



Proposed Report<sup>1</sup>

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

DAEN

SUBJECT: Rio Culebrinas at Aguadilla and Aguada, Puerto Rico Flood Risk Management Study

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on the study of flood risk management along the Río Culebrinas in the vicinity of Aguada and Aguadilla, Puerto Rico. It is accompanied by the report of the Jacksonville District Engineer and South Atlantic Division Engineer. The study was conducted under Section 204 of the Flood Control Act of 1970, Public Law 91-611, authorizing the Secretary of the Army, acting through the Chief of Engineers, to prepare plans for the development, utilization and conservation of water and related land resources of drainage basins and coastal areas in the Commonwealth of Puerto Rico.

2. In 2002 a Detailed Project Report (DPR) was conducted and approved under Section 205 of the Flood Control Act of 1948, as amended (33 U.S.C. 701s) (referred to as the Continuing Authorities Program (CAP)). An update was initiated in 2012 but suspended in 2014 because the project cost exceeded the CAP federal funding limit. Due to the impacts of Hurricane Maria in 2017 and subsequent non-federal sponsor request, the project was selected (in accordance with the Bipartisan Budget Act of 2018 (BBA 18), Public Law 115-123) to be converted to a specifically authorized project.

3. The reporting officers recommend authorizing a plan to reduce flood risks to life and property of residents in Aguadilla and Aguada, which have a combined population of approximately 120,000 inhabitants. The principal features of the plan are the following:

- a. Two levees (Aguadilla and Espinar) with a total length of approximately 3.03 km (2.05 miles).
- b. Interior drainage features consisting of a 1-meter (3.28 feet) deep and 7-meter (22.97 feet) wide drainage channel along the protected side of each levee.
- c. A two-way drainage structure near the north end of the Espinar Levee.
- d. Three one-way drainage structures along the Aguadilla Levee.
- e. A 60-meter (196.85 feet) long, 4-meter [13.12 feet] deep, and 43.2-meter [141.73 feet] wide cutoff channel for the Cano Madre Vieja to connect two meanders of the stream where the Aguadilla Levee will interrupt it.
- f. Three paved roadway ramps across the levees.

<sup>1</sup> This report contains the proposed recommendation of the Chief of Engineers. The recommendation is subject to change to reflect Washington-level review and comments from federal and state agencies.

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g. A borrow area located in Aguada.

h. Net creation of approximately 11 to 12 acres of wetlands for mitigation of unavoidable impacts to approximately 10 acres of wetlands in the levee right-of-way.

4. The Municipality of Aguadilla is the cost-sharing non-federal sponsor for all features. Based on November 2019 (FY 2020) price levels, the estimated total first cost of the recommended plan is \$25,034,000, which includes the cost of construction along with the value of lands, easements, rights-of-way, relocations, and disposal areas (LERRDs). The costs of lands, easements and rights-of-way are estimated to be approximately \$5,041,000.

a. Funding. In accordance with the BBA 18, projects in Puerto Rico studied under the Investigations heading shall be conducted at full federal expense. Upon approval, these projects are eligible for design and construction funding under the Construction heading at full federal expense.

b. Estimated federal and non-federal cost shares. If funded by regular appropriations, in accordance with the cost sharing provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended, the non-federal sponsor must contribute a minimum of 35 percent of construction costs, up to a maximum of 50 percent of construction costs, with a minimum 5% cash contribution. The remaining portion of the non-federal share can be provided in LERRDS, in-kind contributions, cash, or a combination. The estimated share of costs is adjusted based on Section 1156 of WRDA 1986, as amended, (33 USC 2310) which provides a waiver for a portion of non-federal cost sharing for Puerto Rico, Territories and Indian Tribes. The estimated share of the project first cost is \$16,756,000 federal and 8,278,000 non-federal.

c. Operation and Maintenance Costs (O&M). The non-federal sponsor would be responsible for operation, maintenance, repair, replacement and rehabilitation (OMRR&R) of the project after construction. The estimated annual O&M cost is \$24,000.

d. The non-federal sponsor would be responsible for any investigations to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601-9675) that are on real property interests required for construction or O&M. If any such hazardous substances are found, the non-federal sponsor would be responsible for the costs of cleanup and response. Currently, no hazardous substances actions are anticipated.

e. Authorized Project Cost and Section 902 Calculation. The project first cost, for the purposes of authorization and calculating the maximum cost of the project pursuant to Section 902 of WRDA 1986, as amended, is \$25,034,000.

5. The total equivalent average annual costs of the project are estimated to be \$704,655 (FY 1981 Price Level, 2.75% discount rate and a 50-year period of analysis), including OMRR&R. All project costs are allocated to the authorized purpose of flood risk management. Based on the 2019 Level 1 economic evaluation, the recommended plan would reduce average annual flood damages by approximately \$1,011,000 (2004 Price Level), or almost 90%, and would leave average annual residual damages estimated at \$146,000. Net average annual benefits, including recreation benefits, are estimated to be \$353,845 based on 2004 price levels, with a benefit-to-cost ratio of 1.5 to 1.

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6. Approximately 90% of the nearly 800 structures in the study area are at risk of flooding under a 1% annual chance exceedance flood event. The 2004 study report describes the flood risks that the Rio Culebrinas imposes on the residential and commercial structures in Aguada and Aguadilla. The Rio Culebrinas project does not prevent all potential future flood damages. After project construction and implementation, some flood damages could occur in the study area. The residual risks have been communicated to the non-federal sponsor, which understands and agrees with the analysis. The recommended plan has been designed to avoid or minimize environmental impacts while maximizing safety and economic benefits to the community. The feasibility study team organized and participated in stakeholder meetings and public workshops throughout the original study process and met again with members of the community and elected officials during development of the Rio Culebrinas, Puerto Rico Flood Risk Management CAP Conversion Study.

7. In accordance with the Corps guidance on review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and rigorous review process to ensure technical quality. This included District Quality Control review, Agency Technical Review, and policy and legal review. All comments from these reviews have been addressed and incorporated into the final documents. Overall the reviews have resulted in improvements to the quality of the feasibility analyses supporting the recommended plan. Type I Independent External Peer Review (IEPR) was not required for this CAP Conversion Study. A safety assurance review (Type II IEPR) will be conducted during the design phase of the project.

8. Washington-level review indicates that the project recommended by the reporting officers is technically sound, environmentally and socially acceptable, and economically justified. The plan complies with all essential elements of the 1983 U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Land Related Resources Implementation Studies and complies with other administrative and legislative policies and guidelines. A 2020 Environmental Assessment (EA) was prepared to evaluate the effects of flood damage reduction measures of the recommended plan applying current environmental regulations and standards to assure that the recommended plan remains environmentally justified. The 2020 EA completes the required analysis, consultations, and coordination as required by the National Environmental Policy Act of 1969 and incorporates analysis from the 2004 EA and 2015 Rio Culebrinas at Aguadilla and Aguada, Puerto Rico, DPR Draft Addendum when the information is valid and applicable to this current evaluation. The comments from interested parties, including federal, state, and local agencies, have been considered. Few changes in the environmental conditions of the project area occurred since the CAP project approval in 2004. The 2015 DPR Draft Addendum concluded that the recommended plan would result in unavoidable impacts to approximately 10 acres of wetlands within the levee right-of-way. The recommended plan proposes net creation of approximately 11 to 12 acres of wetlands for mitigation, based on these unavoidable impacts. The construction may affect, but is not likely to adversely affect, the Puerto Rican Boa. Standard protection measures will be included in the project's plan and specifications and implemented during construction to protect the species. The Corps and the Puerto Rico State Historic Preservation Officer executed a Programmatic Agreement (Agreement) on May 24, 2019, pursuant to Section 106 of the National Historic Preservation Act. All terms and conditions in the Agreement will be followed in order to avoid, minimize, and/or mitigate adverse impacts to historic properties.

9. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the selected plan to reduce flood risks from the Rio Culebrinas at

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Aguada and Aguadilla, Puerto Rico be authorized for implementation, as a federal project, with such modifications thereof as in the discretion of the Chief of Engineers may be advisable. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies. The complete construction of the plan recommended in this report may be completed with 100% federal funding in accordance with Division B, Subdivision 1, Title IV of the BBA 18. Applying these requirements, the federal portion of the estimated total first cost is \$25,034,000. Federal implementation of the recommended plan would be subject to the non-federal sponsor agreeing to comply with applicable federal laws and policies, including but not limited to:

a. Provide all lands, easements, and rights-of-way, perform or ensure the performance of all relocations, and provide relocation assistance, as determined by the federal government to be required for the initial construction or the operation and maintenance of the project, all in compliance with applicable provisions of the Uniform Relocation and Assistance and real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. 4601-4655) and the regulations contained in 49 C.F.R. Part 24.

b. For as long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace the project, or functional portions of the project, at no cost to the federal government, in a manner compatible with the project's authorized purposes and in accordance with applicable federal and state laws and regulations and any specific directions prescribed by the federal government.

c. Inform affected interests, at least annually, of the extent of protection afforded by the project; participate in and comply with applicable federal floodplain management and flood insurance programs; comply with Section 402 of the Water Resources Development Act of 1986, as amended (33 U.S.C. 701b-12); 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 protection levels provided by the project.

d. Prevent obstructions or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) such as any new developments on project lands, easements, and rights-of-way or the addition of facilities that may reduce the level of protection the project affords, hinder operation and maintenance of the project, or interfere with the project's proper function.

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 for the purpose of completing, inspecting, operating, maintaining, repairing, rehabilitating, or replacing the project.

f. Hold and save the United States free from all damages arising from the construction, operation, maintenance, repair, rehabilitation, and replacement of the project, except for damages due to the fault or negligence of the United States or its contractors.

g. Perform, or ensure performance of, any investigations for hazardous substances that are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Public Law 96-510, as amended (42 U.S.C. 9601-9675), that may exist in, on, or under lands,

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easements, or rights-of-way that the federal government determines to be required for construction, operation, or maintenance of the project. However, for lands that the federal government determines to be subject to the navigation servitude, only the federal government shall perform such investigations unless the federal government provides the non-federal sponsor with prior specific written direction, in which case the non-federal sponsor shall perform such investigations in accordance with such written direction.

h. Assume, as between the federal government and the non-federal sponsor, complete financial responsibility for all necessary cleanup and response costs of any hazardous substances regulated under CERCLA that are located in, on, or under lands, easements, or rights-of-way that the federal government determines to be required for construction, operation, or maintenance of the project.

i. Agree, as between the federal government and the non-federal sponsor, that the non-federal sponsor shall be considered the operator of the project for the purpose of CERCLA liability, and to the maximum extent practicable, operate, maintain, repair, rehabilitate, and replace the project in a manner that will not cause liability to arise under CERCLA.

10. The recommendations contained herein reflect the information available at this time and current departmental policies governing formulation of individual projects. These recommendations do not reflect program and budgeting priorities inherent in the formulation of a national civil works construction program nor the perspective of higher review levels within the executive branch. Consequently, the recommendations may be modified before they are transmitted to the Congress as a proposal for authorization and implementation funding. However, prior to transmittal to the Congress, the non-federal sponsor, the state, interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.

Encls

TODD T. SEMONITE  
Lieutenant General, USA  
Chief of Engineers