction of the Project. The NFS shall ensure that real property interests provided for the Project are retained in public ownership for uses compatible with the authorized purposes of the Project.

o. The NFS shall construct the placement area improvements necessary for construction, operation, and maintenance of the Project in accordance with the Government's construction schedule for the Project.

p. The NFS shall perform or ensure the performance of the relocations necessary for construction, operation, and maintenance of the Project in accordance with the Government's construction schedule for the Project.

q. The NFS shall accept delivery of deeds for all real property interests acquired by the Government in the name of the NFS.

r. The Government's providing real property interests, placement area improvements, or performing relocations on behalf of the NFS does not alter the NFS's responsibility in accordance with provisions of the Project Partnership Agreement (PPA) for the costs of any cleanup and response related thereto.

s. To the maximum extent practicable, no later than 3 months after it provides the Government with authorization for entry onto a real property interest or pays compensation to the owner, whichever occurs later, the NFS shall provide the Government with documents sufficient to determine the amount of credit to be provided for the real property interest in accordance with provisions of the PPA. To the maximum extent practicable, no less frequently than on a quarterly basis, the NFS shall provide the Government with documentation sufficient for the Government to determine the amount of credit to be provided for other creditable items in accordance with provisions of the PPA.

t. As required by Sections 210 and 305 of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended (42 U.S.C. 4630 and 4655), and Section 24.4 of the Uniform Regulations contained in 49 C.F.R. Part 24, the NFS assures that (1) fair and reasonable relocation payments and assistance shall be provided to or for displaced persons, as are required to be provided by a Federal agency under Sections 4622, 4623 and 4624 of Title 42 of the U.S. Code; (2) relocation assistance programs offering the services described in Section 4625 of Title 42 of the U.S. Code shall be provided to such displaced persons; (3) within a reasonable period of time prior to displacement, comparable replacement dwellings will be available to displaced persons in accordance with Section 4625(c)(3) of Title 42 of the U.S. Code; (4) in acquiring real property, the NFS will be guided, to the greatest extent practicable under State law, by the land acquisition policies in Section 4651 and the provision of Section 4652 of Title 42 of the U.S. Code; and (5) property owners will be paid or reimbursed for necessary expenses as specified in Sections 4653 and 4654 of Title 42 of the U.S. Code.

u. The NFS shall be responsible for undertaking any investigations to identify the existence and extent of any HTRW regulated under applicable law, that may exist in, on, or under real property interests required for construction, operation, and maintenance of the Project.

v. In the event it is discovered that HTRW exists in, on, or under any of the real property interests needed for construction, operation, and maintenance of the Project, within 15 calendar days of such discovery, the NFS and the Government, in addition to providing any other notice required by applicable law, shall provide written notice to each other. If HTRW is discovered prior to acquisition, the NFS shall not proceed with the acquisition of such real property interests until the parties agree that the NFS should proceed. If HTRW is discovered after acquisition of the real property interests, no further Project activities shall proceed until the parties agree on an appropriate course of action.

w. If HTRW is found to exist in, on, or under any required real property interests, the parties shall consider any liability that might arise under applicable laws and determine whether to initiate construction, or if already initiated, whether to continue construction, suspend construction, or terminate construction.

(1) Should the parties initiate or continue construction, the NFS shall be solely responsible, as between the Government and the Non-Federal Sponsor, for the performance and costs of cleanup and response of the HTRW, including the costs of any studies and investigations necessary to determine an appropriate response to the contamination. Such costs shall be paid by the Non-Federal Sponsor without reimbursement or credit by the Government. In no event will the Government proceed with that construction before the Non-Federal Sponsor has completed the required cleanup and response actions.

(2) In the event the parties cannot reach agreement on how to proceed or the Non-Federal Sponsor fails to discharge its responsibilities under this Article upon direction by the Government, the Government may suspend or terminate construction, but may undertake any actions it determines necessary to avoid a release of such HTRW with the Non-Federal Sponsor responsible for such costs without credit or reimbursement by the Government.

x. In the event of a discovery, the Non-Federal Sponsor and the Government shall initiate consultation with each other within 15 calendar days in an effort to ensure that responsible parties bear any necessary cleanup and response costs as required by applicable law. Any decision made pursuant to this Article shall not relieve any third party from any HTRW liability that may arise under applicable law.

y. To the maximum extent practicable, the Government and Non-Federal Sponsor shall perform their responsibilities under this Agreement in a manner that will not cause HTRW liability to arise under applicable law.

z. As between the Government and the NFS, the NFS shall be considered the operator of the Project for purposes of CERCLA liability or other applicable law. To the maximum extent

practicable, the NFS shall operate, maintain, repair, rehabilitate, and replace the Project in a manner that will not cause liability to arise under CERCLA.

aa. To the maximum extent practicable, no later than 3 months after it provides the Government with authorization for entry onto a real property interest or pays compensation to the owner, whichever occurs later, the NFS shall provide the Government with documents sufficient to determine the amount of credit to be provided for the real property interest in accordance with the Project Partnership Agreement.

bb. The NFS shall obtain, for each real property interest, an appraisal of the fair market value of such interest that is prepared by a qualified appraiser who is acceptable to the parties. Subject to valid jurisdictional exceptions, the appraisal shall conform to the Uniform Standards of Professional Appraisal Practice. The appraisal must be prepared in accordance with the applicable rules of just compensation, as specified by the Government.

cc. The NFS shall hold and save the Government free from all damages arising from design, construction, operation, maintenance, repair, rehabilitation, and replacement of the Project, except for damages due to the fault or negligence of the Government or its contractors.

dd. The NFS shall assure that books, records, documents, or other evidence pertaining to costs and expenses are reasonably available for examination, audit, or reproduction by the Government for a minimum of three years after the final accounting.

ee. The NFI (potential NFS) desires an active engagement and significant involvement with the project delivery team which continue into the PED phase of the project.

14. The Point of Contact for this memorandum is the undersigned.

Digitally signed by KLEIN.CHRISTOPHER.DONALD.1030210030
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CHRISTOPHER D. KLEIN
COL, EN
Commanding