



**DEPARTMENT OF THE ARMY  
CHIEF OF ENGINEERS  
2600 ARMY PENTAGON  
WASHINGTON, DC 20310-2600**

**Proposed Report**

**DAEN**

**SUBJECT: Amite River and Tributaries - East of the Mississippi River, Louisiana, Flood Risk Management Feasibility Study**

**THE SECRETARY OF THE ARMY**

1. I submit for transmission to Congress my report on flood risk management recommendations for the Amite River and Tributaries - East of the Mississippi River, Louisiana, Flood Risk Management Feasibility Study. The total study area (H&H modeled area) consists of four Mississippi Counties (Amite, Lincoln, Franklin, and Wilkinson) and seven Louisiana Parishes (East Feliciana, St. Helena, East Baton Rouge, Livingston, Iberville, St. James, and St. John the Baptist). Nonstructural flood risk management solutions developed for this study are situated in five of the Louisiana Parishes: Ascension, East Baton Rouge, Livingston, East Feliciana and St. Helena. This transmittal report is accompanied by the New Orleans District and Mississippi Valley Division Feasibility Study Report including all appendices. This study is an interim response to the authorization by Resolution of the Committee on Public Works of the United States Senate, adopted on April 14, 1967. The authorization provided that the Secretary of the Army review the Chief of Engineers report on Amite River and Tributaries, Louisiana, published as House Document Numbered 419, Eighty-fourth Congress. Preconstruction Engineering and Design (PED) activities will continue under the study authority cited herein.

2. The reporting officers recommend authorizing a nonstructural flood risk management project consisting of residential structure elevations and dry or wet floodproofing of non-residential structures. The proposed nonstructural recommended plan will reduce risk of flood damage from riverine, rainfall, and residual risk associated with coastal events (i.e. hurricanes). The Recommended Plan is the Total Net Benefits Plan. An NED Policy Exception was approved by the Assistant Secretary of the Army (ASA) for Civil Works on August 23, 2024. The basis for the ASA decision was that comprehensive net benefits are accounted for under Other Social Effects (OSE). The Recommended Plan includes the following nonstructural features, which are intended to provide flood risk reduction up to the future year 2078 one percent annual exceedance probability event:

a. Elevation of 1,810 preliminarily eligible residential structures to a height no greater than 13 feet above grade. Elevation includes the entire structure or the habitable area of a structure to allow floodwaters to flow and recede underneath.

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b. Dry Floodproofing of 241 preliminarily eligible non-residential structures to make walls, doors, and other openings impermeable to water penetration up to three (3) feet above grade. The term “dry floodproofing” means a combination of measures that make a building and attendant utilities and equipment watertight and substantially impermeable to floodwater, with structural components having the capacity to resist flood loads.

c. Wet floodproofing is included as an option in the Recommended Plan if dry floodproofing is determined unfeasible during the PED assessment process. Wet floodproofing consists of elevating mechanical and electrical equipment and infrastructure up to 12 feet above grade. Floodwaters are then allowed to enter enclosed areas through vents thereby promoting structural stability by equalizing hydrostatic loads.

d. The elevation of residential structures and dry/wet floodproofing of non-residential structures will be implemented on a voluntary basis. The nonstructural plan is recommended to be authorized with a 6.5-year implementation schedule after an initial 24-month PED phase. The proposed schedule is based on assuming construction will begin with a small pilot project of 25 to 50 structures followed by soliciting five large *Multiple Award Task Order Contract* (MATOC) contracts with U.S. Army Corps of Engineers (USACE) managed contractors constructing approximately 400 structures per MATOC. The implementation schedule assumes that each of the five USACE managed contractors would floodproof or elevate 80 to 100 structures concurrently per year, thereby completing construction of 400 to 500 structures per year.

3. The State of Louisiana, acting by and through, the Louisiana Department of Transportation and Development (LADOTD) is the non-federal cost sharing sponsor for all features of the project. In addition to the Recommended Plan, this study acknowledges and relies upon the non-federal sponsor's additional floodplain management responsibilities and emergency response actions in conjunction with state FEMA related programs to mitigate the plan's residual risks including potential life loss and damages to critical infrastructure. Based on October 2024 (FY25) price levels, the estimated total project first cost is \$1,049,321,000. The total project first cost includes the lands, easements, and rights-of-way (LER) costs estimated to be \$69,494,000. The Recommended Plan requires the non-federal cost sharing sponsor to obtain all LER rights required for project implementation.

Prior to initiation of construction of the residential elevations, two non-standard estates in the form of a permanent restrictive easement and a perpetual access easement will be needed and will be submitted to HQUSACE for approval in accordance with USACE regulations. Such easements will be imposed in, on, over, and across the lands on which the residential structure will be elevated. The permanent restrictive easement will perpetually prohibit the grantors, heirs, successors, assigns, and all others from: (1) using any portion of the elevated structure between ground level and the first floor for human habitation; (2) constructing or placing any enclosure or permanent obstruction

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that would impair the flow of water between the ground level and the first floor of the elevated structure; and (3) engaging in other uses of the elevated structure or the land that would impair, contravene, or interfere with the integrity of the elevated structure. There would be a reservation of rights and privileges in favor of the grantors, heirs, successors, and assigns to use the land in such a manner so as not to interfere with, or abridge, the restrictions contained in the easement. The perpetual access easement will allow for ingress and egress over private property for the purpose of inspecting and monitoring the residential structure and project measures located on the land to ensure compliance with the restrictive easement.

Similar to the residential structure elevations, prior to initiation of construction of the non-residential dry/wet floodproofing, two non-standard estates in the form of a permanent restrictive easement and a perpetual access easement will be needed for the non-residential structures and will be submitted to HQUSACE for approval in accordance with USACE regulations. Such easements will be imposed in, on, over, and across the lands on which the non-residential structures will be floodproofed and would prohibit activities or uses that would impair, contravene, or interfere with the floodproofing measures and would provide ingress and egress over private property for the purpose of inspecting and monitoring the non-residential structures and project measures located on the land to ensure compliance with the restrictive easement.

Due to the voluntary participation of owners in this nonstructural project, participating owners are not considered displaced persons and are not entitled to compensation for real property interests acquired to protect the integrity of the project feature. As a condition of voluntary participation in a nonstructural project, the owner will release the non-federal sponsor from any requirement or obligation under the Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970, and its implementing regulations (URA), to be informed of the market value of the restrictive easement and the access easement. The design and construction work is specific to the owner's structure, and the owner is receiving a direct benefit as a result of the project measure being constructed at no cost to them. In essence, the owner is voluntarily granting the easement in exchange for the construction of the nonstructural measure. In addition, because participation in this nonstructural project is voluntary, the property owners would not be entitled to relocation assistance and benefits under the URA for the temporary period of time they would need to vacate the structure during construction of the elevations and dry/wet floodproofing. However, because participation in this project is not voluntary for tenants of the structures, tenants would be entitled to relocation assistance and benefits under the URA for the temporary period of time they would need to vacate the structure during construction.

Cost sharing is applied in accordance with the provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986 (33 U.S.C. § 2213), as follows:

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a. The federal share of the project first cost for initial construction is estimated at \$682,058,650 and the non-federal share, which includes the cost of LER is estimated at \$367,262,350 which equates to 65 percent federal and 35 percent non-federal.

b. The additional annual cost of operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) for the Recommended Plan is estimated at average annual cost of \$65,000. The non-federal sponsor's OMRR&R activities will be confined to regular, periodic surveys and site visits of structures where the Recommended Plan measures have been applied to determine that the requirements of the OMRR&R Manual are being met are estimated at \$246,000 every five years. The property owner shall be responsible for all costs and risk associated with maintaining, repairing, rehabilitating, and replacing the completed floodproofing measures on the property. The OMRR&R for the nonresidential property owner for each structure are estimated at \$864 every ten years for sealing coating reapplication. The non-federal sponsor and structure owner will be responsible for 100 percent of the cost of project OMRR&R.

4. Based on a 3.00 percent discount rate and a 50-year period of analysis, the equivalent average annual benefits are estimated at \$58.0 million and equivalent average annual costs are estimated at \$41 million, with equivalent average annual net benefits of \$17.0 million and a benefit-to-cost ratio (BCR) of 1.42 to 1. All project costs are allocated to the authorized purpose of flood risk management.

5. In addition to economic benefits, the Recommended Plan provides additional non-economic benefits to local communities. The Recommended plan includes 308 preliminarily eligible structures that are not economically justified based on NED benefits but that are justified based other social benefits. The local community focal points are based on feedback provided during the 2019 DIFR/EIS public, technical, legal, and policy reviews.

6. Risk and uncertainty from changing conditions resulting from precipitation, flood frequency and relative sea level change (RSLC) is incorporated into the Recommended Plan with Adaptation Tracking and Strategies in Section 6 of Appendix I, since the Recommended Plan effectiveness may change over time To mitigate this risk, if observed conditions or projections are determined to be significantly different than anticipated climatic events, a USACE post Authorization Change Report should be considered.

a. The intermediate rate of RSLC was used to design the nonstructural measures used in the Recommended Plan. The rate of RSLC is an uncertain variable in predicting design flood elevations. The non-federal will continue to monitor local conditions and determine if the intermediate scenario of relative sea level change is reasonably representative of observed conditions. A framework will be established during PED for tracking the observed rate of RSLC and determining if the rate of RSLC significantly deviates from the intermediate rate used in this feasibility study. If observed conditions

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significantly exceeding the intermediate projection are identified during design or construction, reevaluation of the Recommended Plan will be required.

b. The release of Atlas 15 point-precipitation estimates by the National Oceanic and Atmospheric Administration, anticipated before 2030, will provide updated rainfall intensities. If these intensities are found to be significantly different from the ones used in the current Recommended Plan, a re-evaluation could be warranted. If a large inland or coastal storm was to hit the project area triggering a Federal Disaster Emergency Declaration, this could trigger a re-evaluation of the Recommended Plan as well. Other potential triggers for Recommended Plan re-evaluation based on hydrologic forecasts will be discussed during PED.

7. The Recommended Plan would reduce, but not eliminate, future flood damages, and residual risk remains. Annual damages are expected to be reduced by approximately 29 percent relative to without project conditions. The residual risk, along with the potential consequences, has been communicated to the non-federal sponsor and will be a requirement of future communication and evacuation plans. To further mitigate this residual risk, a systematic whole-of-government approach can be employed in order to leverage engagement and use of existing programs across other federal, state, and local entities, as well as individual property owners. This residual risk management may include updating of floodplain management plans and their active management, adoption and enforcement of enhanced building codes, and land use regulations and developmental controls. Additionally, content protection measures could be employed by individuals. The application of such actions is encouraged to further manage and reduce residual flood risk in conjunction with the Recommended Plan.

8. Implementation strategies would be a shared responsibility in coordination with the non-federal sponsor. The Recommended Plan implementation strategy would facilitate risk reduction increments that either could be; (1) implemented simultaneously, where the entire project is implemented in an expedited manner or, (2) implemented sequentially, where measures are implemented on a rolling incremental basis. Implementation shall include a risk informed strategy that utilizes best practices to prioritize risk reduction to the most vulnerable areas through the most cost-effective measures. Various Recommended Plan implementation strategies to identify risk reduction increments were considered:

a. Clustering to increase construction effectiveness and efficiency as the main factor in determining which eligible properties should be prioritized.

b. Prioritizing structures identified through collaboration of stakeholders, non-federal and public input that are in critical service areas and are community lifelines. Critical service areas or community lifelines refer to indispensable services that enable continuous operation of critical business and government functions in the wake of a disaster event. Critical service areas are essential to human health and safety, economic security, and foster community resilience.

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c. Clustering based on socially vulnerable communities using Center for Disease Control and Prevention (CDC) Socially Vulnerable Index (SVI) most recent data on low-income communities. Homeowners in local communities or those living at or below the poverty level would be given priority.

d. Clustering based on willing property owners that exhibit the highest risk.

e. Clustering based on first-come, first-served approach which would help ensure that resources would be used effectively by focusing on properties that have owner support.

9. All compliance with required applicable environmental laws and regulations has been completed.

10. In accordance with USACE policy on the review of decision documents, all technical, engineering, and scientific work underwent an open, dynamic, and rigorous review process. The comprehensive review process included District Quality Control Review, Agency Technical Review, Independent External Peer Review, and Headquarters Policy and Legal Compliance review to confirm the planning analyses, alternative design and safety, and the quality of decisions. Washington-level review indicates that the plan recommended by the reporting officers complies with all essential elements of the U.S. Water Resources Council's Economic and Environmental Principles, Requirements, and Guidelines for Water and Land Related Resources Implementation Studies, as well as other administrative and legislative policies and guidelines. The views of interested parties, including federal, state, and local agencies, were considered and all comments from public reviews have been addressed and incorporated into the final report documents where appropriate.

11. The following activities will be deferred to PED. Potential risks associated with these deferrals have been identified and are discussed below. As outlined in the Cost and Schedule Risk Analysis (CSRA), deferment of these activities may increase total project costs and/or extend implementation schedule.

- a. Field surveys of each property will be required during PED to confirm and verify eligibility of the structural inventory utilized to develop the feasibility level cost estimate. Field surveys will determine eligibility on a site-by-site basis. If issues such as structural stability, environmental, cultural, or HTRW, etc., are discovered, participation rates will be directly impacted. Additionally, schedules will be impacted depending on ownership ability and willingness to address any issues discovered.
- b. Site specific geotechnical investigations may be required in some locations where sufficient data on subsurface conditions are unavailable. Increased

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knowledge of subsurface conditions may increase or decrease construction costs but will increase design costs, if required.

- c. Tailored, site specific designs will be required for both residential structure elevations and non-residential wet/dry floodproofing. Designs may vary widely directly impacting cost and schedule.
- d. Multiple large scale nonstructural projects are planned for implementation across the region in a limited space of time. A market analysis will be needed during PED to determine regional contractor availability, capability, capacity, skilled labor, equipment, materials, and supplies. If contracting capacity congruent to that estimated in the study does not exist, there will be direct impact to cost and more significantly, schedule.

12. USACE decision documents recognize cost risk and uncertainty surrounding implementation. All cost estimates will carry a degree of uncertainty. The estimated total project first cost for the Recommended Plan at the 80% confidence interval is estimated at \$1,049,321,000. This project carries a degree of uncertainty such that if the main drivers described below are realized, the first cost for the Recommended Plan could increase to approximately \$1,200,819,000. The PED and S&A components developed are 14 and 8 percent, respectively, of the total estimated Recommended Plan construction cost. The Recommended Plan is at ten percent design maturity, corresponding to a Class 3 level of design effort and resulting in a certified Class 3 cost estimate. The total project first cost (\$1,049,321,000) consists of the base cost (745,804,000) plus contingency (\$303,517,000). Please note the overall project contingency value consist of 40.7% (including Real Estate & Cultural Resources), however the construction based contingency value is 42% based on design maturity. The cost contingencies are intended to cover cost and schedule increases due to the identified project risks and their probability of occurrence. Changes to assumptions or the basis of design can result in additional risks not currently identified. For the Recommended Plan project first costs, the currently known major uncertainty drivers are the following: 1) contract acquisition strategy; 2) technical design changes required for tailored residential structure elevations; 3) construction contract modifications, 4) technical design changes required for tailored non-residential building wet/dry floodproofing, and 5) general escalation rates between project authorization and funding. As the project moves into the next phases, USACE will focus risk management and mitigation on the primary cost and other significant risk drivers to the extent within USACE control. However, there still exists the potential for other unanticipated and uncontrollable changes in environmental or economic conditions that could further increase the total project first cost beyond the current estimate and/or necessitate changes in the project's design.

13. In full consideration of the risks as documented in the preceding paragraphs in this report, I concur in the findings, conclusions, and recommendation of the reporting officers. Accordingly, I recommend that flood risk management improvements for portions of Ascension, East Baton Rouge, Livingston, East Feliciana and St. Helena

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Parishes in Louisiana be authorized in accordance with the reporting officers' Recommended Plan at an estimated cost of \$1,049,321,000 for initial construction, with such modifications as in the discretion of the Chief of Engineers may be advisable. Federal implementation of the project for flood risk management includes, but is not limited to, the following items of local cooperation to be undertaken by the non-federal sponsor in accordance with applicable federal laws, regulations, and policies:

- a. Provide 35 percent of construction costs, as further specified below:
  - i. Provide, during design, 35 percent of design costs in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;
  - ii. Provide all lands, easements, rights-of-way, and placement areas and perform all relocations determined by the federal government to be required for the project;
  - iii. Provide, during construction, any additional contribution necessary to make its total contribution equal to at least 35 percent of construction costs;
- b. 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;
- c. Inform affected interests, at least yearly, of the extent of risk reduction afforded by the flood risk management features; participate in and comply with applicable federal floodplain management and flood insurance programs; prepare a floodplain management plan for the project to be implemented not later than one year after completion of construction of the project; and publicize floodplain information in the area concerned and 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;
- d. Operate, maintain, repair, rehabilitate, and replace the project or functional portion thereof at no cost to the federal government, in a manner compatible with the project's authorized purposes and in accordance with applicable federal laws and regulations and any specific directions prescribed by the federal government;
- e. Give the federal government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-federal sponsor owns or controls for access to the project to inspect the project, and, if necessary, to undertake work necessary to the proper functioning of the project for its authorized purpose;



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f. Hold and save the federal 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 federal government or its contractors;

g. Perform, or ensure performance of, any investigations for hazardous, toxic, and radioactive wastes (HTRW) that are determined necessary to identify the existence and extent of any HTRW regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. 9601-9675, and any other applicable law, that may exist in, on, or under real property interests that the federal government determines to be necessary for construction, operation, and maintenance of the project;

h. Agree, as between the federal government and the non-federal sponsor, to be solely responsible for the performance and costs of cleanup and response of any HTRW regulated under applicable law that are located in, on, or under real property interests required for construction, operation, and maintenance of the project, including the costs of any studies and investigations necessary to determine an appropriate response to the contamination, without reimbursement or credit by the federal government;

i. Agree, as between the federal government and the non-federal sponsor, that the non-federal sponsor shall be considered the owner and operator of the project for the purpose of CERCLA liability or other applicable law, and to the maximum extent practicable shall carry out its responsibilities in a manner that will not cause HTRW liability to arise under applicable law; and

j. Comply with the applicable provisions 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 the Uniform Regulations contained in 49 C.F.R Part 24, in acquiring real property interests necessary for construction, operation, and maintenance of the project including those necessary for relocations, and placement area improvements; and inform all affected persons of applicable benefits, policies, and procedures in connection with said act.

14. The recommendation contained herein reflects the information available at this time and current departmental policies governing formulation of individual projects. It does not reflect program and budgeting priorities inherent in the formulation of a national civil works construction program or the perspective of higher review levels within the Executive Branch. Consequently, the recommendation may be modified before it is transmitted to the Congress as a proposal for authorization and implementation funding. However, prior to transmittal to Congress, the non-federal sponsor, interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.

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**CURRENT CG (ALL CAPS)**

Lieutenant General, USA

Chief of Engineers