



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

REPLY TO  
ATTENTION OF:

23 DEC 1996

CECW-PE (10-1-7a)

SUBJECT: Norco Bluffs, Santa Ana River, Riverside County,  
California

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on the study of bluff stabilization along the Santa Ana River in Norco, California. This report is accompanied by the report of the district and division engineers. These reports are in response to Section 116(b) of the Water Resources Development Act of 1990, Public Law 101-640, which requested a feasibility study of bank stabilization measures for Norco Bluffs.

2. Section 101(b)(4) of the Water Resources Development Act of 1996 (WRDA 1996), Public Law 104-303, authorized construction of a bluff stabilization project for Norco Bluffs subject to completion of a final report of the U.S. Army Corps of Engineers on or before December 31, 1996, and subject to the conditions recommended in that final report. This report constitutes the final report of the Corps of Engineers required by WRDA 1996. The authorizing language for the Norco Bluffs project reflects a cost of \$8,600,000, with an estimated Federal Cost of \$6,450,000. The authorizing language is based on an earlier estimate for the slope stabilization and toe protection plan and includes the estimated Federal and non-Federal costs associated with that estimate. The cost estimate for this plan has since been refined to reflect a current cost estimate of \$7,174,000.

3. The reporting officers identified the slope stabilization and toe protection alternative as the preferred plan. The bluffs would be stabilized by placement of a buttress fill along the 1-mile-long (1,600 meters) reach of the Santa Ana River, at a slope of 1 vertical to 1.5 horizontal leading up to the top of the bluffs. The buttress fill would be protected by a toe

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protection fill faced with an 8-foot thickness of soil cement on a slope of 1 vertical to 1 horizontal extending approximately 15 feet below the stream bed.

4. The estimated first cost of the authorized project, based on October 1995 price levels, is estimated at \$7,174,000. Mitigation for the loss of nesting habitat for migratory birds as a result of implementation of this project would consist of removing about 51.5 acres of giant reed (*Arundo donax*) from a site adjacent to the project and monitoring the site for 8 years to prevent regrowth. Other highlights of the mitigation plan include: brown-headed cowbird trapping; biological resources monitoring (including the Bell's vireo and southwestern willow flycatcher); archeological monitoring during construction; surveying for hazardous materials before construction; and removing any hazardous materials. Mitigation also includes measures to reduce potential sedimentation impacts. Mitigation costs are estimated at \$814,000 and are included in the total project costs. Operations, maintenance, replacement, repair, and rehabilitation costs for the project are estimated at \$15,000 annually. Based on the report of the district engineer, average annual benefits and costs, based on a Federal discount rate of 7.625 percent and a 50-year period of analysis, are estimated at \$601,220 and \$591,900, respectively. The resulting benefit-cost ratio is 1.02.

5. The Washington level review indicates that the slope stability and toe protection plan authorized in Section 101(b)(4) of WRDA 1996 is economically justified. The authorized project is not however, the plan which maximizes net national economic development benefits. The costs associated with the slope stability features exceed the benefits for these features of the plan.

6. I generally concur in the findings of the reporting officers that the plan is technically sound, economically justified, and socially and environmentally acceptable.

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However, bluff stabilization projects would receive a low budget priority, and it is unlikely that funding for this project will be included in future budget requests.

7. However, in light of the project authorization provided by Section 101(b)(4) of WRDA 1996, should the project receive construction appropriations for Federal implementation, it would be subject to the cost-sharing requirements of Section 101(b)(4) of WRDA 1996 and would be implemented with such modifications as the Chief of Engineers deems advisable. Federal implementation would also be subject to the non-Federal sponsor agreeing to comply with applicable Federal laws and policies, and that it shall be responsible for the following items of local cooperation:

a. Provide 25 percent of total projects costs as further specified below:

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

(2) Provide, or pay to the Federal Government, the cost of 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

(3) Provide during construction any additional costs as necessary to make its total contribution equal to 25 percent of total project costs;

b. Give the Government a right to enter, at reasonable times and in a reasonable manner, upon land which the local sponsor owns or controls for access to the project for the

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purpose of inspection, and, if necessary, for the purpose of completing, operating, maintaining, repairing, replacing, or rehabilitating the project;

c. For so long as the project remains authorized, operate, maintain, replace, repair, and rehabilitate (OMRR&R) the project or completed functional portions of the project, including fish and wildlife mitigation features without cost to the Government, in a manner compatible with the authorized project purpose and in accordance with applicable Federal and State laws and specific directions prescribed by the Government;

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

e. 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;

f. 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;

g. 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 U.S.C. 9601-9675,

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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;

h. 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;

i. 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;

j. Prevent future encroachments on project lands, easements, and rights-of-way which might interfere with the proper functioning of the project;

k. 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;

l. 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

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Programs and Activities Assisted or Conducted by the Department  
of the Army;" and

m. Provide 25 percent of the total historic cultural,  
archeological resources preservation mitigation and data  
recover costs that are in excess of 1 percent of the total  
amount authorized to be appropriated for the project.



JOE N. BALLARD

Lieutenant General, U.S. Army  
Chief of Engineers