



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

**MAY 24 2022**

DAEN (1105)

**MEMORANDUM FOR THE SECRETARY OF THE ARMY**

**SUBJECT: Three Forks of Beargrass Creek Ecosystem Restoration, Louisville, Kentucky**

1. I submit for transmission to Congress my report on aquatic ecosystem restoration for the Three Forks of Beargrass Creek in Louisville, Kentucky. It is accompanied by the report of the Louisville District Commander. The authority for the study is a resolution by the Committee on Environment and Public Works of the United States Senate adopted May 5, 1987. It requested the review of the report of the Chief of Engineers on the comprehensive flood control plan for the Ohio and lower Mississippi Rivers, published as Flood Control Committee Document Numbered 1, 75th Congress and other pertinent reports, with a view to determining the advisability of providing additional improvements for flood control and allied purposes in the Metropolitan region of Louisville, Kentucky, with particular reference to existing and potential flooding problems in the Pond Creek, Mill Creek, Beargrass Creek, and Floyds Fork drainage basins. Preconstruction engineering and design activities, if funded, will continue under the authority cited above.
2. The Beargrass Creek study area encompasses 60 square-miles of Jefferson County, within the Louisville Metropolitan area. The Beargrass Creek system contains three major sub watersheds: the South Fork, the Middle Fork, and the Muddy Fork. The three forks converge just east of downtown Louisville, immediately prior to discharging into the Ohio River. Once a pristine riparian floodplain forest above the majestic Falls of the Ohio River, Beargrass Creek has an early history of ecological degradation resulting from the development of the city. Concurrent with the population growth of Louisville in the 1800 and mid-1900s, industries such as slaughterhouses, distilleries, and meat packing businesses set up operation on the banks of the creek. Prior to regulation these businesses discharged their waste waters directly into the creek. With urbanization in the 1920s, combined sewers were constructed and many segments of all the Beargrass Creek branches were straightened and lined with concrete, changing the morphology and hydrology of the system to effectively convey waste and storm water to the Ohio River and riverine destinations south.
3. The reporting officers recommend authorization of the National Ecosystem Restoration (NER) Plan that will provide scarce aquatic and riparian habitat in an urban setting. The plan as proposed, will provide an increase of 297 Average Annual Habitat Units (AAHU) through the restoration of 620 acres of habitat including 72 acres of wetlands and 8.8 miles of stream, invasive species removal, and riparian corridor

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(bottomland hardwoods) at 12 sites within the Beargrass Creek watershed. The recommended action will reestablish connectivity throughout the Beargrass Creek watershed and with the Ohio River through the removal of 18 barriers. Removal of barriers, creation of wetlands, establishment of aquatic habitat, and the development of riparian corridors are expected to improve the overall quality of in-stream habitat by reestablishing sediment, nutrient, and other transport dynamics, increasing dissolved oxygen concentrations, and reducing maximum water temperatures to benefit resident fish, aquatic invertebrates, and other aquatic organisms. This will provide spawning, foraging, and resting habitat for migratory fish including the catadromous (eg. American eel) and potamodromous (eg. white and hybrid striped bass) species. Because of the proximity of the project to the Mississippi Flyway, the plan will provide critical forage and resting habit for both resident and migratory waterfowl and other avian species. The plan recommended for implementation also includes recreation features at seven sites to improve stream access, ecologically compatible trails, birding platforms, viewsheds, and educational opportunities (outdoor classroom) for the public along Beargrass Creek.

4. The Louisville/Jefferson County Metropolitan Sewer District (LJCMSD) is the non-federal cost sharing sponsor for all features of the project. Project costs are based on October 2021 (Fiscal Year 2022) price levels. The estimated project first cost of construction is \$121,135,000 which includes the value of lands, easements, rights-of-way, relocations, and disposal areas (LERRDs). Total LERRDs are estimated to be \$48,701,000. Cost sharing is applied in accordance with the provision of Section 103(c)(5) of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. §2213), as follows:

a. The cost of construction of the aquatic ecosystem restoration features is shared 65% federal and 35% non-federal. The cost of construction of the recreation features is shared 50% federal and 50% non-federal. The estimated federal and non-federal shares of the project first cost for the ecosystem restoration features are \$71,841,000 and \$48,701,000, respectively; the estimated federal and non-federal shares of the project first cost for the recreation features are each \$297,000. The estimated LERRDs costs of the project exceed the 35% non-federal cost share of the ecosystem restoration features, however, LJCMSD will waive any reimbursement of LERRDs cost that exceed 35%.

b. The annual cost of operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) for the recommended plan is estimated to be \$126,300. The non-federal sponsor would be responsible for the OMRR&R of the project or functional portions of the project. OMRR&R activities include annual mowing, additional invasive species removal, trash and litter removal, and site access maintenance. All ecosystem restoration project features are considered non-structural and non-mechanical. As such, the non-federal sponsor responsibility for the operation and maintenance of the ecosystem restoration features will cease ten years after ecological success has been determined in accordance with Section 2039 of WRDA 2007, as amended (33 U.S.C.

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§2330a). However, risk to the project from cessation of OMRR&R is minimal as the non-federal sponsor has voluntarily committed to continue OMRR&R of the project in perpetuity.

c. The NER Plan includes post-construction monitoring and adaptive management at each site to ensure the successful implementation of the project and that project benefits are achieved. The estimated project first cost includes monitoring and adaptive management costs of \$1,389,000. Monitoring will occur for up to five years.

5. Based on a 2.25 percent discount rate and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be \$4,303,000. The average annual cost per habitat unit for the restoration is \$14,500, with an average annual cost per acre of \$195,400. All project costs are allocated to the purpose of aquatic ecosystem restoration except \$593,000 in total costs for the recreation features. The benefit to cost ratio of the recreation features is approximately 58 to 1.

6. An environmental assessment was prepared consistent with the requirements of the National Environmental Policy Act of 1969 (NEPA). The recommended plan has been designed to minimize environmental impacts while maximizing future ecosystem and economic benefits to the community and would not have significant adverse cumulative impacts to the natural environment. Public input was considered as part of the NEPA process. The recommended plan was developed with consideration of public input as required by NEPA, as well as in coordination and consultation with federal, state, and local agencies. The recommended plan implemented as proposed would result in no long-term adverse impacts to environmental resources. The U.S. Army Corps of Engineers (USACE) Louisville District, the Advisory Council on Historic Preservation and the Kentucky State Historic Preservation Officer have executed a programmatic agreement to account for impacts to historic properties. The recommended plan will implement the programmatic agreement and associated avoidance and minimization measures.

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

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8. I concur with the findings, conclusions, and recommendation of the reporting officers. Accordingly, I recommend that the plan for aquatic ecosystem restoration for Three Forks of Beargrass Creek be authorized in accordance with the reporting officers' recommended plan at an estimated cost of \$121,135,000 with such modifications as in the discretion of the Chief of Engineers may be advisable. My recommendation is subject to cost sharing and other applicable requirements of federal laws, regulations, and policies. Federal implementation of the project for aquatic ecosystem restoration and recreation includes, but is not limited to, the following required items of local cooperation to be undertaken by the non-federal sponsor in accordance with applicable federal laws, regulations, and policies:

a. Provide the non-federal share of project costs including 35 percent of construction costs allocated to aquatic ecosystem restoration and 50 percent of construction costs allocated to recreation, as further specified below:

i. Provide, during design, 35 percent of design costs in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;

ii. Provide all lands, easements, and rights-of-way, including those required for relocations and placement areas, and perform all relocations determined by the Federal Government to be required for the project; and

iii. Provide, during construction, any additional contribution necessary to make its total contribution equal to at least 35 percent of construction costs for aquatic ecosystem restoration and 50 percent of construction costs for recreation.

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

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

d. Ensure that the project or lands, easements, and rights-of-way required for the project shall not be used as a wetlands bank or mitigation credit for any other project;

e. Operate, maintain, repair, rehabilitate, and replace the project or functional portion thereof at no cost to the Federal Government, in a manner compatible with the project's authorized purposes and in accordance with applicable federal laws and regulations and any specific directions prescribed by the Federal Government;

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

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

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

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

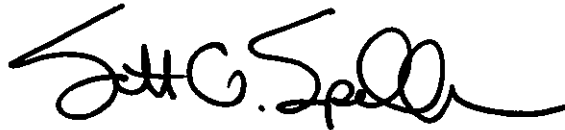
j. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended, (42 U.S.C. §4630 and §4655) and the Uniform Regulations contained in 49 C.F.R. Part 24, in acquiring real property interests necessary for construction, operation, and maintenance of the project including those necessary for relocations, and placement area improvements; and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act.

9. 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

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

A handwritten signature in black ink, appearing to read "Scott A. Spellmon". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

SCOTT A. SPELLMON  
Lieutenant General, USA  
Chief of Engineers