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

SEP 0 6 2018

DAEN

THE SECRETARY OF THE ARMY

SUBJECT: The Resacas, In the Vicinity of the City of Brownsville, Texas, Ecosystem Restoration Feasibility Study

1. I submit for transmission to Congress my interim report on ecosystem restoration in the vicinity of the City of Brownsville, Texas. It is accompanied by the report of the district and division engineers. This report is in partial response to the resolution by the Committee on Transportation and Infrastructure of the United States House of Representatives, adopted 10 November 1999. The resolution requested a review of the "report of the Chief of Engineers on Louisiana and Texas Intracoastal Waterway, Corpus Christi, Texas to the Rio Grande, published as House Document No. 402, 77th Congress, 1st Session, and other pertinent reports to determine the feasibility of providing improvements to the Resacas in the vicinity of the City of Brownsville, Texas, in the interest of flood control, watershed management, environmental restoration and protection, water quality, and other allied purposes." Reports related to the Louisiana and Texas Intracoastal Waterway, Corpus Christi, Texas to the Rio Grande, were initially authorized by Section 3 of the River and Harbor Act approved August 30, 1935 and Section 4 of the River and Harbor Act approved August 26, 1937. Preconstruction engineering and design activities, if funded, would commence under the authority provided by the resolution cited above.

2. The reporting officers recommend authorization of the National Ecosystem Restoration (NER) recommended plan to restore a total of approximately 845 acres of unique and critically endangered aquatic and terrestrial complexes along the Resaca de la Guerra and Resaca del Rancho Viejo through the restoration of 44 "stepping stone" areas. The NER plan would increase habitat value by about 483 average annual habitat units (AAHU) to raise the total average annual habitat units with project to about 846 AAHU. The plan consists of measures to remove and perpetually manage non-native and invasive species, remove sediment from the resacas and excavating to restore aquatic habitat, supplement nutrient depleted riparian areas, stabilize resaca banks to reduce sediment from runoff and to benefit species movement from the aquatic habitat to the terrestrial habitat, restore flatter resaca bank slopes, replant native aquatic and terrestrial species, and implement water management to mimic the water budget of natural resacas. The plan would improve the potential for long-term survival of aquatic, wetland, and terrestrial complexes as self-regulating functioning systems for the Brownsville Resacas. The

plan would add significant improvement to the value and function of the overall ecosystem in the Brownsville region by connecting high quality habitat in the surrounding ecosystem. The restoration acreages would consist of about 625 acres of terrestrial riparian habitat restoration, by clearing invasive species and replanting native species of plants, and about 220 acres of aquatic habitat restoration, through the removal of sediment, expanding aquatic areas, shaping banks, and by planting aquatic and emergent vegetation along 33 miles of shoreline. After implementation, a management plan would continue with monitoring and management of invasive species.

3. The NER plan identified cost effective restoration measures on 845 acres, which includes 54 acres of federal U.S. Fish and Wildlife Service (USFWS) lands. Because USFWS is ultimately responsible for managing its refuge lands, the U.S. Army Corps of Engineers (Corps) is not seeking authorization nor funding for the measures located on USFWS lands. The subset of the NER plan (all measures of the NER minus the USFWS measures) represents the "Corps Plan". The full NER plan, with all measures including measures on USFWS lands, represents the "Federal Plan".

4. The NER plan includes post-construction monitoring and adaptive management for a period of 10 years to ensure project performance. Because the plan would not have any significant adverse effects, no mitigation measures or compensation measures would be required, beyond best management practices and avoidance.

5. The non-federal sponsor is the City of Brownsville, Texas. The total project first cost of the Federal Plan is estimated to be $202,500,000 at October 2017 prices, with a federal share of the Corps and the USFWS of $138,200,000 and non-federal sponsor share of $64,300,000. The total project first cost of the Corps Plan is $183,600,000 with the Corps share (65%) estimated at $119,300,000 and the non-federal share (35%) estimated at $64,300,000. The non-federal sponsor would cost share the project first cost of the restoration of resaca measures on lands acquired for the project, including undeveloped lands held by the Texas Parks and Wildlife Department (approximately 27 acres) but excluding the cost of restoration measures on lands held by the USFWS (54 acres). Annual operation, maintenance, repair, rehabilitation, and replacement (OMRR&R) costs are estimated to be $624,000 at October 2017 prices and federal discount rate of 2.75 percent and a period of analysis of 75 years.

6. The NER plan was developed in coordination and consultation with federal, state, and local agencies.

7. In accordance with Corps guidance on the review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and rigorous review process to ensure technical quality. This includes a District Quality Control review, an Agency Technical

Review, and a Corps Headquarters policy and legal review. All comments from the above referenced reviews have been addressed and incorporated into the final documents.

8. Washington level review indicates the plan recommended by the reporting officers is environmentally justified, technically sound, cost effective, and socially acceptable. The plan complies with all essential elements of the U.S. Water Resources Council's Economic and Environmental Principal and Guidelines for Water and Land Related Resources Implementation Studies. The plan complies with other administration and legislative policies and guidelines. The views of interested parties including federal, state, and local agencies have been considered.

9. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to restore the ecosystem for the Resacas, In the Vicinity of the City of Brownsville, Texas, be authorized. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies, including Section 103 of WRDA 1986, as amended (33 U.S.C. 2213). The non-federal sponsor would provide the non-federal cost share and all lands, easements, rights-of-way, relocations and disposals. The non-federal sponsor would be responsible for all OMRR&R. This recommendation is subject to the non-federal sponsor agreeing to comply with all applicable federal laws and policies, including, but not limited to, the following:

a. Provide 35 percent of total ecosystem restoration costs as further specified below:

(1) 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;

(2) Provide all lands, easements, and rights-of-way, and perform or ensure the performance of any relocations determined by the federal government to be necessary for construction, 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 CFR Part 24;

(3) Pay, during construction, any additional funds necessary to make its total contributions equal to 35 percent of total project costs.

b. 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 which might reduce the outputs produced by the ecosystem restoration features, hinder operation and maintenance of the project, or interfere with the project's proper function;

c. Shall not use the ecosystem restoration features or lands, easements, and rights-of-way required for such features as a wetland bank or mitigation credit for any other project;

d. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace the project, or functional portions of the project, including any mitigation features, 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;

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

f. 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 the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), Public Law 96-510 (42 USC 9601-9675) that are located in, on, or under lands, easements, or rights-of-way that the federal government determines to be required for construction, operation, and maintenance of the project;

g. Agree, as between the federal government and the non-federal sponsor, that the non-federal sponsors 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;

h. 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 CERCLA, Public law 96-510, as amended (42 USC 9601-9675), that may exist in, on, or under lands, easements, or rights-of-way that the federal government determines to be required for construction, operation, and maintenance of the project.

11. My report is an interim response to the study authority. The resource is nationally significant and consists of vegetation communities that are extremely rare and at a high risk of extinction. The destruction of 95 percent of thorn-scrub habitat in the Lower Rio Grande Valley and 99 percent of riparian resaca habitats, in part caused by flood risk management projects, shows the severe impact to this ecosystem. There are about 3,500 acres of remaining resaca habitat in the vicinity of Brownsville, Texas. The recommended plan would restore about 24 percent of that habitat. The significance of the resaca habitat and its value to the surrounding ecosystem are of national importance. By submitting my report as an interim response to the authorization, I am preserving an opportunity to restore additional resaca habitat in the future. Preserving the opportunity to restore additional habitat in the future is supported by the Corps Environmental Operating Principles and Campaign Plan goals.

12. 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 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.

TODD T. SEMONITE
Lieutenant General, USA
Chief of Engineers

A TECHNICALLY FEASIBLE OPTION.

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DAEN-ZA

SEP 0 6 2018

SUBJECT: Three Rivers Southeast Arkansas, Arkansas and Desha Counties, Arkansas

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on problems impacting the long-term sustainability of reliable navigation on the McClellan-Kerr Arkansas River Navigation System (MKARNS). It is accompanied by the report of the district and division engineers. This report is an interim response to Section 216 of the Flood Control Act of 1970 (Public Law 91-611), which authorized the U.S. Army Corps of Engineers (Corps) to "review the operation of projects the construction of which has been completed and which were constructed by the Corps in the interest of navigation, flood control, water supply, and related purposes, when found advisable due to significantly changed physical or economic conditions, and to report thereon to Congress with recommendations on the advisability of modifying the structures or their operation, and for improving the quality of the environment in the overall public interest." Pre-construction, engineering and design (PED) activities for the project will continue under the authority cited above.

2. The reporting officers recommend authorizing a plan to promote a long-term sustainable navigation system by reducing the risk of a cutoff forming near the entrance channel of the MKARNS between the Arkansas and White Rivers, particularly if the existing containment structure fails (i.e., breaches). The recommended plan is the National Economic Development Plan that consists of a new containment structure at an elevation of 157 feet above mean sea level with a relief channel through the Historic Closure Structure, which would dramatically reduce the risk of a cutoff forming. The structure would be approximately 2.5 miles long, and would begin on natural high ground south and west of the Melinda Structure located on the south side of Owens Lake. Continuing east, it crosses the Melinda head cut south of the Melinda Structure, and then heads northeast connecting to the existing containment structure north of Jim Smith Lake. It follows the Soil Cement Structure alignment, and terminates at the Historic Closure Structure. In most locations, the structure will rise five to seven feet above ground elevation and be no more than 12 feet above ground at its highest point. The relief opening at the Historic Cutoff would be at an elevation of 145 feet. The width of the opening will be optimized during PED. This will ensure that flows through the Historic Cutoff, the natural path by which waters of the White and Arkansas Rivers have historically flowed, would not adversely impact navigation.

3 Opening the Historic Cutoff would reduce maximum head differentials across the isthmus allowing better control over the location of future overtopping events and would decrease the duration of head differentials and flow velocities and hence erosion across the isthmus. Lastly, the opening would restore ecosystem functions of Webfoot Lake and reduce erosion on the east side of the lake where there are nick points that will likely lead to head cutting and a resultant

decline in the ecosystem function of Webfoot Lake. Similarly, removing the existing Melinda Structure would reconnect Owens Lake to its former southern limb, thereby returning open water ecosystem functions to the oxbow portion of the surrounding flooded bottomland hardwood forest. Demolition debris would be pushed into the deep scour hole at the top of the Melinda head cut to reduce the area's water turbulence and erosion. Opening the Owens Lake Structure between Owens Lake and the White River would prevent water from backing up into Owens Lake, benefiting adjacent bottomland hardwood forests and replacing a fish passage into Owens Lake. Other than changes described above, implementation of the recommended plan would not alter hydrology in the surrounding bottomland hardwood forests. MKARNS will have no operational changes to navigation.

4. All coordination and consultations with various federal and state agencies including the U.S. Fish and Wildlife Service (USFWS), the Arkansas Game and Fish Commission, the Arkansas Department of Environmental Quality (ADEQ), and the State Historic Preservation Office (SHPO), necessary for construction of the project have been completed in order to mitigate for the detrimental effects of the navigation features of the recommended plan on fish and wildlife habitat. Environmental effects resulting from the construction of the recommended plan would cause some direct effects on 25 acres of bottomland hardwood wetland forest and indirect effects on up to 100 acres of the same wetland habitat. Mitigation recommendations of the USFWS contained in the Final Fish and Wildlife Coordination Act Report are included in the recommended plan. The recommended plan includes a Monitoring and Adaptive Management plan to ensure the success of mitigation features. Endangered Species Act consultation with the USFWS concerning the operation and maintenance of the project is complete. Water quality certification under Section 401 of the Clean Water Act was coordinated with ADEQ and the water quality certification was obtained on January 24, 2018. Potential effects to cultural resources have been coordinated with the SHPO and a Programmatic Agreement has been signed by the Corps, SHPO, and the Advisory Council on Historic Preservation.

5. Based on October 2017 (Fiscal Year 2018) price levels, the estimated project first cost for the recommended plan is $180,295,000, including lands, easements, rights of way, and relocations of $1,000,760. The total project cost also includes $684,000 in mitigation to compensate for the permanent loss of 4.4 Functional Capacity Units across 25 acres of bottomland hardwood forest. It is anticipated that mitigation would be achieved through the purchase and restoration of approximately 20 acres existing agricultural or fallow fields adjacent to the Dale Bumpers White River National Wildlife Refuge and/or within the Refuge approved acquisition boundary into bottomland hardwood forest. In accordance with the cost sharing provision of Section 102 of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2212), all costs would be shared 50-50 between the Inland Waterways Trust Fund and the General Treasury. The federal share of the cost of operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) for navigation on inland waterways is 100 percent. Monitoring for success of the project mitigation feature is an OMRR&R responsibility.

6. Based on the current federal discount water for water resource projects of 2.75 percent, October 2017 price levels, and a 50-year period of analysis, the total annual costs of the project are estimated to be $7,674,000, including OMRR&R of $724,000. The total equivalent average annual cost savings to navigation is estimated to be $33,811,000. Annual net benefits for the proposed project are $26,137,000, and the benefit-to-cost ratio is 4.4 to 1.0.

7. In accordance with the Engineer Circular on review of decision documents, all technical, engineering and scientific work underwent an open and thorough review process to ensure technical quality. This included an Agency Technical Review (ATR), an Independent External Peer Review (IEPR) (Type I), and USACE Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. The IEPR was completed by Logistics Management Institute and their subcontractor, Analysis Planning and Management Institute with all comments documented. The panel had 14 comments, one of which they considered significant, three were medium high significance, and ten were medium significance. No comments were deemed low significance. Comments pertained to hydrology and hydraulic engineering, geotechnical engineering, civil engineering, economics and environmental concerns. In summary, the panel found that the engineering, economics, and environmental analysis were adequate and clarifications needed to be properly documented in the final report. The IEPR review comments resulted in no significant changes to plan formulation, engineering assumptions, and environmental analyses that supported the decision-making process and plan selection. 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. Views of interested parties, including federal, state, and local agencies were considered. During state and agency review, comments were received from USFWS expressing support for the project, and one from the U.S. Environmental Protection Agency stating they had no comment on the draft report.

9. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend project implementation, in accordance with the reporting officer's recommendations with such modifications as in the discretion of the Chief of Engineers may be advisable. My recommendations are subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies, including Section 102 of WRDA 1986, as amended (33 U.S.C. 2212).

10. 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, non-federal interests, the state, interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.

Critical project which requires a permanent fix - we are currently expending significant annual O+M to prevent anticipated breaches. Strongly support.

TODD T. SEMONITE
Lieutenant General, USA
Chief of Engineers

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DAEN

AUG 2 3 2018

SUBJECT: San Juan Harbor Navigation Improvements Feasibility Study, San Juan, Puerto Rico

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on navigation improvements for San Juan Harbor, San Juan, Puerto Rico. It is accompanied by the report of the district and division engineers. The project was originally authorized under the River and Harbor Act of 1907 (P.L. 59-168) with modifications throughout the 20th century. This report was prepared under the authority of House Resolution 2764 of the Committee on Transportation and Infrastructure, U.S. House of Representatives, adopted 20 September 2006, which authorizes the Secretary of the Army to determine the feasibility of providing navigation improvements at San Juan Harbor, Puerto Rico to increase security, safety and efficiency. Pre-construction, engineering, and design activities for the San Juan Harbor Navigation Improvements Project will continue under this same authority.

2. The reporting officers recommend a project that will contribute to the economic efficiency of commercial navigation and power generation. The National Economic Development (NED) Plan, which is also the recommended plan, includes deepening of channels with associated channel widening and turning basins as described below. Based on Fiscal Year (FY) 2018 price levels, a 2.75-percent discount rate, and a 50-year period of analysis, the project first cost of the NED Plan is $54,042,000. Total economic costs are estimated to be $403,975,000 (with contingency) which include project first costs, interest during construction, local service facilities, and aids to navigation. The recommended plan provides average annual benefits of $75,269,000, average annual costs of $15,172,000, and a benefit-to-cost ratio of 5.0. The recommended plan consists of the following navigation improvements (depths do not include overdepth or advance maintenance depths):

a. Deepen Cut-6 of the existing entrance channel from -42 feet to -46 feet Mean Lower Low Water (MLLW) to accommodate larger draft LR2 petroleum tankers and fully-loaded MR2 and LR1 petroleum tankers at the project depth of -44 feet MLLW for the inner harbor channels. The wind and wave conditions at the entrance channel warrant an additional 2 feet of depth greater than the project depth.

b. Widen the Army Terminal Channel by 100 feet (50 feet to the east and 50 feet to the west) from an existing 350 foot width to 450 feet wide to accommodate the larger LR2 tankers and liquefied natural gas (LNG) tankers.

c. Deepen the inner harbor Anegado and Army Terminal Channels from an existing project depth of -40 feet to -44 feet MLLW from the confluence of Cut-6 to the Army Terminal Turning Basin to petroleum and future LNG terminals.

d. Enlarge the northern terminus of the existing Army Terminal Turning Basin with two flares, one to the east and one to the west encroaching within the existing Sabana Approach Channel. The flares will improve maneuverability of the larger class vessels expected to call.

e. Deepen the San Antonio Approach Channel, San Antonio Channel, and the San Antonio Channel Extension from the existing -35 foot depth to the authorized depth of -36 feet MLLW for the cruise vessel fleet.

f. Expand the federal project limits 1,050 feet to the east of the San Antonio Channel Extension to include an area currently dredged to -36 feet MLLW by the Puerto Rico Ports Authority (PRPA) for existing terminal operators.

g. Deepen the Cruise Ship Basin East from the existing -30 foot MLLW depth to the authorized depth of -36 feet MLLW for improved maneuverability for turn-and-go operations of cruise vessels transiting the San Antonio Approach Channel.

3. Under the least cost disposal option, about 2.2 million cubic yards of dredged material would be placed in the Ocean Dredged Material Disposal Site (ODMDS) located approximately 2.2 miles from the entrance of the harbor. The beneficial use of approximately 230,000 cubic yards of dredged material in Condado Lagoon was also evaluated and may be considered if a non-federal cost-sharing sponsor is identified and funding is available.

4. An environmental assessment was prepared in accordance with the National Environmental Policy Act. The recommended plan has been determined to be economically justified and environmentally acceptable. The recommended plan would not have any significant adverse effects. Therefore, no compensatory mitigation would be required.

5. Based on an analysis of historical operation and maintenance (O&M) activities and the proposed modifications, the recommended plan would increase annual maintenance dredging requirements by approximately 15,000 cubic yards per year. The existing project footprint would continue to be maintained according to current practice at project depth plus 1 foot of required overdepth and 1 foot of allowable overdepth in most channel areas.

6. Environmental monitoring for water quality and endangered species during construction has an estimated cost of $2,347,000. The project is expected to reduce vessel wake energy by reducing the total number of vessel calls; hence, no shoreline erosion impacts from the project are anticipated. If post-construction monitoring indicates that additional monitoring or corrective action as part of the federal project is warranted, the U.S. Army Corps of Engineers (Corps) could share in the cost of the additional efforts.

7. Project Cost Breakdown based on FY 2018 (October 2017) prices.

a. Project First Cost: The estimated project first cost is $54,042,000 for the cost of constructing the General Navigation Features (GNF). The PRPA is the non-federal cost sharing sponsor for all features.

b. Estimated Federal and Non-Federal Cost Shares: The estimated federal and non-federal shares of the project first cost are $40,532,000 and $13,510,000 respectively, as apportioned in accordance with the cost sharing provisions of Section 101 of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2211). The cost for the deepening of the GNF with depths less than -50 feet MLLW are cost shared at a rate of 75-percent by the government and 25-percent by the non-federal sponsor.

c. Additional 10-Percent Payment. In addition to the non-federal sponsor's estimated share of the project first cost of constructing the project, pursuant to Section 101(a)(2) of WRDA 1986, as amended (33 U.S.C. 221 l(a)(2)), the non-federal sponsor must pay an additional 10-percent of the costs for NED GNF of the project, estimated at $5,404,000 before interest is applied, in cash over a period not to exceed 30 years, with interest. Interest is applied at the time of construction using the applicable interest rate. In general, the value of lands, easements, rights-of-way, and relocations (LERR) is credited toward this additional 10-percent payment. However, for this project, there are no required LERR.

d. Operation and Maintenance Costs (O&M). With the average annual increase of approximately 15,000 cubic yards of shoal material to be dredged from the new project, the additional annual O&M cost is estimated to be $164,000.

e. Associated Costs. Estimated associated federal costs of $105,000 include navigation aids, a U.S. Coast Guard expense.

f. Local Service Facilities. The associated costs for local service facilities are approximately $348,023,000 for the LNG receiving, storage, and gasification facilities at the two San Juan area Puerto Rico Electrical Power Authority power plants. The berthing area dredging costs are $1,805,000. These costs are 100% non-federal and are not included in the project first costs of the recommended plan.

g. 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, includes estimates for GNF construction costs and the value of LERR. Accordingly, as set forth in paragraph 3.a. above, based on a FY 2018 Price Level (October 2017), the estimated project first cost for these purposes is $54,042,000.

8. In accordance with the Corps' Policy on review of decision documents, all technical, engineering and scientific work underwent a comprehensive review process to ensure technical quality. This included District Quality Control, Agency Technical Review, Policy and Legal Compliance Review, and Cost Engineering Mandatory Center of Expertise Review and Certification. The review comments resulted in expanded narratives throughout the report to support the decision-making process and justify the recommended plan and resulted in improvements to the technical quality of the report. All comments from the above referenced reviews have been addressed and incorporated into the final report documents.

9. Washington level review indicates that the plan recommended by the reporting officers is technically sound, environmentally and socially acceptable, and on the basis of congressional

directives, 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. The recommended plan complies with other administration and legislative policies and guidelines. The views of interested parties, including federal, state, and local agencies have been considered.

10. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that navigation improvements for San Juan Harbor be authorized in accordance with the reporting officers' recommended plan at an estimated first cost of $54,042,000 with such modifications 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 laws and policies, including Section 101 of WRDA 1986 as amended (33 U.S.C. 2211), and to the non-federal sponsor agreeing, prior to project implementation, to perform the required items of local cooperation, including but not limited to the following:

a. Provide during the period of design and construction, funds necessary to make its total contribution for commercial navigation equal to 25 percent of the cost of design and construction of the GNF attributable to dredging to the project in excess of -20 feet MLLW but not in excess of -50 feet MLLW.

b. Provide all lands, easements, and rights-of-way, including those necessary for the borrowing of material and placement of dredged or excavated material, and perform or assure performance of all relocations, including utility relocations, all as determined by the government to be necessary for the construction or O&M of the GNF, 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.

c. Pay with interest, over a period not to exceed 30 years following completion of the period of construction of the GNF, an additional amount equal to 10 percent of the total cost of construction of the NED GNF.

d. Provide, operate, and maintain, at no cost to the government, the local service facilities 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 government.

e. 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 which might reduce the outputs produced by the project, hinder operation and maintenance of the project, or interfere with the project’s proper function.

f. 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 and maintaining the GNF.

g. Hold and save the United States free from all damages arising from the construction or O&M of the project, except for damages due to the fault or negligence of the United States or its contractors.

h. 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), 42 U.S.C. 9601-9675, that may exist in, on, or under lands, easements, and rights-of-way that the government determines to be necessary for the construction or operation and maintenance of the GNF. However, for lands that the government determines to be subject to the navigation servitude, only the government shall perform such investigation unless the 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.

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

j. 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.

k. To the maximum extent practicable, perform its obligations in a manner that will not cause liability to arise under CERCLA.

11. The recommendations contained herein reflect 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 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 Puerto Rico Ports Authority (the non-federal sponsor for the Commercial Navigation Improvements), 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

FIRST 3-3-3 NAVIGATION PROTECT IN THE NATION - STRONGLY ENDORSE - USACE IS WORKING TO DELIVER THE PROGRAM "SETTING THE PACE"

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DAEN

7 JUN 2018

SUBJECT: Seattle Harbor Navigation Improvement Project, Seattle, Washington

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on deep draft navigation improvements for Seattle Harbor, Seattle, Washington. It is accompanied by the reports of the district and division engineers. These reports were completed under the authority of Section 216 of the Flood Control Act of 1970, Public Law 91-611, which authorizes the review of completed projects to recommend modifications to their structures or operation. Preconstruction, engineering and design activities, if funded, for the Seattle Harbor Navigation Improvement Project (SHNIP) will continue under same authority.

2. The reporting officers recommend a project that will contribute to the economic efficiency of commercial navigation. The National Economic Development (NED) Plan includes a channel project depth of -56 feet Mean Lower Low Water (MLLW). Based on Fiscal Year (FY) 2018 price levels, a 2.75-percent discount rate, and a 50-year period of analysis, the estimated project cost of the NED Plan is $52,996,000, with average annual benefits of $78,951,000; average annual cost of $12,002,000; net benefits of $66,949,000, and a benefit-to-cost ratio of 6.6. The non-federal sponsor, the Port of Seattle, subsequently requested a locally preferred plan (LPP) with a project depth of -57 feet MLLW. The LPP has positive net benefits and is economically justified. Based on FY 2018 price levels, the estimated project cost of the LPP Plan is $60,039,000, with average annual benefits of $79,408,000; average annual cost of $12,623,000; net benefits of $66,785,000, and a benefit-to-cost ratio of 6.3. In accordance with U.S. Army Corps of Engineers (Corps) policy, the LPP was submitted for consideration to the Assistant Secretary of the Army for Civil Works (ASA(CW)) and approved for consideration as the recommended plan on 11 December 2017. The recommended plan is the LPP and consists of the following navigation improvements (depths do not include overdepth):

a. West Waterway: Deepen the existing channel to an authorized project depth of -57 feet MLLW (6,109 feet long). Widen the approach reach to 700 feet wide (2,500 feet long). Maintain the inner reach width of 500 feet wide (3,609 feet long).

b. East Waterway: Deepen the existing channel to an authorized project depth of -57 feet MLLW. Widen the approach reach to 700 feet wide (1,200 feet long). Maintain the inner reach width of 500 feet wide (4,800 feet long). The 1,232 feet at the southern end of the East Waterway will have no change to its authorized width of 500 feet and authorized depth of -34 feet MLLW.

3. Under the least cost disposal option, approximately 754,000 cubic yards of dredged material would be placed in the Elliott Bay open water disposal site and approximately 171,000 cubic yards would be placed at an upland facility.

4. The recommended plan has been determined to be economically justified and environmentally acceptable. The recommended plan would not have any significant adverse effects; therefore, no compensatory mitigation measures would be required. The project location is included within a National Priorities List Site known as the Harbor Island NPL (or Superfund) Site. The U.S. Environmental Protection Agency (EPA) is the lead federal agency for the Harbor Island NPL Site pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. 9601–9675.

a. The West Waterway is one of the Operable Units (OU) of the Harbor Island NPL Site that is located within the area of the proposed SHNIP. A remedial action decision was issued by EPA in 2013 for this OU and an Explanation of Significant Differences in 2015, selecting a no further action remedy with monitoring. This EPA remedy selection decision was based on an assumed dredging depth of -30 feet MLLW and natural channel depth of an average of -50 feet MLLW, precluding the need for maintenance dredging in most cases. Limited sediment sampling did not indicate the need for remediation given the lack of planned dredging. If contamination is discovered during design or implementation of the SHNIP at a lower dredging depth, the Corps would coordinate closely with EPA to determine if additional CERCLA response actions are necessary, and if changes to planned disposal of the contaminated sediment would be required.

b. The EPA has not made a remedial action decision for the East Waterway OU located within the area of the proposed SHNIP. A remedial investigation for the East Waterway site indicates that a remedy will be required due to contaminated sediments in the East Waterway considering the planned dredging depth of the SHNIP. A feasibility study evaluating remedial alternatives is anticipated to be released by EPA in the spring of 2018, with a remedial action decision possible in 2019. Remedy implementation would require some years after that. Remedial alternatives will impact the quantity and condition of sediment that would need to be removed under the East Waterway project area, as well as the quantity and cost of disposal of contaminated sediments that cannot be disposed in open water.

5. Based on an October 2017 price level, the estimated project first cost of the LPP is $60,039,000. Total economic costs are estimated to be $332,373,000 (with contingency), which includes project first costs, interest during construction, local service facilities and aids to navigation. In accordance with the cost share provisions in Section 101(a) of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2211(a)), the federal share of the project first cost of the LPP is estimated to be $28,785,000 and the non-federal share is estimated to be $31,254,000, which includes a 75% federal and 25% non-federal cost-share for general navigation features (GNF) not in excess of -50 MLLW, and a 50% federal and 50% non-federal cost share for GNF greater than -50 MLLW (as amended by Section 1111 of WRDA 2016). Costs in excess of the NED plan, $7,043,000, are 100% non-federal expense.

Additionally, costs associated with portions of berths at Terminals 5, 18, and 30 that overlap the federal channels are considered local service facilities (LSF) and have been adjusted as a 100% non-federal expense. The value of lands, easements, relocations, and rights of way (LERRs) is 100% non-federal and is estimated to be $2,506,000. Costs are further adjusted to reflect a non-federal expense of 10% of GNF paid over 30 years for the NED plan, less credit for LERRs, or $2,543,000; this brings cost share of the LPP first costs to $26,242,000 federal and $33,797,000 non-federal. The construction schedule for the East Waterway component of the project will be impacted by the cleanup of contaminated sediments at the East Waterway of the Harbor Island NPL Site. Construction of GNF in will not commence until all remediation of the NPL Site has been completed, as determined by the EPA. Costs for upland disposal of contaminated sediments at a permitted waste disposal facility would be a non-federal expense.

6. The recommended plan was developed in coordination and consultation with federal, state, and local agencies and numerous tribes. Risk and uncertainty were addressed during the study by completing a cost and schedule risk analysis and a sensitivity analysis that evaluated the potential impacts of a change in economic assumptions. Risk includes project scope, schedule, and cost changes for the East Waterway associated with the impact of a future decision by the EPA on a remedial action for this part of the project.

7. In accordance with Corps guidance on the review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and rigorous review process to ensure technical quality. This includes a District Quality Control review, an Agency Technical Review, an Independent External Peer Review (Type 1), and a Corps Headquarters policy and legal review. All comments from the above referenced reviews have been addressed and incorporated into the final documents.

8. Washington level review indicates that the plan recommended by the reporting officers is technically sound, environmentally and socially acceptable, and economically justified. The plan complies with all essential elements of the U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Land Related Resources Implementation Studies. The recommended plan complies with other administration and legislative policies and guidelines. The views of interested parties including federal, state, and local agencies have been considered.

9. I recommend that the plan for navigation improvements for Seattle Harbor be authorized in accordance with the reporting officers' recommended plan at an October 2017 estimated project first cost of $60,039,000 with such modifications 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, including Section 101 of WRDA 1986, as amended (33 U.S.C. 2211), and to the non-federal sponsor agreeing, prior to project implementation, to perform the required items of local cooperation, including but not limited to the following:

a. Provide 25% of the total cost of construction of the GNFs attributable to dredging to a depth in excess of -20 MLLW but not in excess of -50 MLLW; plus 50% of the total cost of construction of the GNFs attributable to dredging to a depth in excess of -50 MLLW but not in excess of -56 MLLW; plus 100% of the total cost of construction of the GNFs attributable to dredging to a depth in excess of -56 MLLW as further specified below:

(1) Provide 50% of design costs allocated by the federal government to commercial navigation in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;

(2) Provide, during the first year of construction, any additional funds necessary to pay the full non-federal share of design costs allocated by the federal government to commercial navigation;

(3) Provide, during construction, any additional funds necessary to make its total contribution for commercial navigation equal to 25% of the total cost of construction of the GNFs attributable to dredging to a depth in excess of -20 MLLW but not in excess of -50 MLLW; plus 50% of the total cost of construction of the GNFs attributable to dredging to a depth in excess of -50 MLLW but not in excess of -56 MLLW; plus 100% % of the total cost of construction of the GNFs attributable to dredging to a depth in excess of -56 MLLW; plus 100% of the total cost of upland disposal of contaminated sediments in a permitted waste disposal facility;

b. Provide all lands, easement, and rights-of-way (LER), including those necessary for the borrowing of material and disposal of dredged or excavated material, and perform or assure the performance of all relocations, including utility relocations, all as determined by the federal government to be necessary for the construction or operation and maintenance of the GNFs;

c. Pay with interest, over a period not to exceed 30 years following completion of the period of construction of the GNFs, an additional amount equal to 10% of the total cost of construction of GNFs less the amount of credit afforded by the federal government for the value of the LER and relocations, including utility relocations, provided by the non-federal sponsor for the GNFs. If the amount of credit afforded by the federal government for the value of LER and relocations, including utility relocations, provided by the non-federal sponsor equals or exceeds 10% of the total cost of construction of the GNFs, the non-federal sponsor shall not be required to make any contribution under this paragraph, nor shall it be entitled to any refund for the value of LER and relocations, including utility relocations, in excess of 10% of the total costs of construction of the GNFs;

d. Provide, operate, and maintain, at no cost to the federal government, the local service facilities 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 government;

e. Provide 50% of the excess cost of operation and maintenance of the project over that cost which the federal government determines would be incurred for operation and maintenance if the project had a depth of -50 MLLW; plus 100% of the excess cost of operation and maintenance of the project over that cost which the federal government determines would be incurred for operation and maintenance if the project had a depth of -56 MLLW;

f. 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 and maintaining the GNFs;

g. Hold and save the United States free from all damages arising from the construction or operation and maintenance of the project, any betterments, and the local service facilities, except for damages due to the fault or negligence of the United States or its contractors;

h. Keep and maintain books, records, documents, or other evidence pertaining to costs and expenses for a minimum of three years after the final accounting and assure that such materials are reasonably available for examination, audit, or reproduction by the government;

i. Perform, or ensure performance of, any investigations for hazardous substances as are determined necessary to identify the existence and extent of any hazardous substances regulated under the CERCLA that may exist in, on, or under LER that the federal government determines to be necessary for the construction or operation and maintenance of the GNFs. However, for lands, easements, or rights-of-way that the federal government determines to be subject to the navigation servitude, only the federal government shall perform such investigation unless the 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;

j. Assume complete financial responsibility, as between the federal government and the non-federal sponsor, 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 required that the government determines to be necessary for the construction or operation and maintenance of the project;

k. 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, perform its obligations in a manner that will not cause liability to arise under CERCLA;

l. Comply with Section 221 of the Flood Control Act of 1970, Public Law 91-611, as amended (42 U.S.C. 1962d-5b) and Section 101(e) of WRDA 1986, as amended (33 U.S.C. 2211(e)) which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until the non-federal sponsor has

entered into a written agreement to furnish its required cooperation for the project or separable element;

m. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, PL 91-646, as amended, (42 U.S.C. 4601-4655) and the Uniform Regulations contained in 49 CFR 24, in acquiring lands, easements, and rights-of-way, necessary for construction, operation and maintenance of the project including those necessary for relocations, the borrowing of material, or the disposal of dredged or excavated material; and inform all affected persons of applicable benefits, policies, and procedures in connection with said act;

n. Comply with all requirements of applicable federal laws and implementing regulations, including, but not limited to: Section 601 of the Civil Rights Act of 1964 (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); the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Army Regulation 600-7 issued pursuant thereto; and 40 U.S.C. 3141-3148 and 40 U.S.C. 3701-3708 (labor standards originally enacted as the Davis-Bacon Act, the Contract Work Hours and Safety Standards Act, and the Copeland Anti-Kickback Act);

o. Not use funds from other federal programs, including any non-federal contribution required as a matching share therefore, to meet any of the non-federal sponsor's obligations for the project costs unless the federal agency providing the federal portion of such funds verifies in writing that such funds are authorized to be used to carry out the project.

10. The recommendation contained herein reflects the information available at this time and current departmental policies governing the formulation of individual projects. It does not reflect program and budgeting priorities inherent in the formulation of the national civil works construction program or the perspective of higher levels within the executive branch. Consequently, the recommendations may be modified before they are transmitted to Congress for authorization and/or implementation funding. However, prior to transmittal to Congress, the state, interested federal agencies, and other parties will be advised of any significant modifications in the recommendations and will be afforded an opportunity to comment further.

TODD T. SEMONITE
Lieutenant General, USA
Chief of Engineers

DEPARTMENT OF THE ARMY
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WASHINGTON, D.C. 20314-1000

DAEN

29 JUN 2018

SUBJECT: Norfolk Harbor and Channels Navigation Improvements Project, Virginia

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on navigation improvements in the Norfolk Harbor, Virginia. It is accompanied by the report of the district and division engineers. The project was originally authorized under Section 201 of the Water Resources Development Act (WRDA) of 1986 (Public Law 99-662). This law authorized the construction of the Norfolk Harbor and Channels, Virginia, Project, as described in House Document 99-85, dated 18 July 1985, entitled "Norfolk Harbor and Channels, Virginia." The original authorization included channel deepening from -45 to -55 feet Mean Lower Low Water (MLLW) within most of the project area and -57 feet MLLW within the Atlantic Ocean Channel. Since being authorized all areas were deepened to a depth of -50 feet MLLW with the exception of the Atlantic Ocean Channel, which was deepened to -52 feet MLLW. This study is being conducted under Section 216 of the Flood Control Act of 1970 (Public Law 91-611), which authorizes the review of completed projects in the interest of navigation and related purposes to determine the feasibility of further port deepening.

2. The reporting officers recommend authorizing a plan that will significantly contribute to the economic efficiency of commercial navigation in the region. The recommended plan is the National Economic Development (NED) Plan, which includes:

- Deepening the Atlantic Ocean Channel to a required depth -59 feet (MLLW);
- Deepening the Thimble Shoal Channel to a required depth -56 feet (MLLW);
- Deepening the Norfolk Harbor Channel to a required depth -55 feet (MLLW);
- Deepening the Norfolk Harbor Entrance Channel to a required depth -55 feet (MLLW);
- Deepening the Newport News Channel to a required depth -55 feet (MLLW);
- Widening the Thimble Shoal Channel east of the Chesapeake Bay Bridge Tunnel to 1,300 feet;
- Widening Anchorage F to 3,620 feet and associated modifications of the Approach Area; and
- Deepening Anchorage F to a required depth -51 feet (MLLW).

The recommended plan would not have any significant adverse impacts so no mitigation measures or compensation measures would be required. Of the measures included in the recommended plan, only the deepening of Atlantic Ocean Channel, the deepening and widening

of Thimble Shoal Channel, and the widening of Anchorage F exceed the scope of the authority provided in Section 201 of WRDA 1986 and require authorization. Further, the recommended plan is not intended to repeal or deauthorize any authority provided in Section 201 of WRDA 1986 that exceeds the scope of the measures included in the recommended plan.

3. The Virginia Port Authority is the non-federal sponsor.

4. Project costs for the Federal Base Plan are allocated to the commercial navigation purpose and are based on October 2017 price levels.

a. Project First Cost. The estimated project first cost of construction is $271,822,000 which includes the cost of constructing General Navigation Features (GNFs) and the value of lands, easements, rights-of-way and relocations (LERRs) estimated as follows $9,060,000.

b. Estimated Federal and Non-Federal Shares: The estimated federal and non-federal shares of the project first cost are $131,381,000 and $140,441,000, respectively, as apportioned in accordance with the cost sharing provisions of Section 101(a) of WRDA 1986, as amended (33 U.S.C. 2211(a)).

c. Additional 10 Percent Payment. In addition to payment by the non-federal sponsor of its share of the total cost of construction of the GNFs during construction, the non-federal sponsor must pay an additional 10 percent of the cost of the GNFs in cash over a period not to exceed 30 years, with interest, in accordance with Section 101(a)(2) of WRDA 1986, as amended (33 U.S.C. 221 l(a)(2)). The additional 10 percent payment without interest is estimated to be $17,216,000. The value of LERRs and the costs of utility relocations, should they become necessary, will be credited toward this amount in accordance with Section 10l(a)(3) of WRDA 1986, as amended (33 U.S.C. 221 l(a)(3)).

d. Associated Costs. Estimated associated costs of $20,003,000 will be the responsibility of the non-federal sponsor for dredging of non-federal berthing areas adjacent to the federal channel. There are no required aids to navigation (a U.S. Coast Guard expense) for this project improvement.

e. Authorized Project Cost and Section 902 Calculation. The project first cost for the purpose of calculating the maximum cost of the project pursuant to Section 902 of WRDA 1986, as amended (33 U.S.C. 2280), includes the total cost of construction of the GNFs, and should they become necessary the value of LERRs and the costs of utility relocations. Accordingly, as set forth in paragraph 4.a, above, based on October 2017 prices, the total estimated project first cost for these purposes is $271,822,000. Based on October 2017 price levels, a discount rate of 2.75 percent, and a 50-year period of economic analysis, the project average annual benefits and costs are estimated at $96,500,000 and $18,080,000, respectively, with resulting net excess benefits of $78,420,000 and a benefit-to-cost ratio of 5.3 to 1.

f. Operation and Maintenance Costs. The additional annual cost of operation and maintenance for this recommended plan is estimated to be $6,140,000. In accordance with Section 101(b)(1) of WRDA 1986, as amended (33 U.S.C. 2211(b)(1)), the non-federal sponsor will be responsible for an amount equal to 50 percent of the cost of the operation and maintenance of the project since all recommended project depths are deeper than - 50 feet MLLW.

5. The goals and objectives included in the Campaign Plan of the Corps have been fully integrated into the Norfolk Harbor Navigation Improvements study process. The recommended plan was developed in coordination and consultation with various federal, state and local agencies using a systematic and regional approach to formulating solutions and evaluating the benefits and impacts that would result.

6. In accordance with the Corps Engineering Circular on review of decision documents, all technical, engineering, and scientific work underwent an open, dynamic, and vigorous review process to ensure technical quality. This included District Quality Control (DQC), Agency Technical Review (ATR), an Independent External Peer Review (IEPR) (Type I), and a Corps Headquarters policy and legal review. All concerns of the DQC and ATR have been addressed and incorporated into the final report. Battelle Memorial Institute completed the Type I IEPR in March 2018. Overall, 12 comments were identified and documented; 3 comments were rated as having high significance, 4 comments were rated medium/low and 5 comments were rated low. The high significant comments pertained to the reasonableness of economic assumptions, dock capacity delays compared to channel deepening delays, and data supporting formulation of alternative plans. Medium to low comments related to depth of Chesapeake Bay Bridge Tunnel, maintenance dredging costs, future federal harbor projects, and resolving significant public comments. All comments from the above referenced reviews have been addressed and incorporated into the final documents. Overall, the reviews resulted in improvements to the technical quality of the report.

7. Washington level review indicates that the project recommended by the reporting officers is technically sound, environmentally and socially acceptable, cost effective, and economically justified. The plan complies with all essential elements of the U.S. Water Resources Council's *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies* and complies with other administrative and legislative policies and guidelines. The views of interested parties, including federal, state, and local agencies were considered.

8. I concur in the findings, conclusions, and recommendation of the reporting officers. Accordingly, I recommend that navigation improvements for Norfolk Harbor, Virginia, be authorized in accordance with the reporting officers' recommended plan at an estimated cost of $271,822,000, with such modifications 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, including Section 101 of WRDA 1986, as

amended (33 U.S.C. 2211). The non-federal sponsor would provide the non-federal cost share and all lands, easements, and rights of way, including those necessary for the borrowing of material and the disposal of dredged or excavated material, and would perform or assure the performance of all relocations, including utility relocations. This recommendation is subject to the non-federal sponsor agreeing to comply with all applicable federal laws and policies including that the non-federal sponsor must agree with the following requirements prior to project implementation.

a. Provide, during the periods of design and construction, funds necessary to make its total contribution for commercial navigation equal to 50 percent of the cost of design and construction of the GNFs and mitigation (including mitigation LERRs);

b. Provide all lands, easement, and rights-of-way, including those necessary for the borrowing of material and placement of dredged or excavated material, and perform or assure performance of all relocations, including utility relocations, all as determined by the government to be necessary for the construction or operation and maintenance of the GNFs.

c. Pay with interest, over a period not to exceed 30 years following completion of the period of construction of the GNFs, an additional amount equal to 10 percent of the total cost of construction of GNFs less the amount of credit afforded by the government for the value of the lands, easements, and rights-of-way, and relocations, including utility relocations, provided by the non-federal sponsor for the GNFs. If the amount of credit afforded by the government for the value of lands, easements, and rights-of-way,, and relocations, including utility relocations, provided by the non-federal sponsor equals or exceeds 10 percent of the total cost of construction of the GNFs, the non-federal sponsor shall not be required to make any contribution under this paragraph, nor shall it be entitled to any refund for the value of lands, easements, and rights-of-way, and relocations, including utility relocations, in excess of 10 percent of the total costs of construction of the GNFs.

d. Provide, operate, and maintain, at no cost to the government, the local service facilities 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 government, including but not limited to providing depths in the berths at adjacent t terminals at least equal to that of the adjacent federal channel and turning basin.

e. Give the 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 and maintaining the GNFs.

f. Hold and save the United States free from all damages arising from the construction or operation and maintenance of the project, any betterments, and the local service facilities, except for damages due to the fault or negligence of the United States or its contractors.

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 Commonwealth of Virginia and the Virginia Port Authority (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.

Strongly Endorse This Critical Projects - Great Project for "Energizing the Economy" and Protecting DODs Maritime Rights - While Protecting the Environment!! Standing By To Begin Construction!! Report is 6 months Attend of Schedule.

TODD T. SEMONITE
Lieutenant General, USA
Chief of Engineers

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JUL 3 1 2018

DAEN

SUBJECT: Lower San Joaquin River Flood Risk Management Feasibility Study Report, California

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on the study of flood risk management along the San Joaquin River within the metropolitan area of Stockton, California. It is accompanied by the report of the Sacramento District Engineer and the South Pacific Division Engineer. These interim reports are in partial response to the resolution adopted by the Committee on Public Works of the House of Representatives, adopted May 8, 1964. The resolution requested a review of "the reports on the Sacramento-San Joaquin Basin Streams, California, published in House Document No. 367, 81st Congress, 1st session and other reports, with a view to determine whether any modifications to the recommendations contained therein are advisable at this time, with particular reference to further coordinated development of the water resources in the San Joaquin River Basin, California." Reports related to flood control investigations in the San Joaquin River Basin were initially authorized by Sections 2 and 6 of the Flood Control Act of 1936, Public Law 74-738. House Report 105-190, which accompanied the Energy and Water Development Appropriations Act, 1998, Public Law 105-62, identified initial funding and directed the U.S. Army Corps of Engineers (Corps) to conduct a comprehensive study under the 1964 study authority. As the present report addresses flood risk management concerns in only a portion of the study area, I recommend continuing work under the existing study in order to determine the feasibility of flood risk management plan alternatives for other locations covered by the study authority, including but not limited to the area designated as Reclamation District 17, as well as the cities of Lathrop and Manteca.

2. The reporting officers recommend authorizing a plan to reduce flood risk by reducing the problems associated with seepage, stability and erosion for the levees along the San Joaquin River, Calaveras River, Fourteenmile Slough, Tenmile Slough, and Mosher Slough. The recommendation is supported by the non-federal sponsors, the San Joaquin Area Flood Control Agency (SJAFCA) and the State of California. The principal features of the recommended plan by reach are:

Delta Front

- 3.05 miles of fix in place improvements with soil-bentonite cutoff walls of various depths with 2.5 miles of geometry improvement.

- 1.1 miles of seismic fixes through deep soil mixing in North Stockton along two segments of Tenmile Slough.

- 1.33 miles of new setback levee along the Delta Front to eliminate the eastern portions of the Fourteenmile Slough levee in North Stockton.

- 0.59 miles of height improvements between 1.8 and 2.7 feet on the Delta Front.

- 5 miles of erosion protection.

- Control Structure on Fourteenmile Slough.

North Stockton

- 9.4 miles of fix in place improvements with soil-bentonite cutoff walls of various depths in North Stockton.

- 2.03 miles of height improvements between 1.4 and 1.6 feet in North Stockton.

Central Stockton

- 9.2 miles of fix in place improvements with soil-bentonite cutoff walls of various depths in Central Stockton.

- 2 miles of levee geometry improvements in Central Stockton along one segment of the Calaveras River and one segment of the San Joaquin River.

- 0.53 miles of height improvements of 1.8 feet in Central Stockton.

- 0.75 miles of new levee with soil-bentonite cutoff wall on Duck Creek to address flanking of flood waters from south of Central Stockton.

- 0.28 miles of height improvements of 4 feet on the RD 404 levee.

- Control Structure at Smith Canal with 0.2 miles of floodwall.

The recommended plan requires the non-federal sponsors prepare a Floodplain Management Plan, as required for all Corps flood risk management projects per Section 402 of the Water Resources Development Act (WRDA) of 1986, as amended.

There are 14.2 miles of existing federal levee segments within the recommended plan. A total of 9.5 miles of existing non-federal levee and 0.75 miles of newly constructed levee will be added to the federal levee system as part of the recommended plan.

3. The recommended plan is the NED Plan and would reduce flood risk to the City of Stockton. The proposed project would reduce Expected Annual Damages (EAD) within North and Central Stockton by 83 percent, with a residual EAD of approximately $63,000,000. The proposed project would have significant long-term effects on environmental resources, however in all

cases, the potential adverse environmental effects would be reduced to a less than significant level or mitigated through project design, construction practices, preconstruction surveys and analysis, regulatory requirements, and best management practices. No jurisdictional wetlands were identified in the project footprint. Potential impacts to vegetation communities and special status species have been greatly reduced through feasibility level design. Direct impacts to nesting birds and other sensitive species would be avoided by implementing preconstruction surveys and scheduling of construction activities. The U.S. Fish & Wildlife Service and the National Marine Fisheries have provided a Biological Opinion in which the agency provided recommendations for design refinement or mitigation. The recommended plan would implement the environmental compensatory mitigation plan and associated monitoring and adaptive management plan.

4. Based on October 2017 price-levels, the estimated total first cost of the NED plan is $1,070,309,000. The federal share of the estimated first cost of initial construction is currently estimated at $695,701,000. The non-federal cost share for the NED plan is $374,608,000. The cost of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas is estimated at $189,101,000. The State of California, along with the San Joaquin Area Flood Control Agency would be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction. Operation and maintenance is currently estimated at about $1,062,000 per year.

5. Based on a 2.75-percent discount rate and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be $49,294,000, including OMRR&R. The selected plan is estimated to be 89 percent reliable in reducing flood risk for the city of Stockton, California, from a flood which has a one percent chance of occurrence in any year. The selected plan would reduce average annual flood damages by about 83 percent and would leave average annual residual damages estimated at $63,000,000. Average annual economic benefits are estimated to be $345,024,000; net average annual benefits are $295,730,000. The benefit-to-cost ratio is 7.0 to 1.

6. The goals and objectives included in the Campaign Plan of the U.S. Army Corps of Engineers have been fully integrated into the Lower San Joaquin River feasibility study process. The recommended plan has been designed to avoid or minimize environmental impacts while maximizing future safety and economic benefits to the community. The Feasibility Study team organized and participated in stakeholder meetings and public workshops throughout the process and worked with local groups to achieve a balance of project goals and public concerns. The study report fully describes flood risks associated with the San Joaquin and Calaveras Rivers and describes the residual risk. The residual risks have been communicated to SJAFCA and the State of California, and they understand and agree with the analysis. Residual flood risk would be addressed through wise floodplain management measures such as a flood warning and emergency evacuation being incorporated into current plans.

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 (DQC) and Policy Certification,

Division Quality Assurance (DQA), Agency Technical Review (ATR), an Independent External Peer Review (IEPR) (Type I), and a Corps Headquarters policy and legal review. All concerns of the DQC and ATR have been addressed and incorporated into the final report. The Final IEPR Report was issued in May 8, 2015. Overall, a total of eight (8) comments were identified and documented and identified as having low significance. The IEPR comments focused on areas of the report consistency and clarity, plan formulation, economic evaluation, engineering assumptions, and environmental analyses. The IEPR panel comments and recommendations for resolution were concurred in and adopted. The IEPR process was completed in July 2015.

Overall the reviews from the aforementioned process resulted in report improvements. Incorporation of review recommendations resulted in expanded narratives and plan evaluations in plan formulation. Recommended improvements better support the decision-making process in the plan selection process. A safety assurance review (Type II IEPR) will be conducted during the design phase of the project.

8. Washington level review indicated 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. The recommended plan complies with other administrative and legislative policies and guidelines. The views of interested parties, including federal, state and local agencies have been considered.

9. I concur in the findings, conclusions, and recommendations of the reporting officers. I recommend that the Recommended Plan (Alternative 7a) be authorized for implementation, as a federal project, with such modifications thereof as in the discretion of the Chief of Engineers may be advisable. The plan includes fix-in-place improvements to the existing levees along Mosher Slough, Fourteenmile Slough, Tenmile Slough, the lower Calaveras River, San Joaquin River and French Camp Slough; the primary method of levee improvement is the construction of slurry walls of various depths. Also included are two closure structures and the construction of 0.75 miles of new levee. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies. The cost of the plan recommended in this Report will be cost shared in accordance with Section 103 of the WRDA 1986, as amended (33 U.S.C. 2213), with a minimum non-federal share of 35 percent, not to exceed 50 percent, of total NED costs. Applying these requirements, the federal portion of the estimated total first cost is $695,701,000 and the non-federal portion is $374,608,000, or a federal share of 65 percent and a non-federal share of 35 percent. Federal implementation of the selected 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 a minimum of 35 percent, but not to exceed 50 percent, of NED Plan costs as further specified below:

1. Provide 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;

2. Provide, during construction, a contribution of funds equal to 5 percent of project costs which must be in the form of cash;

3. Provide all lands, easements, and rights-of-way, and perform or ensure the performance of any relocations 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;

4. Provide, during construction, any additional funds necessary to make its total contribution equal to at least 35 percent of project costs;

b. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace the project, or functional portions of the project, including any mitigation features, 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) that might 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 sponsors own or control 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 design, 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, easements, or rights-of-way that the federal government determines to be required for construction, operation, and 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 sponsors with prior specific written direction, in which case the non-federal sponsors shall perform such investigations in accordance with such written direction;

h. Assume, as between the federal government and the non-federal sponsors, 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, and maintenance of the project; and

i. Agree, as between the federal government and the non-federal sponsors, that the non-federal sponsors 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 recommendation contained herein reflects the information available at this time and current Departmental policies governing formulation of individual projects. They 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 proposals for authorization and implementation funding. However, prior to transmittal to the Congress, the sponsor, the states, interested federal agencies, and other parties will be advised of any modifications and will be afforded an opportunity to comment further.

TODD T. SEMONITE
Lieutenant General, U.S. Army
Chief of Engineers

STRONGLY ENDORSE THIS PROJECT... BCR IS 7 to 1 (current interest rate) BCR is 2.6 @ 7% interest rate, VERY COMPETITIVE + VERY IMPORTANT!!

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

CECW-LRD

JUN 2 9 2018

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY CIVIL WORKS (ASA(CW))

SUBJECT: Soo Locks, Sault Ste. Marie, Chippewa County, MI. New Soo Lock Economic Validation Study and Post Authorization Change Report (PACR)

1. Purpose: I transmit for your review and approval of the Soo Locks, Sault Ste. Marie, Chippewa County, MI, New Soo Lock Economic Validation Study and Post Authorization Change Report (PACR) which documents the need to modify the project authorization to increase the authorized cost to $922,432,000 (October 2018 price level).

2. Post Authorization Change: Section 1149 of the Water Resources Development Act (WRDA) of 1986 originally authorized the project at a total cost of $227,400,000. Section 3091 of WRDA 2007 modified the project to authorize the Secretary of the Army to complete the project at a total cost of $341,700,000 and at 100-percent federal cost. The revised estimated project first cost (without inflation) is $922,432,000 (October 2018 prices), and includes $32,132,000 in sunk costs through June 2018. The revised cost is a result of (1) Direct cost and design changes totaling $193,000,000; (2) Refined contractor markups totaling $111,000,000, and (3) increased contingency from 20-percent to 37-percent totaling $170,000,000. There are no changes in project location, purpose, or scope. The currently estimated total project cost inflated through the midpoint of construction is $1,030,670,000. The maximum cost for the authorized project, adjusted for allowable inflation in accordance with Section 902 of WRDA 1986, as amended, is $532,900,000 (October 2018 price levels); therefore the revised total project cost exceeds the Section 902 limit.

3. Background and Discussion:

a. The St. Marys River connects Lake Superior with Lake Huron in Sault Ste. Marie, MI. The water drops approximately 21 feet in an area known as the St. Marys Rapids. This natural barrier to navigation led to the construction of the St. Marys River Complex. The Complex consists of the four navigation locks (MacArthur, Poe, Davis, and Sabin Locks), two hydropower units, and Compensating Works structure. The MacArthur Lock was completed in 1943 and has a length of 800 feet between the sills, a width of 80 feet, and a depth of 31 feet of water over the sills at low water datum. The Poe Lock was completed in 1968 and has a length of 1200 feet between the inner gates, a width of 110 feet, and a depth of 32 feet of water over the sills at normal lower pool. The Poe Lock holds back a head of 21.5 feet (the difference between normal

upper pool and normal lower pool). The Davis and Sabin locks are in inactive status and not operational.

b. The Poe Lock is the only lock at the Soo Locks complex capable of locking 1000-foot vessels (also known as Poe restricted). One 1,000-foot vessel is the equivalent of seven 100 car trains with a 10,000 ton capacity or 3,000 large semi-trucks with a 25 ton capacity. Since the completion of the Poe Lock, a greater share of the Great Lakes vessel fleet has been converted to Poe restricted vessels. In 2017, the Poe Lock handled 89-percent of the total tonnage that transited the Soo Locks. In the event of an unplanned outage at the Poe Lock, the MacAuthur Lock does not have the capacity to keep up with the transportation demand, effectively creating a bottle neck. At that point, alternative modes of transportation would need to be employed at extremely high costs to shippers and consumers. In the case of iron ore, which is almost exclusively transported on vessels that can only fit through the Poe Lock, no alternative transportation modes exist (see paragraph 4.b. for more detailed explanation).

c. In response to this potential bottleneck, Congress first authorized a second Poe sized lock in Section 1149 of WRDA 1986. The most recent authorization language in Section 3091 of WRDA 2007 reaffirmed the need for a second Poe sized lock at full federal expense.

4. Benefits and Costs:

a. The Validation Report and PACR concluded that construction of a new lock would result in average annual benefits of $77,400,000; incur average annual costs of $32,700,000; yield net average annual benefits of $44,700,000; and result in a benefit-to-cost ratio (BCR) of 2.42 at the FY18 discount rate of 2.75%.

b. One of the complexities of the analysis was how to account for iron ore movements and the subsequent higher costs incurred if the Poe Lock experienced an unscheduled outage. Typically in navigation projects, it is assumed that an alternate land route exists that could move the commodities in question. The difference between the water route and the overland route becomes the benefits of the project. In the case of the Poe Lock, there is no alternative land route available to move iron ore from mines in Minnesota to the steel mills on the lower Great Lakes. In order to account for this, hypothetical transportation modes were established to estimate the benefits of iron ore movements. These hypothetical modes include stockpiling, conveyance, and a build out of a railroad and port at Escanaba, MI. They are feasible and necessary to the proxy model, but are not intended as proposed alternative modes to the new lock. Currently, disruptions to Poe Lock serviceability would have an immediate impact on the supply chain, which would directly impact production of Advanced High Strength Steel.

That disruption would, in turn, impact manufacturing, particularly the automobile industry.

c. A range of sensitivity analyses were calculated in the Validation Report to determine and communicate the robustness of the new lock recommendation. These include accounting for uncertainty in traffic forecasts (low and high), the implementation period, in the impacts to Gross Domestic Product (GDP), and others. The range of BCRs at the FY18 discount rate of 2.75-percent range from 0.97 to 6.89. This range reinforces the conclusion that a new lock is justified in almost every scenario.

5. Strategic Value to the Nation: The strategic importance of the Soo Locks cannot be overstated. Independent of the U.S. Army Corps of Engineers (Corps) analysis, the Department of Homeland Security (DHS) produced a report detailing the strategic value of the Soo Locks to the nation, titled 'The Perils of Efficiency: An Analysis of an Unexpected Closure of the Poe Lock and Its Impact'. That report confirms that no alternative transportation mode exists for iron ore transiting from mines in Minnesota to the steel mills located on the lower Great Lakes. It concludes that, "One of the Nation's most economically vital systems, the iron mining - integrated steel production - manufacturing supply chain, is also potentially the least resilient." The Corps conducted a specific sensitivity to 'parallel' the conclusions of the DHS report. The sensitivity is termed a GDP sensitivity, and yields a BCR of 6.89. While this BCR cannot be supported by the Corps under the 1983 Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies due to accounting for National Economic Development and Regional Economic Development benefits, it is none the less important for showing the value to the nation of the project.

6. Budgetary Position: The Corps has received approximately $32,132,000 of Construction funding to date on the project. It is the Corps position that this constitutes a continuation of an existing project rather than a new construction start decision.

7. Recommendation: I recommend that the Validation Report and PACR be approved as the basis for increasing the authorized project cost of the new Soo Lock to $922,432,000 (Oct 2018 price levels).

JAMES C. DALTON, P.E.
Director of Civil Works

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, D.C. 20314-1000

CECW-LRD

JUL 19 2018

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)

SUBJECT: Chickamauga Lock Replacement, Chickamauga Lake, Hamilton County, Tennessee Post Authorization Change Report

1. Purpose: Request your review and approval of the Chickamauga Lock Replacement, Chickamauga Lake, Hamilton County, Tennessee (Chickamauga Lock Replacement Project) Post Authorization Change Report (PACR), which documents the need to modify the project authorization to increase the authorized cost to $731,320,000 (October 2017 price level).

2. Post Authorization Change: Section 114 of Title I of Division D of the Consolidated Appropriations Act of 2003 originally authorized the project at a total cost of $267,167,000. The revised estimated total project first cost (without inflation) is $731,320,000 (October 2017 price level). The revised cost is primarily the result of an increase in design costs for elements already constructed, risk based cost increases due to change in cost estimating methodology and procedures since the original feasibility estimate (not risk based); additional cost increases for construction management due to increased project duration and updated construction costs for remaining elements based on a more refined design. There are no changes in project location, purpose, or scope. The current total project cost estimate, inflated to the midpoint of scheduled future construction, is $757,666,000. The maximum cost for the authorized project, adjusted for allowable inflation, pursuant to Section 902 of the Water Resources Development Act (WRDA) of 1986 is $480,876,000 (October 2017 price level).

3. Background and Discussion:

a. The authorized project involves constructing a replacement 110' x 600' lock at Chickamauga Lock and Dam, at mile 471 of the Tennessee River. The impetus for a replacement lock is the structural deficiencies of the existing lock resulting from physical expansion of the concrete structure. This phenomenon of concrete growth was observed in the 1940's soon after initial construction and is caused by a reaction between the alkali in the cement and the rock aggregate. Even with costly, aggressive maintenance procedures, this concrete growth threatens the structural integrity of the lock and limits its life. Both the U.S. Army Corps of Engineers (Corps) and the Tennessee Valley Authority (TVA) agree that the lock has a finite life limited by economics and safety. At some point, the condition of the lock could cause the TVA Dam Safety Officer to permanently close the lock. Additionally, the current lock size cannot efficiently process modern towing equipment.

b. Despite authorization in 2003, construction funding beginning in 2004, and an anticipated online date by 2011, the construction of the replacement lock has only been partially completed due to sub-efficient funding. A 2009 Limited Reevaluation Report (LRR) updated the project economics and reaffirmed the replacement lock's economic viability. The 2016 LRR again updated the benefits and costs of the replacement lock to determine whether continued federal investment is economically justified under current policies, criteria, and guidelines.

4. Benefits and Costs: The PACR concluded that the Chickamauga Lock Replacement Project continues to be economically justified. With a 2.75 percent federal FY2018 discount rate, and a 50-year period of economic analysis, the estimated total average annual costs for construction is $25,717,000 and the total average annual benefits are $45,450,000. Annual average net benefits are estimated at $19,733,000 and the overall benefit to cost ratio is 1.7 to 1. There have been no changes to the project scope, purposes, or design since the Chief's Report, dated May 30, 2002. The project was authorized as a federal project with 50% of the funding coming from the general fund and 50% of the funding coming from the Inland Waterways Trust Fund.

5. Strategic Value to the Nation: Chickamauga Lock is one of the major locks along the Tennessee River allowing goods to transit the inland navigation system; closure of Chickamauga Lock would mean a loss of 318 miles of navigable channels and would cut off navigation to Knoxville TN (3rd largest city in TN). Chickamauga Lock allows waterways shipments for Department of Energy (Oak Ridge National Lab), TVA (2 nuclear power plants at Sequoyah and Watts Bar), and many businesses. Over 1 million tons of commodities traverse Chickamauga Lock annually that have origins or destinations in 15 states, traveling an average of over 1,100 miles. Once the replacement lock project is completed, the annual tonnage transiting Chickamauga Lock is estimated to increase four fold, resulting in $52.9 million in average annual benefits at the 7% discount rate.

6. Conclusion. The Corps policy compliance review of the PACR concluded that there are no unresolved policy issues and that the project is technically sound, environmentally acceptable, and economically justified.

7. Recommendation. I recommend that the PACR be approved as the basis for increasing the authorized project costs of the Chickamauga Lock Replacement Project to $731,320,000 (October 2017 price levels).

JAMES C. DALTON, P.E.
Director of Civil Works

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
108 ARMY PENTAGON
WASHINGTON DC 20310-0108

JUL 11 2018

The Honorable Bill Shuster
Chairman
Committee on Transportation and Infrastructure
United States House of Representatives
Washington, D.C. 20515

Dear Representative Shuster:

In accordance with Section 203 of the Water Resources Development Act of 1986, as amended, I am responsible for determining whether South Florida Water Management District's (SFWMD) Central Everglades Planning Project Section 203 Integrated Feasibility Study and DRAFT Environmental Impact Statement (March 2018, Amended May 2018), and the process under which the study was developed, comply with Federal laws and regulations. In addition, I must submit a report to Congress that describes the results of my review, including a determination of whether SFWMD's recommended project is feasible; any recommendations I may have concerning SFWMD's recommended plan; and any conditions that I may require for construction of the proposed project.

I have determined that SFWMD's proposed project contained in the Integrated Feasibility Study and DRAFT Environmental Impact Statement is feasible from an engineering and construction viewpoint. However, I have identified significant technical, policy, and legal concerns that are detailed in the enclosed Review Assessment. Concerns associated with the plan and design of SFWMD's proposed project can be addressed through an evaluation/validation effort in the next project phase, subject to authorization by Congress. Conditions for construction of the project include the following: completion of further detailed technical studies to validate the design and cost estimate; completion of National Environmental Policy Act and environmental compliance activities; and compliance with water quality requirements.

The Office of Management and Budget (OMB) has completed its review of my Review Assessment and has provided clearance to submit it to Congress. OMB noted that if authorized, SFWMD's proposed project would need to compete with other proposed investments in future Budgets. However, before SFWMD's proposed project would be eligible for funding in future Budgets, an additional report must be prepared that adequately addresses the concerns, recommendations, and conditions identified within the Review Assessment. A copy of OMB's letter, dated July 10, 2018, is enclosed.

I am sending an identical letter to Ranking Member DeFazio and the Senate Committee on Environment and Public Works.

Sincerely,

R.D. James
Assistant Secretary of the Army
(Civil Works)

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

MAY 11 2018

The Honorable Bill Shuster
Chairman, Committee on Transportation
and Infrastructure
United States House of Representatives
2165 Rayburn House Office Building
Washington, D.C. 20515

Dear Mr. Chairman:

As required by Section 2033 of P.L. 110-114, I am enclosing a copy of the final report of the Chief of Engineers on the Española Valley, Rio Grande and Tributaries, New Mexico. Under separate letter, and in accordance with Executive Order 12322 dated September 17, 1981, the Assistant Secretary of the Army (Civil Works) will provide his report and the advice from the Office of Management and Budget on how the proposed project relates to the policy and programs of the President, the Economic, and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, and other applicable laws, regulations, and requirements relevant to the planning process.

I am sending an identical letter to the Honorable John Barrasso, Chairman of the Senate Committee on Environment and Public Works. Thank you for your interest in the Corps' Civil Works Program.

Sincerely,

Todd T. Semonite
Lieutenant General, U.S. Army
Commanding

Enclosure

DEPARTMENT OF THE ARMY
CHIEF OF ENGINEERS
2600 ARMY PENTAGON
WASHINGTON, D.C. 20310-2600

DAEN

MAY 1 1 2018

SUBJECT: Española Valley, Rio Grande and Tributaries, New Mexico

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on flood damage reduction and ecosystem restoration along the Rio Grande in the vicinity of Española, New Mexico. It is accompanied by the reports of the Albuquerque District Engineer and the South Pacific Division Engineer. These reports are in an interim response to a resolution by the Committee on Environment and Public Works of the Senate, adopted 10 December 2009. The resolution requested a review of the report of the Chief of Engineers on the Rio Grande and Tributaries transmitted to Congress on 27 June 1949 and related reports to determine whether additional projects were necessary in the Española Valley to meet federal flood risk management, ecosystem restoration and allied purposes." Preconstruction engineering and design activities, if funded, would commence under the authority provided by the resolution cited above.

2. The reporting officers recommend an ecosystem restoration plan for authorization, consisting of the improvement of habitat for fish, wildlife and waterfowl in the vicinity of Española, New Mexico. The reporting officers are unable to recommend a plan for the purpose of flood risk management. The recommended plan to restore the ecosystem consists of an active footprint of 314 acres of aquatic ecosystem restoration measures to restore and protect 958 acres of aquatic and riparian habitats in the study area. The recommended plan increases habitat value by 19,781 average annual habitat units.

3. The measures are formulated to: a) improve hydrologic connectivity between the Rio Chama, Rio Grande and their respective floodplains by constructing grade restoration facilities (GRFs), high-flow channels, terrace lowering, willow swales and wetlands; and b) restore native vegetation and habitat through exotic species reduction, and by riparian forest re-vegetation with native plant species. The GRFs to be constructed on Ohkay Owingeh Pueblo would improve floodplain connectivity for about 80 acres, and prevent the loss of connectivity for approximately 644 floodplain acres by arresting the channel incision that would occur under the future without project condition. Terrace lowering would provide over 57 acres of connectivity with the river by excavating the banks. The proposed high-flow channels (21 acres) would transport much-needed water across the terraces to bosque vegetation and improve floodplain connectivity on both Ohkay Owingeh and Santa Clara Pueblos. Willow swales (48 acres) provide microenvironments in which native plants can thrive due to the reduced depth to the water table and moist soils. The proposed swale/wetland measures (17 acres) focus on development of open water or marsh wetlands to provide open water habitat for migrating and local waterfowl, and provide aquatic habitat for numerous species. Vegetation removal and replanting is a component of most measures and are also proposed as standalone measures (91 acres). Removal of invasive plants and planting of native species removal increases the habitat value and enhances the aesthetic aspects of the bosque. As important as the habitat restoration is, the cultural value and

importance of a robust bosque to the two cost share partners carries great significance. The Rio Grande and the bosque forest that lines it is part of an important cultural landscape that is an integral part of constructing social identity and transmission and retention of historical knowledge for both the Pueblo of Santa Clara and Ohkay Owingeh. Any damages or negative alterations to the bosque would result in equally negative impacts to the beliefs, customs, and cultural practices of both Tribes. Its preservation, therefore, is of critical importance to the cultural well-being of both project sponsors.

4. The recommended plan also includes post construction monitoring and adaptive management for a period of five years to ensure project performance. Since the recommended plan would not have any significant adverse effects, no mitigation measures (beyond best management practices and avoidance) or compensation measures would be required. The recommended plan is the National Ecosystem Restoration (NER) plan. All features are located in New Mexico.

5. The Pueblo of Ohkay Owingeh and the Pueblo of Santa Clara are the non-federal cost-sharing sponsors for the proposed project. Each Pueblo will be responsible for the non-federal obligations for the project features implemented on its lands, including the provision of lands, easements, rights-of-way, relocations, and disposal areas (LERRD), and the monitoring and adaptive management as well as the operation and maintenance of those features. Based on October 2017 price levels, the estimated total first cost of the recommended plan is $62,000,000, consisting of the first costs of the ecosystem restoration features estimated at $61,718,000 and the first costs of the recreation features proposed for construction on Santa Clara Pueblo lands estimated at $282,000. The estimated project costs are divided among the two sponsors based on the distribution of project features within each Pueblo reservation, with approximately 50 percent allocated to each Pueblo.

6. In accordance with the cost sharing provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2213), the following are the base calculations for the recommended plan prior to the application of the non-federal cost sharing waiver and of the ability to pay guidance described in the next paragraph. The federal share of the estimated cost of the ecosystem restoration features of $61,718,000 would amount to an estimated $40,117,000 (65 percent) and the non-federal share would amount to an estimated $21,601,000 (35 percent), consisting of the provision of LERRD estimated at $3,040,000, and a monetary contribution estimated at $18,561,000. The total estimated cost of the recreation features of $282,000 would be shared equally, so that the federal share and the non-federal share would each amount to an estimated $141,000.

7. A waiver of non-federal cost sharing of up to $455,000, provided to Indian tribes by Section 1156 of WRDA 1986, as amended (33 U.S.C. 2310), is applicable to the recommended plan. In addition, consistent with Section 203 of WRDA 2000, as amended (33 U.S.C. 2269), I am recommending that the ability to pay of the Ohkay Owingeh Pueblo and of the Santa Clara Pueblo be considered in determining the non-federal cost share. Section 203, which authorizes the Tribal Partnership Program, provides for consideration of a Tribe's ability to pay in determining the Tribe's cost share for a water resources development project costing less than $10,000,000 million in federal funds and implemented under that authority. Specific authority is

required to implement this project as it exceeds $10,000,000 in federal funding; however, the benefits, location, and sponsorship of the recommended plan are otherwise comparable to those authorized by Congress for implementation under the Tribal Partnership Program.

8. The application of the Section 1156 non-federal cost sharing waiver and the Section 203 ability to pay guidance yields the following recommended cost sharing for each Pueblo of the estimated project first costs:

a. Ohkay Owingeh Pueblo. Based on October 2017 price levels, the base calculations for the ecosystem restoration features on Ohkay Owingeh Pueblo lands prior to applying the Section 1156 waiver and ability to pay guidance encompass an estimated total cost of $31,100,000, including a federal share estimated at $20,215,000 (65 percent), and a non-federal share estimated at $10,885,000 (35 percent) consisting of LERRD estimated at $1,440,000 and a monetary contribution estimated at $9,445,000. Applying the Section 1156 waiver of $455,000 reduces the non-federal monetary contribution to $8,990,000, and applying the 25 percent ability to pay factor specified in the guidance reduces the non-federal monetary contribution to $2,247,500. The resulting non-federal share is therefore estimated at $3,687,500 (12 percent), consisting of LERRD estimated at $1,440,000 and a monetary contribution estimated at $2,247,500. The federal share is estimated at $27,412,500 (88 percent).

b. Santa Clara Pueblo. Based on October 2017 price levels, the base calculations for the ecosystem restoration and recreation features on Santa Clara Pueblo lands prior to applying the Section 1156 waiver and ability to pay guidance encompass an estimated total cost of $30,900,000, including: (i) a federal share estimated at $20,043,000, comprising the federal share of $19,902,000 (65 percent) of the ecosystem restoration features and $141,000 (50 percent) of the recreations features; and (ii) a non-federal share estimated at $10,857,000 comprising the non-federal share of $10,716,000 (35 percent) of the ecosystem restoration features and $141,000 (50 percent) of the recreation features. The estimated non-federal share of $10,716,000 of the ecosystem restoration features in turn consists of LERRD estimated at $1,600,000, and a monetary contribution estimated at $9,116,000. Applying the Section 1156 waiver of $455,000 reduces the non-federal monetary contribution of $9,257,000 for both types of features to $8,802,000, and applying the 25 percent ability to pay factor specified in the guidance reduces the non-federal monetary contribution to $2,200,500. The resulting non-federal share is therefore estimated at $3,800,500 (12 percent), consisting of LERRD estimated at $1,600,000 and a monetary contribution estimated at $2,200,500. The federal share is estimated at $27,099,500 (88 percent).

9. The Pueblo of Ohkay Owingeh would be responsible for the monitoring and adaptive management as well as the operation and maintenance of the project located on its lands after implementation, a cost currently estimated at about $60,000 per year. The annual operation and maintenance estimate includes $20,000 for monitoring and adaptive management beyond the construction phase. The Pueblo of Santa Clara would be responsible for the monitoring and adaptive management as well as the operation and maintenance of the project located on its lands after implementation, a cost currently estimated at about $60,000 per year. The annual operation

and maintenance estimate includes $20,000 for monitoring and adaptive management beyond the construction phase.

10. Based on a 2.75-percent (October 2017) discount rate and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be $2,540,000, including Operations, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R). These costs comprise two different purposes; one for aquatic ecosystem restoration features and one for recreation features.

a. The total equivalent average annual aquatic ecosystem restoration costs are estimated to be $2,410,000 including OMRR&R. Cost effectiveness and incremental cost analysis techniques were used to evaluate the alternative plans to ensure that an efficient ecosystem restoration plan was recommended. The cost of the recommended aquatic ecosystem restoration features is justified by restoring 19,781 average annual habitat units over 958 acres of aquatic and riparian habitat along 17 river miles of the Rio Grande and Tributaries. The plan would restore the habitats in the most cost-effective manner. The restoration measures would improve hydrologic connectivity with the floodplain by constructing grade restoration facilities, high-flow channels, terrace lowering, willow swales and wetlands; and b) restoring native vegetation and habitat through exotic plant species reduction, and by riparian forest re-vegetation with native plant species. The restored riparian habitat would increase scarce resting, nesting, feeding, and rearing habitat for migratory waterfowl and neotropical migrant birds using the internationally significant Rio Grande Flyway. The restoration also directly benefits habitat for three species listed as federally endangered, the Southwest Willow Flycatcher, the Yellow Billed Cuckoo, and the New Mexico Meadow Jumping Mouse.

b. The total equivalent average annual recreation costs are estimated to be $10,445. Unit Day Value method was used to derive benefits of potential recreation amenities. The cost of the recommended recreation features is justified by providing $141,358 average annual benefits at a benefit to cost ratio of over 13 to 1.

11. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to restore the ecosystem for the Española Valley, Rio Grande and Tributaries be authorized in accordance with the reporting officers' recommended plan at an estimated total first cost of $62,000,000 (October 2017) with such modifications 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 laws and policies, including the application of the non-federal cost sharing waiver provided to Indian tribes by Section 1156 of WRDA 1986, as amended (33 U.S.C. 2310). Further, consistent with Section 203 of the Water Resources Development Act of 2000, as amended (33 U.S.C. 2269), I am recommending that the ability to pay of the Ohkay Owingeh Pueblo and the Santa Clara Pueblo be considered in determining the non-federal cost share, as described in paragraphs 7 and 8 of this Report. If the project is authorized by the Congress for construction, I plan to apply the Section 203 guidance on ability to pay in determining the cost sharing requirements of the Ohkay Owingeh Pueblo and of the Santa Clara Pueblo. The non-federal sponsors would provide the non-federal cost share and all LERRD, and would be responsible for all OMRR&R. This recommendation is subject to

the non-federal sponsors agreeing to comply with all applicable federal laws and policies, including, but not limited to, the following:

a. Provide the non-federal share of project costs as further specified below:

(1) Provide 12 percent of design costs in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;

(2) Provide all LERRD determined by the government to be necessary for construction, operation, and maintenance of the project, perform or ensure the performance of all relocations and provide relocation assistance, all in compliance with applicable law, including provisions of the Uniform Relocation 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;

(3) Provide, during construction, a contribution of funds equal to 35 percent of ecosystem restoration costs and 50 percent of recreation costs, as reduced by application of the Section 1156 waiver of non-federal cost sharing of up to $455,000 and reduced further by application of the 25 percent ability to pay factor specified in the Section 203 guidance;

b. 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 which might reduce the outputs produced by the ecosystem restoration features, hinder operation and maintenance of the project, or interfere with the project's proper function;

c. Shall not use the ecosystem restoration features or lands, easements, and rights-of-way required for such features as a wetlands bank or mitigation credit for any other project;

d. Keep the recreation features, and access roads, parking areas, and other associated public use facilities, open and available to all on equal terms;

e. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace the project, or functional portions of the project, including any mitigation features, at no cost to the 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 government;

f. Hold and save the United States free from all damages arising from the construction, operation, maintenance, repair, rehabilitation, and replacement of the project and any betterments, 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), as amended (42 U.S.C. 9601-9675), that may exist in, on, or under lands, easements, or rights-of-way that the government determines to be required for construction, operation, and maintenance of the project. However, for lands that the government determines to be subject to the navigation servitude, only the government shall perform such investigations unless the 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 government and the non-federal sponsor, complete financial responsibility for all necessary remediation 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 government determines to be required for construction, operation, and maintenance of the project; and

i. Agree, as between the 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.

12. 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 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.

TODD T. SEMONITE
Lieutenant General, USA
Chief of Engineers

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
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APR 2 7 2018

CECW-ZB

SUBJECT: Central and Southern Florida Project, Kissimmee River Restoration (KRR) Project

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on the recommendation for statutory authorization for crediting work performed or to be performed by the non-federal sponsor, South Florida Water Management District (SFWMD), in support of the authorized project, for which work is considered integral to the implementation of the Central and Southern Florida (C&SF), Kissimmee River Restoration (KRR) project. It is accompanied by the report of the district and division engineers. The purpose of this report is to report on whether the in-kind work already performed or that will be performed by the South Florida Water Management District (SFWMD), is integral to the project and is consistent with the benefits to be received by the project. This report further recommends the Secretary of the Army be granted statutory authority by Congress to provide credit for specific components of work which are demonstrated to be both integral and consistent with project benefits. This report is in partial response to several authorities. Section 101(8) of the Water Resources Development Act (WRDA) of 1992 (P.L. 102-580) authorized the project to improve and rehydrate the marsh habitat that formerly surrounded the river, while maintaining the same level of flood risk management as that provided by the previous C&SF flood risk management project. Section 2003 of WRDA 2007, as amended, provides the general crediting authority.

2. The KRR project was authorized by Section 101(8) of the WRDA of 1992, to restore, and significantly improve approximately 63,000 acres of wetlands within the Kissimmee River watershed. The project includes structural and non-structural restoration features in both of the river's two sub-basins, Upper and Lower. Features in the Upper Basin provide the necessary storage and regulation schedule modifications to simulate historical flow characteristics required for river restoration in the Lower Basin and to increase littoral zone habitat in the Upper Basin to benefit fish and wildlife. Features in the Lower Basin are intended to restore over 40 miles of river and floodplain ecosystem including 43 miles of meandering river channel and 29,300 acres of riparian wetlands. The project will restore ecological integrity by reestablishing historic hydrologic conditions, recreating historic river/floodplain connectivity, recreating the historic mosaic of wetland plant communities, and restoring historic biological diversity and functionality.

3. The district and division engineers report recommends crediting for work performed and to be performed by the non-federal sponsor, SFWMD, for the following six actions in the Upper and Lower Basin determined to be integral to the implementation of the project. In general these actions include the demolition of structures on acquired real estate required for the project, modifications of small local levees to provide project wetland restoration, and an engineering analysis for the reduction in property owners impacted by takings. Although this in-kind work is consistent with achieving the benefits of the project, it currently falls outside the Army's existing crediting authority. The general crediting authority that exists at 42 U.S.C. § 1962d-5b(a)(4) (Section 2003 of WRDA 2007, as amended) generally does not apply to project construction initiated prior to the enactment of WRDA 2007 (November 8, 2007). Construction of the KRR project was initiated in 1994 and is nearing completion. Additionally, much of the work for which SFWMD is seeking credit has already been performed without a written agreement specifying that the work would be accomplished by the SFWMD. Consequently, the general crediting authority cannot be applied to the work set forth in this report, and additional Congressional authorization is necessary to provide credit to SFWMD. More specifically the six actions for crediting are:

a. Shady Oaks & Rocks Fish Camps (action 1 & 2): In the Upper Basin these two sites were prepared for construction by the non-federal sponsor to reduce the timeframe to clear abandoned structures and reduce liability exposure.

b. Sparks Candler Levee & Bronson Levee Breaching (action 3): In the Upper Basin the referenced levee breaching will be conducted by the non-federal sponsor for an expected time and cost savings to the project by performing the work in house.

c. Packingham Slough (action 4): In the Lower Basin the non-federal sponsor constructed culvert and pump station to eliminate the need to acquire 300 parcels on 700 acres in order to maintain the flood risk management constraint and resulted in project cost savings.

d. River Acres (action 5): In the Lower Basin the non-federal sponsor completed the engineering analysis resulting in a solution that minimized acquisition of real estate in Pool D of the Kissimmee River Basin. This action is consistent with the 1992 Chief's Report encouraging minimization of homeowner displacement during project implementation.

e. Small Local Levee Modifications (action 6): In the Lower Basin the non-federal sponsor completed the levee modifications to prepare lands for project sheet flow and resulted in cost savings to the project.

4. A Project Cooperation Agreement (PCA) was executed with the SFWMD for the KRR project and construction was initiated in 1994. Under the agreement the total project cost is cost shared at 50% federal and 50% non-federal. In addition, the responsibility for operation and maintenance cost continue to be 100% non-federal sponsor's expense. Although the Upper and Lower Basin projects were authorized separately under WRDA 1992, Congress directed in a 1993 Congressional Conference Report entitled Conference Report on H.R. 2445, Energy and Water Development Appropriations Act, 1994, (dated October 22, 1993, 139 Cong Rec H 8364), that a single Project Cooperation Agreement be executed for the project.

5. The estimated total project fully funded cost, based on October 2017 price levels, is $790,898,000. The estimated total project fully funded cost is a combination of the Upper Basin cost, $171,376,000, and the Lower Basin cost, $619,522,000. The estimated total project fully funded cost does not exceed the 902 limit. The total project estimated 902 limit is $1,025,131,000, with the Upper Basin at $198,207,000 and the Lower Basin at $826,924,000. The cost difference between the total project fully funded cost and the total project estimated 902 limit is $234,233,000, with the Upper Basin $26,831,000 under the limit and the Lower Basin $207,402,000 under the limit. With the estimated total project fully funded cost adjusted to include all six actions from paragraph 3, there is actually a cost savings, and the adjusted total project fully funded cost still does not exceed the corresponding adjusted 902 limit. The cost difference between the adjusted total project fully funded cost and the adjusted total project estimated 902 limit is $235,203,000, with the Upper Basin $26,875,000 under the limit and the Lower Basin $208,328,000 under the limit.

6. I have reviewed and concur with the findings, conclusion and recommendation of the reporting officers. I recommend that Congress provide statutory authority for crediting work performed or to be performed by the sponsor in support of the authorized project, which work is considered integral to the implementation of the Central and Southern Florida, Kissimmee River Restoration project. If the crediting authority is provided by statute, inspections and audits will be performed to confirm that completed construction meets Federal standards and that the costs are reasonable, necessary, allocable, auditable, and allowable. Thereafter, the Project Cooperation Agreement will be appropriately amended to address credit for the completed and proposed work.

Encl

JAMES C. DALTON, P.E.
Director of Civil Works

DEPARTMENT OF THE ARMY
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441 G STREET, NW
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CECW-LRD

APR 2 0 2018

SUBJECT: Kentucky River Locks and Dams 1, 2, 3, and 4, Disposition Study and Integrated Environmental Assessment

THE SECRETARY OF THE ARMY

1. I submit for transmission to the Congress my report on the deauthorization of unused navigation facilities on the Kentucky River in the Commonwealth of Kentucky. It is accompanied by the reports of District and Division Engineers. These reports respond to Section 216 of the Flood Control Act of 1970 (P.L. 91-611) which authorizes investigations for modification of completed projects or their operation when found advisable due to significantly changed physical or economic conditions, and for improving the quality of the environment in the overall public interest.

2. The reporting officers recommend that Kentucky River Locks and Dams 1 through 4 be deauthorized for the purpose of commercial navigation. Kentucky River Locks and Dams 1 through 5 were constructed by the Commonwealth of Kentucky from 1836 to 1842. In 1880 the Commonwealth of Kentucky transferred and ceded all of its right, title, and interest in and to Kentucky River Locks and Dams 1 through 5 (together with all grounds and appurtenances belonging thereto) unto the United States of America. Pursuant to Congressional authority, the U.S. Army Corps of Engineers (Corps) constructed nine additional locks and dams on the Kentucky River (circa 1889 to 1917) extending the Kentucky River slack water navigation system to Beattyville, Kentucky.

3. Except for a moderate spike in coal shipments associated with the 1973 oil embargo, commercial navigation on the Kentucky River waned to the point that in the mid 1970's the Corps determined that federal interest in the continued operation of Kentucky River Locks and Dams 5 through 14 no longer existed. The then-current and forecasted performance of the Kentucky River commercial navigation system, as well as a recommendation to deauthorize the Kentucky River commercial navigation purpose was documented in a Chief of Engineers Report that was transmitted to Congress on July 2, 1984. In response, Congress deauthorized the commercial navigation purpose for Kentucky River Locks and Dams 5 through 14 in Section 301 of the Water Resources Development Act of 1986 (P.L. 99-662). The same year, the Commonwealth of Kentucky established the Kentucky River Authority, a public

corporation and independent governmental agency and instrumentality of the Commonwealth of Kentucky, to manage the Kentucky River system. In separate federal legislation (Energy and Water Development Appropriations Act, 1994, P.L.103-126, 107 Stat. 1318) Congress directed the conveyance of Kentucky River Locks and Dams 5 through 14 to the Commonwealth of Kentucky. Pursuant to the cited legislation, the authorized conveyances to the Commonwealth of Kentucky, for the use and benefit of the Kentucky River Authority, have been completed.

4. There has been no recorded commercial navigation at Kentucky River Locks and Dams 1 through 4 since 2002. The Federal Government still retains ownership of Kentucky River Locks and Dams 1 through 4; however, the referenced facilities are currently operated by the Kentucky River Authority for the purposes of water supply and recreation under a 25 year lease agreement with the Corps, which was signed in 2002.

5. The recommended plan is to deauthorize commercial navigation at Kentucky River Locks and Dams 1 through 4. Following deauthorization, Kentucky River Locks and Dams 1 through 4 should be disposed of through the use of special legislation to the Commonwealth of Kentucky, for use and benefit of the Kentucky River Authority.

6. The recommended plan minimizes adverse social impacts, causes no future negative environmental impacts and facilitates future disposal of the properties in the most efficient manner. The recommended plan has two components: (1) deauthorization of the navigation mission for these facilities; and (2) disposal of these facilities to the Kentucky River Authority. Coordination under Section 7 of the Endangered Species Act of 1973 is concluded for deauthorization.

7. Though not required as a part of deauthorization, consultation under Section 106 of the National Historic Preservation Act of 1966, as amended, will be required in conjunction with any future disposal action. Reopening coordination under Section 7 of the Endangered Species Act of 1973 will also be required with any future disposal action.

8. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the Kentucky River Locks and Dams 1 through 4 be deauthorized for commercial navigation purposes, and that the referenced facilities

be disposed of through the use of special authorizing legislation to the Commonwealth of Kentucky, for the use and benefit of the Kentucky River Authority.

JAMES C. DALTON, P.E.
Director of Civil Works

DEPARTMENT OF THE ARMY
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CECW-LRD

APR 2 0 2018

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)

SUBJECT: Kentucky River Locks and Dams 1, 2, 3, and 4, Disposition Study and Integrated Environmental Assessment

1. The final report of the Director of Civil Works for the subject project is provided for coordination with the Administration and transmittal to Congress.

2. In addition, you will find five enclosures as part of this package. They include the final post authorization change report and appendices, OWPR documentation of review findings, peer and legal review certifications, and draft letters to the Office of Budget and Management, the Speaker of the House of Representatives and to the President of the Senate.

3. If you have any questions regarding this matter, please contact Janet Cote, Planner, Great Lakes and Ohio River Division Regional Integration Team, at (202) 761-4589.

James C. Dalton, P.E.
Director of Civil Works

Encl
1. Final Post Authorization Change Report and Appendices (Tab 1)
2. Report of the Director of Civil Works (Tab 2)
3. Letters to Congress (Tab 3)
4. OWPR Documentation of Review Findings (Tab 4)
5. Peer and Legal Review Certifications (Tab 5)

DEPARTMENT OF THE ARMY
CHIEF OF ENGINEERS
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WASHINGTON, D.C. 20310-2600

12/21/2017

DAEN

SUBJECT: Ala Wai Canal Flood Risk Management Study, Oahu, Hawaii

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on flood risk management in the Ala Wai Canal watershed, within the City and County of Honolulu, Oahu, Hawaii. It is accompanied by the reports of the district and division engineers. These reports were completed under authorities granted by Section 209 of Public Law 84-874, the Flood Control Act of 1962. The law provides the authority for the Secretary of the Army "to cause surveys for flood control and allied purposes, including channel and major drainage improvements, and floods aggravated by or due to wind or tidal effects, to be made under the direction of the Chief of Engineers, in drainage areas of the United States and its territorial possessions, which include the following named localities: Harbors and rivers in Hawaii, with a view to determining the advisability of improvements in the interest of navigation, flood control, hydroelectric power development, water supply, and other beneficial water uses, and related land resources." Preconstruction engineering and design activities, if funded, would be continued under the authority provided by the Section 209 study authority cited above.

2. The reporting officers recommend authorization of a plan to reduce flood risk within the Ala Wai Canal watershed of Honolulu, Hawaii. The recommended plan consists of six in-stream debris and detention basins of varying height in the upper reaches of the watershed, one standalone debris catchment structure, three multi-purpose detention basins, floodwalls along the Ala Wai Canal averaging four feet in height and an earthen levee at the perimeter of an adjacent golf course averaging seven feet in height, two pump stations to reduce the threat of interior flooding, and a flood warning system. Unavoidable environmental impacts would be fully compensated for by modifying two existing in-stream structures to eliminate migratory passage barriers for native aquatic species. The recommended plan also includes post-construction monitoring and adaptive management for a period of five years to ensure project performance. The recommended plan is the National Economic Development Plan.

3. The State of Hawaii, Department of Land and Natural Resources (DLNR) is the non-Federal cost-sharing sponsor for all features. Based on October 2016 price levels, the estimated total first cost of the recommended plan is $306,095,000. In accordance with the cost sharing provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2213), flood risk management features are cost-shared at a rate of 65 percent Federal and 35 percent non-Federal. Thus, the Federal share of the total project first costs are estimated to be $198,962,000 and the non-Federal share is estimated at $107,133,000. The costs of lands, easements, rights-of-way, relocations, and excavated material disposal areas is estimated to be $17,194,000. The total cost includes $229,000 for environmental mitigation,

$46,250 for environmental monitoring and adaptive management. DLNR would be responsible for the Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R) of the project after construction, a cost currently estimated at $985,000 per year. In addition to the above, DLNR would be fully responsible for performing the investigation, cleanup, and response of hazardous materials on the project sites. Currently, no hazardous material work is anticipated. Also in addition to the above, DLNR would be fully responsible for removing and relocating utilities and discharge pipelines on the project site that are non-compensable.

4. Based on a 2.875-percent discount rate and a 50-year period of analysis, the total equivalent annual costs of the project, including OMRR&R, are estimated to be $13,117,000. The equivalent average annual benefits are estimated to be $48,331,000 with net average annual benefits of $35,214,000. The benefit-to-cost ratio is 3.68 to 1. The selected plan is estimated to be 99 percent reliable in protecting portions of the study area from a flood, which has a one percent chance of occurrence in any year (100-year flood). The selected plan would reduce average annual flood damages by about 90 percent and would leave average annual residual damages estimated at $5,388,000.

5. The goals and objectives included in the Campaign Plan of the USACE have been fully integrated into the Ala Wai Canal Flood Risk Management study process. The recommended plan was developed in coordination and consultation with various Federal, State, and local agencies using a systems approach in formulating flood risk management solutions and in evaluating the impacts and benefits of those solutions. Plan formulation evaluated a wide range of non-structural and structural alternatives under USACE policy and guidelines as well as consideration of a variety of economic, social and environmental goals. The recommended plan delivers a holistic, comprehensive approach to solve water resources challenges in a sustainable manner.

6. In accordance with USACE Sea Level Change Guidance, ER 1100-2-8162, the study evaluated potential impacts of sea level change in formulating and engineering the recommended plans. The risk reduction system features proposed are based on the intermediate Relative Sea Level Rise (RSLR) projection. The equivalent average annual benefits are estimated to range from nearly $46.2 million under the low Sea Level Change (SLC) scenario to nearly $48.3 million under the intermediate SLC scenario. Corresponding annual net benefits range from approximately $33 million to $35 million, with benefit-cost ratios ranging from 3.5 to 3.68. The high SLC scenario was not evaluated for economics, but the recommended plan shows high project performance with a 99 percent conditional non-exceedance probability over a 50-year period under all SLC scenarios. An extension of the floodwall to protect against coastal flooding in the lower tidal portion of the study area was warranted to improve the resiliency of the overall system beyond the 50-year period of analysis. USACE will continue to monitor local conditions and determine if the intermediate scenario of RSLR is occurring. If observed conditions deviate from intermediate to high sea level forecasts during design or construction, reevaluation of the National Economic Development plan will be required.

7. In accordance with USACE policy on review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and vigorous review process to ensure technical quality. This included District Quality Control, Agency Technical Review (ATR), Independent External Peer Review (IEPR) and a USACE Headquarters policy and legal review. All concerns of the ATR and IEPR have been addressed and incorporated into the final report. Overall, the reviews have resulted in the improvement of the technical quality of the report.

8. Washington level review indicated that the plan recommended by the reporting officers is technically sound, economically justified, and environmentally and socially acceptable. As the report discusses, residual risk will remain with this plan in place and the report emphasizes the role of the non-Federal sponsor in addressing and communicating residual risk. The plan complies with essential elements of the U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies and complies with other administration and legislative policies and guidelines. Also, the views of interested parties, including Federal, State, and local agencies have been considered.

9. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to improve flood risk management in the Ala Wai Canal watershed be authorized in accordance with the reporting officers' recommended plan at an estimated first project cost of $306,095,000 with such modifications 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, including Section 103 of WRDA 1986, as amended (33 U.S.C. 2213). The non-Federal sponsor would provide the non-Federal cost-share and all lands, easements, rights-of-way, relocations, and disposal areas. Further, the non-Federal sponsor would be responsible for all OMRR&R. This recommendation is subject to the non-Federal sponsor agreeing to comply with all applicable federal laws and policies, as well as the following:

a. Provide a minimum of 35 percent, but not to exceed 50 percent of total project costs as further specified below:

(1) Provide 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;

(2) Provide, during the first year of construction, any additional funds necessary to pay the full non-Federal share of design costs;

(3) Provide, during construction, a contribution of funds equal to 5 percent of total project costs;

(4) Provide all lands, easements, and rights-of-way, including those required for relocations, the borrowing of material, and the disposal of dredged or excavated material; perform or ensure the performance of all relocations; and construct all improvements required on lands, easements, and rights-of-way to enable the disposal of dredged or excavated material all as

determined by the Government to be required or to be necessary for the construction, 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;

(5) Provide, during construction, any additional funds necessary to make its total contribution equal to 35 percent of total project costs;

b. Inform affected interests, at least yearly, of the extent of protection afforded by the flood risk management features; participate in and comply with applicable Federal floodplain management and flood insurance programs; comply with Section 402 of the WRDA 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 flood risk management features;

c. 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 which might reduce the level of protection the project affords, hinder operation and maintenance of the project, or interfere with the project's proper function;

d. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace the project, or functional portions of the project, including any mitigation features, 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;

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

f. 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, easements, or rights-of-way that the Federal Government determines to be required for construction, operation, and maintenance of the project;

g. 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, and maintenance of the project; and

h. 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 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 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.

TODD T. SEMONITE
Lieutenant General, USA
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AUG 0 8 2017

DAEN

SUBJECT: Galveston Harbor Channel Extension Project, Houston-Galveston Navigation Channels, Texas

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on navigation improvements for the Galveston Harbor Channel Extension project (GHCE). It is accompanied by the report of the Galveston District Engineer and the Southwestern Division Engineer. The feasibility study was conducted under the authority of Section 216 of the Flood Control Act of 1970 (33 U.S.C. 549a), which authorizes review of completed U.S. Army Corps of Engineers (Corps) navigation projects when significant changes in physical or economic conditions have occurred, and the submission of a report to Congress on the advisability of modifying the project in the overall public interest. Pre-construction engineering and design activities for this proposed project, if funded, would be continued under the authority provided by the section cited above. The existing Galveston Harbor Channel (GHC) project was authorized by Section 101(a)(30) of the Water Resources Development act (WRDA) of 1996, P.L. 104-303.

2. The reporting officers recommend authorizing a plan that will significantly contribute to the economic efficiency of commercial navigation in the region by deepening a portion of the existing GHC Project. The GHC provides for a deep-draft waterway from the Gulf of Mexico to the City of Galveston. The channel is authorized and maintained at a depth of -46 feet Mean Lower Low Water (MLLW) for 20,000 feet and -41 feet MLLW for the last 2,571 feet. Terminals at the end of the GHC handle materials that are produced by and/or used in oil and gas production activities. Existing fleet data show that the channel is operating with insufficient depth to allow access by larger vessels that would maximize economic efficiency in transporting these materials. The recommended plan:

a. Would deepen the last 2,571 feet (from station 20+000 to station 22+571) of the channel from -41 feet to -46 feet MLLW.

b. Includes dredging of approximately 727,000 cubic yards of new material to deepen the channel. The volume of maintenance dredging material is not expected to increase above maintenance volumes for the existing channel depths. Material would be placed in the existing upland confined placement area at Pelican Island. The Pelican Island placement area has sufficient capacity for 50 years of dredging operations of the GHC Project.

c. Would not have any significant adverse effects so no mitigation measures or compensation measures would be required.

d. Is the National Economic Development (NED) plan and all features are located in Galveston County, Texas.

3. The Port of Galveston, representing the Board of Trustees of the Galveston Wharves, is the Non-Federal sponsor.

4. Project costs are allocated to the commercial navigation purpose and are in October 2016 prices.

a. Project First Cost. The estimated project first cost of constructing the GHCE is $13,395,000, which includes the total cost of construction of the General Navigation Features (GNFs) as follows: $11,490,000 for channel modification and dredged material placement; $1,504,000 for planning, engineering and design efforts; and $401,000 for construction management. The value of Lands, Easements, Rights-of-way and Relocations (LERRs) and the costs of utility relocations would normally be included in project first costs, but because the recommended plan does not anticipate the need for lands, easements, rights-of-way or relocations for this project, the project first costs are equivalent to the total cost of construction of the GNFs.

b. Estimated Federal and Non-Federal Shares. In accordance with the cost sharing provisions of Section 101(a)(1) of WRDA 1986, as amended (33 U.S.C. 2211(a)(1)), the Federal share of the total construction cost of the GNFs is 75 percent, and the non-Federal share is 25 percent, or an estimated $10,046,000 and $3,349,000, respectively.

c. Additional 10 Percent Payment. In addition to payment by the Non-Federal sponsor of its share of the total cost of construction of the GNFs during construction, the Non-Federal sponsor must pay an additional 10 percent of the cost of the GNFs in cash over a period not to exceed 30 years, with interest, in accordance with Section 101(a)(2) of WRDA 1986, as amended (33 U.S.C. 2211(a)(2)). The additional 10 percent payment without interest is estimated to be $1,339,500. The value of LERRs and the costs of utility relocations, should they become necessary, will be credited toward this amount in accordance with Section 10l(a)(3) of WRDA 1986, as amended (33 U.S.C. 2211(a)(3)).

d. Associated Costs. Estimated associated costs of $1,938,000 will be the responsibility of the Non-Federal sponsor for dredging of Non-Federal berthing areas adjacent to the federal channel. There are no required aids to navigation (a U.S. Coast Guard expense) for this project improvement.

e. Authorized Project Cost and Section 902 Calculation. The project first cost for the purpose of calculating the maximum cost of the project pursuant to Section 902 of WRDA 1986, as amended (33 U.S.C. 2280), includes the total cost of construction the GNFs, and should they become necessary the value of LERRs and the costs of utility relocations. Accordingly, as set forth in paragraph 4.a, above, based on October 2016

prices, the total estimated project first cost for these purposes is $13,395,000. Based on October 2016 price levels, a discount rate of 2.875 percent, and a 50- year period of economic analysis, the project average annual benefits and costs for the GHCE are estimated at $1,597,000 and $585,000, respectively, with resulting net excess benefits of $1,012,000 and a benefit-to-cost ratio of 2.7 to 1.

5. The goals and objectives included in the Campaign Plan of the Corps have been fully integrated into the GHCE study process. The recommended plan was developed in coordination and consultation with various Federal State, and local agencies using a systematic and regional approach to formulating solutions and evaluating the benefits and impacts that would result. The feasibility study evaluated navigation problems as well as opportunities for beneficial use of dredge material. Risk and uncertainty were addressed during the study by sensitivity analyses that evaluated the potential impacts of sea level change and economic assumptions as well as cost uncertainties.

6. In accordance with the Corps Engineering Circular on review of decision documents, all technical, engineering, and scientific work underwent an open, dynamic, and vigorous review process to ensure technical quality. This included an Agency Technical Review (ATR) and a Corps policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. The Corps approved an Independent External Peer Review exclusion on September 23, 2011.

7. Washington level review indicates that the project recommended by the reporting officers is technically sound, environmentally and socially acceptable, cost effective, and economically justified. The plan complies with all essential elements of the U.S. Water Resources Council's *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies* and complies with other administrative and legislative policies and guidelines. The views of interested parties, including Federal, State, and local agencies were considered. During State and Agency review one letter was received from the Department of Agriculture with no objection noted.

8. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that navigation improvements for the GHC be authorized in accordance with the reporting officer's recommended plan at an estimated cost of $13,395,000, with such modifications 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, including Section 101 of WRDA 1986, as amended (33 U.S.C. 2211). This recommendation is subject to the Non-Federal sponsor agreeing to comply with all applicable Federal laws and policies including that the Non-Federal sponsor must agree with the following requirements prior to project implementation.

a. Provide 25 percent of the total cost of construction of the GNFs attributable to dredging to a depth in excess of -20 feet MLLW but not in excess of -50 feet as further specified below:

(1) Provide 25 percent of design costs allocated by the Government to commercial navigation in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;

(2) Provide, during construction, any additional funds necessary to make its total contribution for commercial navigation equal to 25 percent of the total cost of construction of the GNFs attributable to dredging to a depth in excess of -20 feet but not in excess of -50 feet MLLW;

b. Provide all lands, easements, and rights-of way, including those necessary for the borrowing of material and placement of dredged or excavated material, and perform or assure performance of all relocations, including utility relocations, all as determined by the Government to be necessary for the construction or operation and maintenance of the GNFs;

c. Pay with interest, over a period not to exceed 30 years following completion of the period of construction of the GNF's, an additional amount equal to 10 percent of the total cost of construction of GNFs, less the amount of credit afforded by the Government for the value of any LERRs and the costs of any utility relocations provided by the Non-Federal sponsor for the GNFs. If the amount of credit afforded by the Government for the value of LERRs and the costs of utility relocations provided by the Non-Federal sponsor equals or exceeds 10 percent of the total cost of construction of the GNFs, the Non-Federal sponsor shall not be required to make any contribution under this paragraph, nor shall it be entitled to any refund for the value of LERRs and the costs of utility relocations in excess of 10 percent of the total costs of construction of the GNFs;

d. Provide, operate, and maintain, at no cost to the Government, the local service facilities 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 Government;

e. Give the 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 and maintaining the GNFs;

f. Hold and save the United States free from all damages arising from the construction or operation and maintenance of the project, any betterments, and the local service facilities, 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 as are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. 9601-9675, that may exist in, on, or under the lands,

easements, or rights-of-way that the Government determines to be necessary for the construction or operation and maintenance of the GNFs. However, for lands, easements, or rights-of-way that the Government determines to be subject to the navigation servitude, only the Government shall perform such investigation unless the 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 complete financial responsibility, as between the federal government and the Non-Federal sponsor, for all necessary cleanup and response costs of any hazardous substances regulated under CERCLA that are located in, on, or under lands, easements, rights-of-way that the Government determines to be necessary for the construction or operation and maintenance of the project.

i. To the maximum extent practicable, perform its obligations in a manner that will not cause liability to arise under CERCLA.

10. 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 the Congress, the State of Texas, Port of Galveston, interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment.

Proud to be able to finalize the Chiefs Report for this Critical project!!

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DEC 14 2017

DAEN

SUBJECT: Mamaroneck and Sheldrake River Basins

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on flood risk management for the Mamaroneck and Sheldrake River Basins, Village of Mamaroneck, New York. It is accompanied by the report of the New York District Engineer and the North Atlantic Division Engineer. The Mamaroneck and Sheldrake River Basins, Flood Risk Management project was authorized by Section 401(a) of the Water Resources Development Act (WRDA) of 1986. This report addresses the most critical and vulnerable portion of the authorized study area in the village of Mamaroneck, which was heavily impacted by an April 2007 nor'easter. The storm produced the flood of record for the village of Mamaroneck, equivalent to the one percent flood event. It caused over $50,000,000 in damages and impacted over 50 percent of total structures within the study area. Floodwaters peaked on the Mamaroneck River in approximately four hours and in approximately six hours on the Sheldrake River during this flood event. As such, the evacuation time for approximately 19,000 residents of the study area was severely restricted which created a high risk to life safety. Over forty percent of residents require evacuation assistance prior to floodwaters peaking including a large population of children that attend a school located within the area of the most severe flooding. Two deaths have occurred as a result of flooding in the project area in the last 25 years, most recently in 2007.

2. The reporting officers recommend authorizing a plan to reduce flood risk by the construction of retaining walls and a diversion culvert, the deepening and widening of river channels, structure elevation, and the removal/replacement of 2 vehicular bridges that constrict flood flow. The recommended plan includes approximately 7,500 linear feet of channelization (trapezoidal earthen channels) and 8,660 feet of retaining walls for the Mamaroneck and Sheldrake Rivers. The removal of existing bridges and the deepening and/or widening of both rivers would increase the flood flow channel capacity and thereby reduce water surface elevations in the village of Mamaroneck during a flood. In addition, a diversion culvert, approximately 390 linear feet in length, would bypass flood water on the Mamaroneck River downstream of the confluence, thereby avoiding significant river constrictions. Nonstructural features would include the elevation of eight (8) residential structures in the Harbor Heights neighborhood and one (1) commercial structure on the Sheldrake River within the village of Mamaroneck.

3. The recommended plan is estimated to reduce equivalent annual damages (EAD) by approximately $2,960,000 or 87% with a residual EAD of approximately $450,000. Annual exceedance probabilities for the village of Mamaroneck would be reduced from approximately a

20 percent flood event to, depending on location, a 2 percent to 0.5 percent flood event. The implementation of the recommended plan will not completely eliminate the potential for loss of life; however, it may reduce the risk of loss of life by decreasing the frequency of flooding from out-of-bank flood events.

4. The recommended plan would have unavoidable impacts to historic properties, vegetation, and some wildlife habitats. A Memorandum of Agreement to account for adverse effects to historic properties has been executed with the New York State Office of Parks, Recreation and Historic Preservation, which serves at the New York State Historic Preservation Office. The affected historic properties include the Works Progress Administration-constructed retaining walls and Ward Avenue Bridge, which will be removed and replaced as part of the project. Cultural mitigation of this adverse effect includes historic property documentation of the retaining walls and bridge. As part of this mitigation, the Village of Mamaroneck Historian and the Village of Mamaroneck Historical Society will be participating in this effort as consulting parties. No significant adverse impacts to vegetation and wildlife would be expected as a result of construction with the inclusion of the following: Stormwater Pollution Prevention Plan(s), seasonal windows for tree removal and river channel work, and best management practices such as planting native vegetation and trees.

5. The New York State Department of Environmental Conservation (NYSDEC) is the non-Federal cost-sharing sponsor for the authorized project. Based on an October 2016 price level, the estimated total first cost of the recommended plan is $82,250,000. The Federal share of the estimated first cost of initial construction is currently estimated at $53,500,000 with a non-Federal share of $28,750,000. The non-Federal share includes the costs of lands, easements, rights-of-way, relocations, and disposal which are estimated at $19,150,000. The NYSDEC would also be responsible for the operation, maintenance, repair, replacement and rehabilitation (OMRR&R) of the project after construction, a cost currently estimated at $360,000 per year.

6. Based on a 2.875% discount rate for Fiscal Year 2017 and a 50-year period of analysis, the total average annual costs of the project are estimated to be $3,650,000, including OMRR&R. The recommended plan has primary outputs based on flood risk management. The total average annual benefits are estimated to be $3,820,000. The net average annual benefits are approximately $170,000. The benefit-to-cost ratio (BCR) is 1.05 to 1.

7. The goals and objectives included in the Campaign Plan of the U.S. Army Corps of Engineers (USACE) have been fully integrated into the Mamaroneck and Sheldrake River Basins, Village of Mamaroneck, New York, Flood Risk Management study process. The recommended plan has been designed to avoid or minimize environmental impacts while maximizing future safety and economic benefits to the community. As flood waters can elevate up to a depth of 8 feet within 4 hours, as reported during the April 2007 flood event, evacuation, transportation and emergency services can be extremely limited if not impossible as seen by the two deaths that have already occurred in the village of Mamaroneck. Critical facilities such as schools, daycares, hospitals, emergency services and senior care centers are located within the 1% floodplain and are at the

greatest risk for such a rapid evacuation. The risk to life safety is significant for this socially vulnerable population. The study team organized and participated in stakeholder meetings and public workshops throughout the process and worked with local groups to achieve a balance of project goals and public concerns through the modernization of the Civil Works planning program and processes. The study report fully describes flood risk associated with the village of Mamaroneck and risks that will not be reduced; these residual risks have been communicated to the state of New York, Westchester County, and the residents of the village of Mamaroneck.

8. In accordance with EC 1165-2-214, Civil Works Review, all technical, engineering and scientific work underwent an open, dynamic and vigorous review process to ensure technical quality. This included an Agency Technical Review (ATR), a Type I Independent External Peer Review (IEPR) and a Headquarters USACE policy and legal review. All concerns of the ATR have been addressed and incorporated in the final report. The ATR comments helped to more clearly communicate the information that was provided in the report. The IEPR was managed by Battelle Memorial Institute. All comments from the above referenced reviews have been addressed and incorporated into the final documents. Overall, the reviews resulted in improvements to the technical quality of the report. A safety assurance review, Type II IEPR, will be conducted during the design phase of the project.

9. 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. Also the views of interested parties, including Federal, state and local agencies have been considered. During the State and Agency Review, a letter was received from the U.S. Department of the Interior on 23 May 2017 stating that they had no comments to submit.

10. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce flood damage in the Village of Mamaroneck, New York, be authorized in accordance with the reporting officers' recommended plan at an estimated cost of $82,250,000 with such modifications 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 laws and policies, including Section 103 of P.L. 99-662, WRDA 1986, as amended (33 U.S.C. 2213). These requirements include, but are not limited to, the following items of local cooperation from the non-Federal sponsor:

a. Provide a minimum of 35 percent, but not to exceed 50 percent, of total flood risk management costs as further specified below:

(1) Pay, during construction, 5 percent of total flood risk management costs.

(2) Provide all lands, easements, and rights-of-way, including those required for relocations, the borrowing of material, and the disposal of dredged or excavated material, and perform or ensure the performance of all relocations, as determined by the government to be required for the construction, operation, and maintenance of the project.

(3) During construction, pay any additional funds necessary to make its total contribution equal to at least 35 percent of total flood risk management costs.

b. Inform affected interests, at least yearly, of the extent of protection afforded by the flood risk management features; participate in and comply with applicable Federal floodplain management and flood insurance programs; comply with Section 402 of P.L. 99-662, the WRDA 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 flood risk management features.

c. 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 which might reduce the level of protection the flood risk management features afford, hinder operation and maintenance of the project, or interfere with the project's proper function.

d. Keep the recreation features, and access roads, parking areas, and other associated public use facilities, open and available to all on equal terms.

e. Operate, maintain, repair, rehabilitate, and replace 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.

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), P.L. 96-510, as amended (42 U.S.C. 9601-9675), that may exist in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be required for construction, operation, and maintenance of the project.

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 required for construction, operation, and 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.

11. 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 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.

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DAEN

DEC 07 2017

THE SECRETARY OF THE ARMY

SUBJECT: Sabine Pass to Galveston Bay, Texas, Coastal Storm Risk Management and Ecosystem Restoration Study

1. I submit for transmission to Congress my report on Coastal Storm Risk Management (CSRM) and Ecosystem Restoration (ER) within six counties of the upper Texas coast (Orange, Jefferson, Chambers, Harris, Galveston, and Brazoria Counties). It is accompanied by the report of the Galveston District Engineer and the Southwestern Division Engineer. These reports are a partial response to a resolution from the Committee on Environment and Public Works dated June 23, 2004, entitled "Coastal Texas Protection and Restoration Study." The resolution requested that this study be undertaken to "develop a comprehensive plan for severe erosion along coastal Texas for the purposes of shoreline erosion and coastal storm damages, providing for environmental restoration and protection, increasing natural sediment supply to coast, restoring and preserving marshes and wetlands, improving water quality, and other related purposes to the interrelated ecosystem along the coastal Texas area." The project area was hit by a Category 4 hurricane, Hurricane Harvey, on August 25, 2017. At the time of signature of this Report of the Chief of Engineers damage assessments are still underway. Early reports indicate extensive flooding and damages across the project area in addition to the loss of 10 lives in Orange County and four lives in Jefferson County. Preconstruction engineering and design (PED) activities, if funded, would be continued under the authorities provided by the resolution cited above.

2. The reporting officers' recommendation for the upper Texas coastal region encompassing the six counties along 120 miles of coastline include authorization of a plan to reduce the risks of tropical storm surge impacts in Orange, Jefferson and Brazoria Counties through the construction of structural measures and the continuation of the study of the Galveston region (Galveston, Harris, and Chambers Counties) for CSRM. Continuation of the study of ER alternatives assessed in the six counties will be conducted under the comprehensive Coastal Texas Protection and Restoration feasibility study. The recommended plan was developed utilizing a region-wide systems approach to achieve the full range of benefits, although the CSRM plans are separable and able to function individually. The plan includes (i) increasing the level of performance and resiliency of the existing Port Arthur and Vicinity Hurricane Flood Protection (HFPP) project in Jefferson County, Texas (the Port Arthur and Vicinity CSRM Plan); (ii) the construction of a new levee/floodwall system (the Orange 3 CSRM Plan) along the edge of the Sabine and Neches River floodplains from Orange, Texas to the vicinity of Orangefield, Texas that is approximately 26.7-miles; and (iii) increasing the level of performance and resiliency of the existing Freeport and Vicinity HFPP project in Brazoria County, Texas (the Freeport and Vicinity CSRM Plan).

3. Based on October 2017 price levels, the estimated project first cost of the recommended plan, which includes three separable elements, is $3,318,772,000. All construction work will be cost shared in accordance with the cost sharing provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2213). The Federal share of the project first costs of the hurricane and storm damage risk reduction features is estimated to be $2,157,202,000 (65 percent) and the total non-Federal share is estimated to be $1,161,570,000 (35 percent). The total cost of non-Federal contribution of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRDs) is estimated to be $52,451,000. The total annual cost of Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R) of the project is currently estimated to be $5,585,000 per year. The OMRR&R estimate includes $41,000 per year for monitoring of the environmental mitigation component after the commencement of OMRR&R. Based on a 2.75 percent discount rate and a 50-year period of analysis, the total equivalent average annual costs of the three separable elements for the project are estimated to be $141,799,000 including OMRR&R. Additionally, the non-Federal sponsors would be fully responsible for removing and relocating utilities and discharge pipelines on the project site that are non-compensable, at a total cost estimated to be $128,320,000. The equivalent average annual benefits for the three separable elements are estimated to be $452,633,000 with net average annual benefits of $310,834,000. The recommended plan is the National Economic Development plan.

a. The first element of the recommended plan is the Port Arthur and Vicinity CSRM Plan.

(1) The Port Arthur and Vicinity CSRM Plan would raise approximately 5.5 miles of the existing 27.8 miles of earthen levee to elevations ranging from 14.4 to 17.2 feet North American Vertical Datum (NAVD 88), and construct or reconstruct approximately 5.7 miles of floodwall to elevations ranging from about 14.4 to 19.4 feet NAVD 88. A separate 1,830 feet of new earthen levee would be constructed in the Port Neches area northwest of the existing northern terminus. Additionally, 26 vehicle closure structures would be replaced and erosion protections would be added.

(2) The existing Port Arthur HFPP local sponsor, Jefferson Country Drainage District No. 7, will be the non-Federal cost-sharing sponsor for the Port Arthur and Vicinity CSRM Plan. Based on October 2017 price levels, the estimated project first cost of the recommended plan is $744,865,000. All construction work will be cost shared in accordance with the cost sharing provisions of Section 103 of WRDA 1986, as amended. The Federal share of the project first costs of the hurricane and storm damage risk reduction features is estimated to be $484,162,000 (65 percent) and the total non-Federal share is estimated to be $260,703,000 (35 percent). The non-Federal contribution of LERRDs for the improvements associated with the Port Arthur and Vicinity CSRM Plan would be about $8,376,000. The non-Federal sponsor's cost for removing and relocating utilities and discharge pipelines associated with the Port Arthur and Vicinity CSRM Plan that are non-compensable would be about $38,544,000. The non-Federal sponsor would be responsible for the OMRR&R of the project after construction. OMRR&R is currently estimated at $199,000.

(3) Based on a 2.75 percent discount rate and a 50-year period of analysis, the total average annual costs of the project are estimated to be $29,757,000, including OMRR&R. The recommended plan would reduce average annual coastal storm damages by about 76 percent and would leave average total equivalent annual residual damages estimated at $42,604,000. The equivalent average annual benefits for Port Arthur and Vicinity CSRM Plan is estimated to be $139,106,000 with net average annual benefits of $109,349,000, which results in a BCR of approximately 4.7 to 1. The recommended plan is the National Economic Development plan.

b. The second element of the recommended plan is the Orange 3 CSRM Plan.

(1) This element includes 15.6 miles of newly constructed levee ranging from 12.0 to 17.5 feet NAVD 88 in elevation and 10.7 miles of newly constructed floodwalls and gates ranging from 13.5 to 16 feet NAVD 88. Seven pump stations, 56 drainage structures, and 32 closure gates located at road and railway crossings would be constructed to mitigate interior flooding during surge events. Finally, two navigable sector gates with adjacent vertical lift floodgates for normal channel flows would be constructed in Adams and Cow Bayous to reduce surge penetration. Unavoidable direct and indirect environmental impacts to 2,409 acres of forested wetlands and estuarine marsh associated with the Orange 3 CSRM Plan would be fully compensated by the implementation of the mitigation plan. Monitoring and adaptive management of the mitigation areas will be conducted until the mitigation measures have been demonstrated to be successful.

(2) Orange County, Texas will be the non-Federal cost-sharing sponsor for the Orange 3 CSRM Plan. Based on October 2017 price levels, the estimated first cost of the recommended Orange 3 CSRM Plan is $1,967,826,000. All construction work will be cost shared in accordance with the cost sharing provisions of Section 103 of WRDA 1986, as amended. The Federal share of the first costs of the hurricane and storm damage risk reduction features is estimated to be $1,279,087,000 (65 percent) and the total non-Federal share is estimated to be $688,739,000 (35 percent). The non-Federal contribution of LERRDs for the newly constructed levee/floodwall system associated with the Orange 3 CSRM Plan would be about $33,199,000. The non-Federal sponsor's cost for removing and relocating utilities and discharge pipelines associated with the Orange 3 CSRM Plan that are non-compensable would be about $62,387,000. The non-Federal sponsor would be responsible for OMRR&R of the project after construction. OMRR&R is currently estimated at $4,663,000.

(3) Based on a 2.75 percent discount rate and a 50-year period of analysis, the total average annual costs of the Orange 3 CSRM Plan are estimated to be $87,268,000, including OMRR&R. The recommended plan would reduce average annual coastal storm damages by about 64 percent and would leave average total equivalent annual residual damages estimated at $60,496,000. The equivalent average annual benefits for Orange 3 CSRM Plan is estimated to be $105,919,000 with net average annual benefits of $18,651,000, which results in a benefit-cost ratio (BCR) of approximately 1.2 to 1. The recommended plan is the National Economic Development plan.

c. The third element of the recommended plan is the Freeport and Vicinity CSRM Plan.

(1) The recommended Freeport and Vicinity CSRM Plan would raise approximately 13.1 miles of the existing earthen levee system and construct or reconstruct approximately 5.5 miles of floodwall, improving approximately 43 percent of the existing 43-mile long system. Final elevations would range from 15.8 to 23.8 feet NAVD 88. Navigable sector gates would be installed in the Dow Barge Canal to reduce surge penetration in that area. Ten vehicle closure structures at road and railroad crossings would be replaced and erosion protection would be added. Other project features include raising and reconstructing the Highway 332 crossing, installation of four drainage structures, including one at the head of the Dow Barge Canal, and raising the floodwall at Port Freeport's Berth 5 dock.

(2) The existing Freeport Harbor Flood Protection Project local sponsor, the Velasco Drainage District, will be the non-Federal cost-sharing sponsor for the Freeport and Vicinity CSRM Plan. Based on October 2017 price levels, the estimated project first cost of the recommended plan is $606,313,000. All construction work will be cost shared. In accordance with the cost sharing provisions of Section 103 of WRDA 1986, as amended, the Federal share of the project first costs of the hurricane and storm damage risk reduction features is estimated to be $393,953,000 (65 percent) and the total non-Federal share is estimated to be $207,660,000 (35 percent). The non-Federal contribution of LERRDs for the improvements associated with the Freeport and Vicinity CSRM Plan would be about $10,876,000. The non-Federal sponsor's cost for removing and relocating utilities and discharge pipelines associated with the Freeport and Vicinity CSRM Plan that are non-compensable would be about $27,389,000. The non-Federal sponsor would be responsible for the OMRR&R of the project after construction. OMRR&R is currently estimated at $723,000.

(3) Based on a 2.75 percent discount rate and a 50-year period of analysis, the total average annual costs of the Freeport Harbor CSRM Plan are estimated to be $24,774,000, including OMRR&R. The recommended plan would reduce average annual coastal storm damages by about 66 percent and would leave average total equivalent annual residual damages estimated at $107,006,000. The equivalent average annual benefits for Freeport and Vicinity CSRM Plan is estimated to be $207,608,000 with net average annual benefits of $182,834,000, which results in a BCR of approximately 8.4 to 1. The recommended plan is the National Economic Development plan.

d. The recommended plan is intended to prevent damages to structures and content and critical infrastructure from coastal storm surge and waves. It should be noted, however, that reducing the risk of loss of life during major storm events can only be achieved by adhering to existing procedures for evacuation of residents and visitors well before expected hurricane landfall, thus removing people from harm's way. This study recommends continuation of the evacuation policy both with and without the project.

4. In accordance with USACE Sea Level Change (SLC) Guidance, Engineer Regulation (ER) 1100-2-8162, the study evaluated potential impacts in SLC in its plan formulation and engineering of the recommended plan. Three levels of Relative Sea Level Change (RSLC) were considered for both the without-project and with-project conditions. The risk reduction system has been designed to provide a risk reduction against a 1 percent annual chance exceedance probability storm event based on the 2070 intermediate RSLC forecast condition. In recognition of the uncertainty presented by sea level rise, adaptation capacity has been incorporated into the final feasibility-level design to maximize the systems' overall usefulness over the life of the project. The adaptability will allow for limited overtopping of wave and minor still water overtopping that would then be mitigated for using interior drainage features or height increases to the floodwall if required. The equivalent average annual benefits are estimated to range from nearly $55,000,000 to $164,000,000 under the low SLC scenario, $104,000,000 to $203,000,000 under the intermediate SLC scenario, and to nearly $157,000,000 to $291,000,000 under the high SLC scenario. Corresponding annual net benefits for the recommended plan range from approximately $16,000,000 to $178,000,000 with BCRs ranging from 1.2 to 8.2. The recommended plan also shows high project performance with a 99 percent conditional non-exceedance probability over a 50-year period under all SLC scenarios.

5. The goals and objectives included in the Campaign Plan of the USACE have been fully integrated into the Sabine Pass to Galveston Bay study process. The recommended plan was developed in coordination and consultation with various Federal, state, and local agencies using a systematic and regional approach to formulating solutions and evaluating the benefits and impacts that would result. The feasibility study evaluated shoreline erosion and coastal storm damage problems as well as opportunities for environmental restoration and protection. Risk and uncertainty were addressed during the study by sensitivity analysis that evaluated the potential impacts of sea level change and economic assumptions as well as cost uncertainties.

6. In accordance with the USACE Engineer Circular (EC) 1165-2-214 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, Major Subordinate Command review, Independent External Peer Review, Public Review, and a USACE Headquarters policy and legal review. All comments from the above referenced reviews have been addressed and incorporated into the final documents. Overall, the reviews resulted in improvements to the technical quality of the report.

7. 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. Also the views of interested parties, including Federal, state and local agencies have been considered.

8. Federal implementation of the project would be subject to the non-Federal sponsors agreeing in a binding written agreement to comply with applicable Federal laws and policies, and to perform the following non-Federal obligations, including, but not limited, to the following:

a. Provide 35 percent of initial project costs assigned to hurricane and storm damage reduction, and 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits, as further specified below:

(1) Enter into an agreement that provides, prior to construction, 35 percent of design costs;

(2) Provide all lands, easements, and rights-of-way, and perform or ensure the performance of any relocations determined by the Federal Government to be necessary 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 n 49 C.F.R. Part 24;

(3) Provide, during construction, any additional amounts as are necessary to make the total contribution equal to 35 percent of initial project costs assigned to hurricane and storm damage reduction, and 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits;

b. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace the project, or functional portion of the project, including any mitigation features, 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) that might 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 sponsors own or control 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 design, 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, easements, or rights-of-way that the Federal Government determines to be required for construction, operation, and 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 sponsors with prior specific written direction, in which case the non-Federal sponsors shall perform such investigations in accordance with such written direction;

h. Assume, as between the Federal Government and the non-Federal sponsors, 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, and maintenance of the project; and

i. Agree, as between the Federal Government and the non-Federal sponsors, that the non-Federal sponsors 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.

9. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce the risks of tropical storm surge impacts in Orange, Jefferson and Brazoria Counties, Texas be authorized in accordance with the reporting officers' recommended plan at an estimated project first cost of $3,318,772,000, with such modifications 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, including Section 103 of WRDA 1986, as amended.

10. 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 state, interested Federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.

TODD T. SEMONITE
Lieutenant General, USA
Chief of Engineers

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
108 ARMY PENTAGON
WASHINGTON DC 20310-0108

DEC 0 5 2016

Honorable Joseph R. Biden, Jr.
President of the Senate
U.S. Capitol Building, Room S-212
Washington, DC 20510-0012

Dear Mr. President:

The Secretary of the Army recommends modifying the total project first cost of the authorized Savannah Harbor Expansion Project, Savannah, Georgia to increase the total project first cost from $706,000,000 (October 2014 price levels) to $973,443,000 (October 2016 price levels). The increase in the authorized cost is necessary because the total project costs are projected to exceed the maximum allowed by section 902 of the Water Resources Development Act (WRDA) of 1986. The enclosed November 2016 Post Authorization Change Report / Limited Reevaluation Report (PACR/LRR) explains the cost increase.

Section 7002 of the Water Resources Reform and Development Act of 2014, modified the project and increased the total project cost to $706,000,000. The authorized project was based on the National Economic Development plan and deepens the project from the existing -42 feet mean lower low water (MLLW), 32.7 mile long shipping channel to -47 feet MLLW. When completed, the project will address deep draft navigation inefficiencies in the marine transportation of goods through Savannah Harbor. The completed project is expected to provide about $296.8 million annually in transportation cost savings.

The maximum cost for the authorized project, adjusted for allowable inflation in accordance with section 902, is $894,402,000 (October 2016 price levels). Based on cost increases described in the PACR, the revised current project estimate is $973,000,000 and the fully funded estimated project first cost is $1,019,000,000. The increases in cost are due to several factors, as follows:

a. $98 million due to increases in awarded construction contracts over the original feasibility level estimates;

b. $66 million due to out-year design and construction changes;

c. $25 million due to schedule related increases in Planning, Engineering, Design, Construction Management and Environmental Monitoring costs;

d. $4 million due to an increase in the estimated cost for acquiring mitigation lands, due to current market conditions;

e. $5 million due to increases in recovery costs for the CSS Georgia; and

f. $69 million for an update in the project contingency related to cost and schedule risk from 19% to 24.2%.

In accordance with the cost sharing provisions of section 101(a)(1) of the Water Resources Development Act of 1986, as amended, the Federal share of the updated project first cost is estimated at $677,613,600 and the non-Federal share is $295,829,400. To date, $115,327,000 in Federal and $269,685,000 in non-Federal funds have been provided. The Federal funding provided to date includes $20,000,000 in the Continuing Resolution Authority for FY2017.

At the October 2016 price level, a 2.875% percent discount rate, and a 50-year period of economic analysis, the Corps estimates the total equivalent annual costs to be $44,911,000 and total equivalent annual benefits to be $327,241,000. The net total equivalent annual benefits are estimated at $282,329,000 and the benefit-to-cost ratio is 7.3 to 1.

Since the PACR only addresses changes in the total project cost, no additional environmental compliance actions were required. There have also been no major changes to the project's environmental circumstances or considerations since the project was authorized.

An Independent External Peer Review (IEPR) was not completed for the Savannah Harbor Expansion Project PACR/LRR. The Director of Civil Works for Corps, Headquarters approved an IEPR exclusion request for the PACR/LRR.

The Office of Management and Budget (OMB) advises that there is no objection to the submission of the report to Congress. However, OMB also noted that the Corps will need to revise the report to provide a detailed analysis of the costs and benefits of this project prior to consideration in future budgets. A copy of OMB's letter, dated December 2, 2016, is enclosed. I am providing a copy of this transmittal and the OMB letter to the Subcommittee on Transportation and Infrastructure of the Senate Committee on Environment and Public Works, and the Subcommittee on Energy and Water Development of the Senate Committee on Appropriations. I am also providing an identical letter to the Speaker of the House of Representatives.

Very truly yours,

Jo-Ellen Darcy
Assistant Secretary of the Army
(Civil Works)

Enclosures

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
108 ARMY PENTAGON
WASHINGTON DC 20310-0108

DEC 0 5 2016

Honorable Paul Ryan
Speaker of the House of Representatives
U.S. Capitol Building, Room H-232
Washington, DC 20515-0001

Dear Mr. Speaker:

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a. $98 million due to increases in awarded construction contracts over the original feasibility level estimates;

b. $66 million due to out-year design and construction changes;

c. $25 million due to schedule related increases in Planning, Engineering, Design, Construction Management and Environmental Monitoring costs;

d. $4 million due to an increase in the estimated cost for acquiring mitigation lands, due to current market conditions;

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Very truly yours,

Jo-Ellen Darcy
Assistant Secretary of the Army
(Civil Works)

Enclosures

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

AUG 08 2017

DAEN

SUBJECT: St. Johns County, Florida - South Ponte Vedra Beach, Vilano Beach, and Summer Haven Reaches - Coastal Storm Risk Management Project

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on coastal storm risk management at St. Johns County, Florida. It is accompanied by the report of the district and division engineers. This report is an interim response to House Resolution 2646 adopted June 21, 2000 by the Committee on Transportation and Infrastructure of the United States House of Representatives. The resolution requested the Secretary of the Army, acting through the Chief of Engineers, "*to survey the shores of St. Johns County, Florida, with particular reference to the advisability of providing beach erosion control works in the area north of St. Augustine Inlet, the shoreline in the vicinity of Matanzas Inlet, and adjacent shorelines, as may be necessary in the interest of hurricane protection, storm damage reduction, beach erosion control, and other related purposes.*" Pre-construction engineering and design activities for the project will continue under the authority cited above.

2. The reporting officers recommend a project that will contribute to economic efficiency for providing coastal storm risk management. Based on an evaluation of alternative plan costs and economic benefits the recommended plan is the National Economic Development (NED) plan. The non-federal sponsor, St. Johns County, supports the NED plan.

a. The recommended plan includes beach and dune nourishment within the Vilano Beach reach and a small portion of the South Ponte Vedra Beach reach. The design includes construction of a 60- foot equilibrated berm extension from the +8.0 foot 1988 North Atlantic Vertical Datum contour between the R monuments R103.5 and R116.5 along 2.6 miles of shoreline. The project template will include a dune feature that reflects the average 2015 dune position. Tapers of a maximum length of one thousand feet will extend from the northern and southern ends of the berm extension, connecting the extension to the existing shoreline. The addition of tapers results in sand placement from R102.5 to R117.5 along 3 miles of shoreline.

b. Initial construction will require approximately 1,310,000 cubic yards of sand, and each periodic nourishment event will require approximately 866,000 cubic yards. The periodic nourishment interval is expected to be approximately 12 years, equaling an estimated 3 periodic nourishment events in addition to initial construction over the 50-year period of federal participation.

c. The sand source identified for the project is the St. Augustine Inlet system, located adjacent to the project area to the south. There is approximately 6.5 million cubic yards (MCY) of beach quality sand in the inlet system. This volume is more than adequate to meet the initial construction volume. The periodic nourishment volume is approximately 866,000 cubic yards every 12 years. The Florida Department of Environmental Protection's inlet management plan for St. Augustine Inlet states a bypassing objective of 278,000 cubic yards per year of which one third should go to beaches to the north. One third of the bypassing objective is 92,666 cubic yards per year. Over 12 years, 1.1 MCY would be available to meet the 866,000 cubic yard need for a periodic nourishment event.

d. Native vegetation will be planted on areas of the existing dune disturbed by construction, as well as the newly constructed dune to stabilize the fill. It is assumed that dune planting will only be necessary for initial construction and that vegetation will naturally grow and spread to any areas that are nourished in the future.

e. A portion of the project is located in the Coastal Barrier Resource System (CBRS) unit P04A. In accordance with the Coastal Barrier Resources Act (CBRA), no federal funds will be expended for this portion of the project. The cost share for this area is a non-federal responsibility for both initial construction and periodic nourishment.

3. St. Johns County is the non-federal cost sharing sponsor for all features. Based on Fiscal Year 17 price levels, the estimated total nourishment cost of the NED Plan is $78,417,000, which includes the project first cost of initial construction of $24,834,000 and three periodic nourishments at a total cost of $53,583,000. The three periodic nourishments are estimated to occur at 12-year intervals. Since the final nourishment is estimated to occur at year 36 following initial construction, the estimated cost of periodic nourishments accounts for approximately two years' worth of additional volume being placed during that final nourishment. Cost sharing is applied in accordance with the provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended by Section 215 of WRDA 1999, as follows:

a. The federal share of the project first cost for initial construction would be approximately $5,712,000 and the non-federal share would be approximately $19,122,000, which equates to 23 percent federal and 77 percent non-federal. The non-federal costs include the value of lands, easements, rights-of-way, relocations and dredged or excavated material disposal areas (LERRD) estimated to be $943,000.

b. The federal share of future periodic nourishment is estimated to be $9,484,000 and the non-federal share is estimated to be $44,099,000 which equates to 17.7 percent federal and 82.3 percent non-federal.

c. Operation, Maintenance, Repair, Rehabilitation, and Replacement (OMRR&R) costs are estimated to be $35,000 annually. OMRR&R costs are a 100% non-federal responsibility.

4. Based on a 2.875 percent discount rate and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be $2,031,000. All project costs are allocated to the authorized purpose of coastal storm risk management. The selected plan would reduce average annual coastal storm damages by approximately $1,961,000. The equivalent average annual benefits, inclusive of recreation benefits, are estimated to be $2,653,000 with net average annual benefits of $622,000. The benefit to cost ratio is approximately 1.3 to 1. The project would reduce coastal damages including reduction of damage to a key piece of critical infrastructure, State Road (SR) A1A. In addition to functioning as a hurricane evacuation route, SR A1A also serves as a primary post storm emergency response and recovery route for the area. Thus, protection of A1A could potentially reduce loss of life pre- and post hurricane. The project would also establish at least 3.2 acres of beach habitat that will provide suitable nesting habitat for federally threatened and endangered species such as loggerhead, green, Kemp's ridley, hawksbill, and leatherback sea turtles and piping plover and rufa red knot shorebirds along approximately 3 miles of shoreline.

5. Risk and uncertainty has been explicitly factored into the economic analysis of this project. A statistical risk based model, Beach-fx, was used in this study to formulate and evaluate the project in a life-cycle approach. Beach-fx integrates the engineering and economic analyses and incorporates uncertainty in both physical parameters and environmental forcing, which enables quantification of risk with respect to project evolution and economic costs and benefits of project implementation. The application of Beach-fx in this study is to estimate future without project damages and quantify the damages prevented by various storm damage reduction alternatives for St. Johns County over the 50 year project life. The project is intended to address erosion and prevent damages to structures and infrastructure; it is not intended to, nor will it, reduce the risk to loss of life during major storm events. Loss of life can only be prevented by residents and visitors following the local evacuation plans that are already in place. These residual risks have been communicated to the residents of St. Johns County.

6. In accordance with the Corps Engineering Regulation (ER 1100-2-8162) on sea level change, the study performed a sensitivity analysis to evaluate the effects that different rates of sea level change could have on the recommended plan. The NED plan was formulated using the historical or low rate of sea level change. Beach-fx was used to model the performance of the NED plan for what the ER defines as intermediate and high rates of sea level rise. The benefits of the project increase significantly in the intermediate and high sea level rise scenarios, but the costs also increase. Thus, the project performance (in terms of the benefit-cost ratio) is relatively constant throughout the three scenarios. As both costs and benefits are increasing, the net benefits actually increase with increasing rates of sea-level rise. Overall, these results suggest that the NED plan is both effective and robust in all three simulated sea level rise scenarios. Adaptive management will be used including adjusting the timing of periodic nourishments and project volume requirements based on monitoring reports to compensate for any significant accelerated sea level rise beyond the historical or low rate should it become necessary.

7. In accordance with the Corps Engineering Circular (EC 1165-2-214) 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 (ATR), Major Subordinate Command (MSC) review and a Corps Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. The requirement to perform Independent External Peer Review was waived by Corps Headquarters since there was no Environmental Impact Statement for the study, it had negligible adverse impacts to the environment and is not controversial. All comments from the above referenced reviews have been addressed and incorporated into the final documents. Overall, the reviews resulted in improvements to the technical quality of the report.

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. Also the views of interested parties, including federal, state and local agencies have been considered.

9. I concur in the findings, conclusions and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce hurricane and storm damages for St. Johns County, Florida is authorized in accordance with the reporting officers' recommended plan at an estimated project first cost of $78,417,000 with such modifications 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, including Section 103 of WRDA 1986, as amended by Section 215 of WRDA 1999. The non-federal sponsor would provide the non-federal cost share and all LERRD. Further, the non-federal sponsor would be responsible for all OMRR&R. This recommendation is subject to the non-federal sponsor agreeing to comply with all applicable federal laws and policies.

a. Provide 35% of design and initial construction costs assigned to coastal storm risk management plus 100% of costs assigned to protecting areas within the CBRS when such costs are not excepted from the CBRA's limitation on federal expenditures and 100% of the costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits; and 50% of periodic nourishment costs assigned to hurricane and storm damage reduction, plus 100% of periodic nourishment costs assigned to protecting areas within the CBRS when such costs are not excepted from the CBRA's limitation on federal expenditures and 100% of costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits and as further specified below:

1) Provide, during design, 35 percent of design costs;

2) Provide all lands, easements, and rights-of-way, perform or ensure the performance of any relocations, and provide all relocation assistance determined by the federal government to be necessary for the initial construction, periodic nourishment, and 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 CFR Part 24.;

3) Pay, during construction, any additional amounts necessary to make its contribution equal to 35% of initial project costs assigned to hurricane and storm damage reduction, plus 100% of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits; and 50% of periodic nourishment costs assigned to hurricane and storm damage reduction, plus 100% of periodic nourishment costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits;

b. Operate, maintain, and repair the completed project, or functional portion 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 laws and regulations, and any specific directions prescribed by the federal government;

c. Hold and save the United States free from all damages arising from the initial construction, periodic nourishment, operation, maintenance, repair, replacement, and rehabilitation of the projects, except for damages due to the fault or negligence of the United States or its contractors;

d. 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, easements, or rights-of-way that the federal government determines to be required for the initial construction, periodic nourishment, operation, and 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;

e. Assume, as between the federal government and the non-federal sponsor, complete financial responsibility for all necessary cleanup and response costs of any CERCLA regulated materials located in, on, or under lands, easements, or rights-of-way that the federal government determines to be necessary for the initial construction, periodic nourishment, operation, or maintenance of the project;

f. 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, and repair the project in a manner that will not cause liability to arise under CERCLA;

g. Prevent obstructions or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) that might reduce the level of protection the project affords, hinder operation and maintenance of the project, or interfere with the project's proper function;

h. Inform affected interests, at least annually, of the extent of risk reduction afforded by the project; participate in and comply with applicable federal floodplain management and flood insurance programs; comply with Section 402 of WRDA 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 the project;

i. For shores, other than federal shores, protected using federal funds, ensure continued conditions of public use of such shores compatible with the authorized purpose of the project;

j. Provide and maintain necessary access roads, parking areas, and other public use facilities, open and available to all on equal terms; and

k. At least annually, and after storm events, perform surveillance of the project, at no cost to the government, to determine losses of material and provide the results of such surveillance to the federal government.

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 the 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 proposals 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.

Proud to Be able to Finalize the "Chief's Report" on this Critical Project!

TODD T. SEMONITE
Lieutenant General, USA
Chief of Engineers

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

DAEN

DEC 15 2017

SUBJECT: St. Lucie County, Florida Coastal Storm Risk Management Project

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on coastal storm risk management at St. Lucie County, FL. It is accompanied by the report of the district and division engineers. This report is an interim response to the study authority contained in two resolutions by the Committee on Transportation and Infrastructure of the U.S. House of Representatives: Resolution 2634, St. Lucie County, Florida Shore Protection (11 April 2000) and Resolution 2757, St. Lucie County, Florida Shore Protection (23 July 1998). Pre-construction engineering and design activities for the project will continue under the authority cited above.

2. The reporting officers recommend a project that will contribute to economic efficiency for providing coastal storm risk management. Based on an evaluation of alternative plan costs and economic benefits the Recommended Plan is the NED plan. The non-federal sponsor, St. Lucie County, supports the NED plan.

a. The Recommended Plan includes beach and dune nourishment within the South Hutchinson Island reach. The design includes construction of a 20- foot equilibrated berm extension from the +7.0 foot 1988 North Atlantic Vertical Datum (NAVD88) contour between the R monuments R98.5 and R115+1000 feet to the Martin County line along 3.3 miles of shoreline. The project template will include a dune feature that reflects the average 2008 dune position. Tapers of a maximum length of one thousand feet will extend from the northern and southern ends of the berm extension, connecting the extension to the existing shoreline. The addition of tapers results in sand placement from R97.5to R002 along 3.7 miles of shoreline.

b. Initial construction will require approximately 422,000 cubic yards of sand, and each periodic nourishment event will require approximately 390,000 cubic yards. The periodic nourishment interval is expected to be approximately 18 years, equaling 2 periodic nourishment events in addition to initial construction over the 50-year period of Federal participation.

c. The sand source identified for the project is the St. Lucie Shoals, located approximately 3.5 miles offshore from the project. There is approximately 10.6 million cubic yards (mcy) of beach quality sand in the St. Lucie Shoal complex. This volume is more than adequate to meet the initial construction volume. The periodic nourishment volume is approximately 390,000 cubic yards every 18 years.

d. Native vegetation will be planted on areas of the existing dune disturbed by construction, as well as the newly constructed dune to stabilize the fill. It is assumed that dune planting will only

be necessary for initial construction and that vegetation will naturally grow and spread to any areas that are nourished in the future.

e. Coastal Barrier Resources System (CBRS) Unit P11 occupies a portion of the project area. In coordination with the U.S. Fish and Wildlife Service, it was determined that the portion of the project (Dollman Park) located on non-Federal public lands in P11 is compliant with the Coastal Barrier Resources Act because it meets the Section 6 (G) exception (16 U.S.C. § 3505) permitting Federal expenditures on this publically owned parcel. The non-Federal sponsor shall be responsible for all costs associated with the portion of the project located on privately-owned lands within Unit P11.

3. St. Lucie County is the non-federal cost sharing sponsor for all features. Based on FY18 price levels, the estimated total nourishment cost of the NED Plan is $53,296,000, which includes the cost of initial construction of $20,276,000 and two periodic renourishments at a total cost of $33,020,000. Periodic renourishments are planned at approximately 18-year intervals. Cost sharing is applied in accordance with the provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended by Section 215 of WRDA 1999, as follows:

a. The Federal share of the project first cost for initial construction would be approximately $7,097,000 and the non-federal share would be approximately $13,179,000, which equates to 35 percent Federal and 65 percent non-federal. The non-federal costs include the value of lands, easements, rights-of-way, relocations and dredged or excavated material disposal areas (LERRD) estimated to be $725,000.

b. The Federal share of two future periodic renourishments is estimated to be $8,915,000 and the non-federal share is estimated to be $24,105,000 which equates to 27 percent Federal and 73 percent non-federal.

4. Based on a 2.75% percent discount rate and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be $1,335,000. All project costs are allocated to the authorized purpose of coastal storm risk management. The selected plan would reduce average annual coastal storm damages by approximately $2,186,000. The equivalent average annual benefits, inclusive of recreation benefits, are estimated to be $3,007,000 with net average annual benefits of $1,672,000. The benefit to cost ratio is approximately 2.25 to 1. The project would reduce coastal damages including reduction of potential damage to a hurricane evacuation route, State Road A1A. The project would also establish at least 17,300 linear feet of suitable sea turtle and shorebird nesting habitat along 3.3 miles of shoreline.

5. Risk and uncertainty has been explicitly factored into the economic analysis of this project using a life cycle approach. A statistical risk based model, Beach-fx, was used in this study to formulate and evaluate the project in a life-cycle approach. Beach-fx integrates the engineering and economic analyses and incorporates uncertainty in both physical parameters and environmental forcing, which enables quantification of risk with respect to project evolution and economic costs and benefits of project implementation. The application of Beach-fx in this study is to estimate future without project damages and quantify the damages prevented by various

storm damage reduction alternatives for St. Lucie County over the 50 year project life. The project is intended to address erosion and prevent damages to structures and infrastructure; it is not intended to, nor will it, reduce the risk to loss of life during major storm events. Loss of life can only be prevented by residents and visitors following the local evacuation plans that are already in place. These residual risks have been communicated to the residents of St. Lucie County.

6. In accordance with the Corps Engineering Regulation (ER 1100-2-8162) on sea level change, the study performed a sensitivity analysis to evaluate the effects that different rates of sea level change could have on the recommended plan. The NED plan was formulated using the historical or low rate of sea level change. Beach-fx was used to model the performance of the NED plan for what the ER defines as intermediate and high rates of sea level rise. The benefits of the project increase significantly in the intermediate and high sea level rise scenarios, but the costs also increase. Thus, the project performance (in terms of the benefit-cost ratio) is relatively constant throughout the three scenarios. As both costs and benefits are increasing, the net benefits actually increase with increasing rates of sea-level rise. Overall, these results suggest that the NED plan is both effective and robust in all three simulated sea level rise scenarios. Adaptive management will be used including adjusting the timing of periodic renourishments and project volume requirements based on monitoring reports to compensate for any significant accelerated sea level rise beyond the historical or low rate should it become necessary.

7. In accordance with the Corps Engineering Circular (EC 1165-2-214) 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 (ATR), Major Subordinate Command (MSC) review and a Corps Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. The requirement to perform Independent External Peer Review (IEPR) was waived by HQUSACE since there was no EIS for the study, it had negligible adverse impacts to the environment and is not controversial. All comments from the above referenced reviews have been addressed and incorporated into the final documents. Overall, the reviews resulted in improvements to the technical quality of the report.

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. Also the views of interested parties, including Federal, state and local agencies have been considered.

9. I concur in the findings, conclusions and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce hurricane and storm damages for St. Lucie County, Florida is authorized in accordance with the reporting officers' recommended plan at an estimated project first cost of $53,296,000 with such modifications 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, including Section 103

of the Water Resources Development Act (WRDA) of 1986, as amended. The non-federal sponsor would provide the non-federal cost share and all LERRD. Further, the non-federal sponsor would be responsible for all Operations, Maintenance, Repair, Replacement & Rehabilitation (OMRR&R). This recommendation is subject to the non-federal sponsor agreeing to comply with all applicable Federal laws and policies.

a. Provide 35 percent of initial project costs assigned to hurricane and storm damage reduction, plus 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits; and 50 percent of periodic nourishment costs assigned to hurricane and storm damage reduction, plus 100 percent of periodic nourishment costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits and as further specified below:

(1) Provide, during design, 35 percent of design costs allocated to hurricane and storm damage reduction in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;

(2) Provide all lands, easements, and rights-of-way, and perform or ensure the performance of any relocations determined by the Federal Government to be necessary for the initial construction, periodic nourishment, and 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;

(3) Provide, during construction, any additional amounts as are necessary to make their total contribution equal to 35 percent of initial project costs assigned to hurricane and storm damage reduction, plus 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits; and 50 percent of periodic nourishment costs assigned to hurricane and storm damage reduction, plus 100 percent of periodic nourishment costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits;

b. For so long as the project remains authorized, operate, maintain, and repair the completed project, or functional portion 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. Hold and save the United States free from all damages arising from the initial construction, periodic nourishment, mitigation, operation, maintenance, repair, replacement, and rehabilitation of the project and any project related betterments, except for damages due to the fault or negligence of the United States or its contractors;

d. Perform, or cause to be performed, 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, easements, or rights-of-way that the Federal Government determines to be required for the initial construction, periodic nourishment, operation, and 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;

e. Assume complete financial responsibility for all necessary cleanup and response costs of any CERCLA regulated materials located in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be necessary for the initial construction, periodic nourishment, operation, or maintenance of the project;

f. Agree 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, and repair the project in a manner that will not cause liability to arise under CERCLA;

g. Inform affected interests, at least yearly, of the extent of protection afforded by the project features; 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;

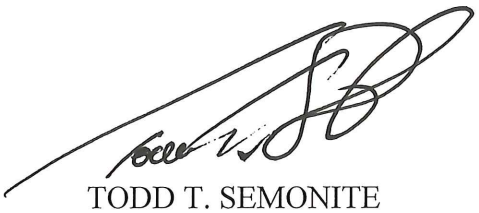
h. Prevent obstruction of or encroachment on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) including but not limited to any new development on project lands, easements, and rights-of-way or the addition of facilities which might reduce the reduce the outputs produced by the project or the level of protection it affords, or that would hinder future periodic nourishment and/or the operation and maintenance of the project;

i. For so long as the project remains authorized, the non-federal sponsor shall ensure continued conditions of public ownership and use of the shore upon which the amount of Federal participation is based;

j. Provide and maintain necessary access roads, parking areas, and other public use facilities, open and available to all on equal terms; and

k. At least twice annually, and after storm events, perform surveillance of the beach to determine losses of nourishment material from the project design section and provide the results of such surveillance to the Federal government.

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 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 proposals 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 modifications and will be afforded an opportunity to comment further.



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Lieutenant General, USA
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