



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

REPLY TO
ATTENTION OF:

29 DEC 2000

CECW-PM (10-1-7a)

SUBJECT: Stillaguamish River, Snohomish County, Washington

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on the ecosystem restoration study for the Stillaguamish River, Snohomish County, Washington. It is accompanied by the report of the district and division engineers. These reports are in partial response to Section 209 of Public Law 87-874, Puget Sound and Adjacent Waters Study.

2. Section 101(b)(27) of the Water Resources Development Act of 2000 authorized construction of the Stillaguamish River, Snohomish County, Washington, ecosystem restoration project at a total cost of \$24,223,000, substantially in accordance with the plans and subject to conditions recommended in a favorable report of the Chief of Engineers completed not later than 31 December 2000. This report constitutes the final report of the Chief of Engineers in response to this legislation.

3. Over the past 150 years, the cumulative effects of industry, urbanization, agriculture, historic forest practices, and hydraulic modifications have adversely affected environmental quality in the Stillaguamish River basin. Specifically, the Stillaguamish River has experienced vast changes including: (1) partial filling of the estuary for agricultural purposes; (2) construction of a series of revetments and channelization projects by the U.S. Army Corps of Engineers (USACE) in the 1930's; (3) construction of an extensive system of levees; (4) drainage and filling of wetlands, causing significant modifications of the lower river basin for agricultural purposes; (5) timber harvesting in the upper basin; (6) forest and highway road construction; (7) natural slides; and (8) culvert blockages. These activities have resulted in significant fish and wildlife habitat degradation in the basin. Several anadromous fishery stocks and wildlife species are either listed (Chinook salmon, bull trout) or proposed for listing (coho salmon) as endangered under the Federal Endangered Species Act.

4. The recommended plan is the national ecosystem restoration (NER) plan, consisting of ten site-specific components implemented over a 10-year construction period. Project locations include: Port Susan Habitat Islands, Portage Creek, Koch Slough Weir, Gold Basin Slide, North Meander, Cloverdale, South Pass, Hatt Slough Weir, Hazel Slide, and

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South Meander. The sites fall into the following categories: opening up old river meanders; side channel construction and/or enhancement; revegetation of riparian areas; stream rehabilitation; large woody debris placement; side channel reconnection; tidal habitat construction; and diverting flow to the old Stillaguamish River channels.

5. The project costs are all allocated to the environmental restoration project purpose. Based on October 2000 price levels, the total first cost of the project is \$24,223,000, of which \$16,097,000 would be a Federal cost and \$8,126,000 would be a non-Federal share. The criteria of environmental effectiveness and economic efficiency were used to evaluate 13 alternatives, including a no-action alternative. The ecosystem restoration benefits were analyzed using three habitat models: one that was developed as part of the feasibility study for aquatic habitat and two that were developed by USACE with input from a panel of regional experts. Cost effectiveness and incremental cost analysis techniques identified the plans that were the best investments for producing varying levels of aquatic and riparian habitats. Over a 50-year period of analysis, the recommended plan is estimated to restore or reconnect access to approximately 1,483 acres of aquatic and riparian/floodplain habitat, providing for an addition of 864 eco-units, and an estimated increase of 400 percent in ecosystem habitat quality for salmon and other species.

6. A monitoring plan was developed to address project effectiveness. The total monitoring could extend over a 10-year period, and is planned to occur on site-specific (project) levels as well as river reach and ecosystem (basin) levels. The cost shared monitoring would follow three separate approaches: (a) evaluation of the overall programmatic effectiveness, (b) evaluation of site specific effects, and (c) monitoring to determine the advisability of adaptive management as the project progresses (i.e., modifying project features based on their effectiveness in providing desired ecosystem restoration outputs and applying past experiences for future project sites). As project sites are added, the monitoring effort should be decreased and shortened. Based on the monitoring results, remaining elements could be adapted for the purpose of more effective and efficient project performance. The total cost of the monitoring plan is estimated at \$3,960,000 at October 2000 price levels. Advancements in ecosystem restoration measures would occur as a result of preconstruction engineering and design, as well as lessons learned through monitoring.

7. Washington level review indicates that the recommended plan is technically sound, environmentally justified, cost effective and socially acceptable. The plan conforms 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.

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8. I generally concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend implementation of the authorized project in accordance with the reporting officers' plan with such modifications as in the discretion of the Chief of Engineers may be necessary and advisable. I recommend cost sharing as required by Section 210 of the Water Resources Development Act of 1996. Project cost sharing for environmental restoration under this act requires a non-Federal sponsor share of 35 percent and a Federal share of 65 percent. Further, the non-Federal sponsor would be responsible for 100 percent of the cost of operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the environmental restoration project. The annual operation and maintenance cost is currently estimated to be \$43,000. The total OMRR&R cost over a 50-year project life is estimated at \$2,047,500 for the completed project. The recommendation is also subject to the non-Federal sponsor agreeing to comply with all applicable Federal laws and policies, including the following requirements:

a. Provide 35 percent of the separable project costs allocated to environmental restoration as further specified below:

(1) Enter into an agreement which provides, prior to execution of a project cooperation agreement for the project, 25 percent of design costs;

(2) Provide, during construction, any additional funds needed to cover the non-Federal share of design costs;

(3) Provide all lands, easements, and rights-of-way, including suitable borrow and dredged or excavated material disposal areas, and perform or assure the performance of all relocations determined by the Government to be necessary for the construction, operation, and maintenance of the project;

(4) Provide or pay to the Government the cost of providing all retaining dikes, wasteweirs, bulkheads, and embankments, including all monitoring features and stilling basins, that may be required at any dredged or excavated material disposal areas required for the construction, operation, and maintenance of the project; and

(5) Provide, during construction, any additional costs as necessary to make its total contribution equal to 35 percent of the separable project costs allocated to environmental restoration.

b. For so long as the project remains authorized, operate, maintain, repair, replace, and rehabilitate the completed project, or functional portion of the project, at no cost to the Government, in accordance with applicable Federal and State laws and any specific directions prescribed by the Government.

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c. Give the Government a right to enter, at reasonable times and in a reasonable manner, upon land that the local sponsor owns or controls for access to the project for the purpose of inspection, and, if necessary, for the purpose of completing, operating, maintaining, repairing, replacing, or rehabilitating the project.

d. Assume responsibility for operating, maintaining, replacing, repairing, and rehabilitating (OMRR&R) the project or completed functional portions of the project, including mitigation features without cost to the Government, in a manner compatible with the project authorized purpose and in accordance with applicable Federal and State laws and specific directions prescribed by the Government in the OMRR&R manual and any subsequent amendments thereto.

e. Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended, and Section 103 of the Water Resources Development Act of 1986, Public Law 99-662, as amended, 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.

f. Hold and save the Government free from all damages arising from the construction, 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 Government or the Government's contractors.

g. Keep and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project to the extent and in such detail as will properly reflect total project costs.

h. 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), 42 USC 9601-9675, that may exist in, on, or under lands, easements or rights-of-way necessary for the construction, operation, and maintenance of the project; except that the non-Federal sponsor shall not perform such investigations on lands, easements, or rights-of-way that the Government determines to be subject to the navigation servitude without prior specific written direction by the Government.

i. 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 Government determines necessary for the construction, operation, or maintenance of the project.

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j. To the maximum extent practicable, operate, maintain, repair, replace, and rehabilitate the project in a manner that will not cause liability to arise under CERCLA.

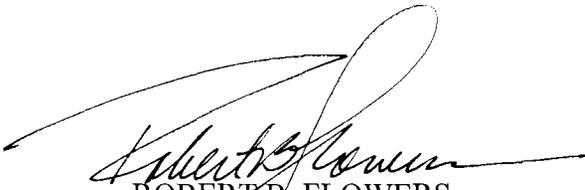
k. Prevent obstructions of or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) which might reduce the ecosystem restoration, hinder its operation and maintenance, or interfere with its proper function, such as any new development on project lands or the addition of facilities which would degrade the benefits of the project.

l. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public law 91-646, as amended by title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17), and the Uniform Regulations contained in 49 CFR part 24, in acquiring lands, easements, and rights-of-way, and performing relocations for construction, operation, and maintenance of the project, and inform all affected persons of applicable benefits, policies, and procedures in connection with said act.

m. Comply with all applicable Federal and State laws and regulations, including Section 601 of the Civil Rights Act of 1964, Public Law 88-352, and Department of Defense Directive 5500.11 issued pursuant thereto, as well as Army Regulation 600-7, entitled, "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army."

n. Provide the non-Federal share of that portion of the costs of mitigation and data recovery activities associated with historic preservation, that are in excess of 1 percent of the total amount authorized to be appropriated for the project, in accordance with the cost sharing provisions of the agreement.

o. Do not use Federal funds to meet the non-Federal sponsor's share of total project costs unless the Federal granting agency verifies in writing that the expenditure of such funds is authorized.



ROBERT B. FLOWERS
Lieutenant General, U.S. Army
Chief of Engineers