



DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON, DC 20314-1000

REPLY TO
ATTENTION OF

CEMP-SPD (1105-2-10a)

DEC 30 2010

SUBJECT: American River Watershed (Common Features) Project, Natomas Basin,
Sacramento and Sutter Counties, California

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on flood risk management for the Natomas Basin portion of the American River Watershed in the vicinity of Sacramento, California. It is accompanied by the report of the Sacramento District Engineer and the South Pacific Division Engineer. These reports supplement the 29 June 1992 and 27 June 1996 reports of the Chief of Engineers, and the March 2002 (revised July 2002) Post-Authorization Change Report, and were prepared as an interim general reevaluation study of the American River Common Features Project. The present study was conducted specifically to determine if there is a Federal interest in modifying the current authorized project features to address flood risk management issues related to levee seepage and stability in the Natomas Basin portion of the Common Features project area. The Common Features Project was authorized by Section 101(a)(1) of the Water Resources Development Act (WRDA) of 1996 (Public Law 104-303), as modified by Section 366 of WRDA 1999 (Public Law 106-53) and as further modified by Section 129 of the Energy and Water Development Appropriations Act, 2004 (Public Law 108-137); and as amended by Section 130 the Energy and Water Development and Related Agencies Appropriations Act, 2008 (Division C of Public Law 110-161).

2. The reporting officers recommend modifying the authorized Common Features project to include a comprehensive plan to reduce the systemic risk associated with seepage and stability for the ring levee system surrounding the Natomas Basin. The recommendation is supported by the non-Federal sponsors, the State of California and the Sacramento Area Flood Control Agency. The principal features of the recommended modifications include widening of about 41.9 miles of existing levee, installation of about 34.8 miles of soil bentonite cutoff wall and about 8.3 miles of seepage berms, and bridge remediation at State Route 99. In addition, mitigation features pursuant to the Endangered Species Act are recommended, including creation of 75 acres of canal habitat and up to 200 acres of marsh habitat, creation of up to 60 acres of landside woodlands, creation of 1,600 linear feet of tree plantings, and establishment of a monitoring program for assessing mitigation performance.

3. Based on October 2010 price levels, the estimated first cost of the recommended modifications for the Natomas Basin is \$1,111,600,000. Adding these improvements to the currently authorized Common Feature project cost of \$277,900,000 increases the estimated first cost of the total Common Features project to \$1,389,500,000. The Federal share of the total

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project cost would be about \$921,200,000 and the non-Federal share would be about \$468,300,000. All project costs are allocated to the Flood Risk Management purpose.

4. In accordance with the cost sharing provisions of Section 103(a) of WRDA 1986 (Public Law 99-662), as amended by Section 202(a) of WRDA 1996, and of Section 366(c) of WRDA 1999, the Federal share of the first costs of the flood damage reduction features would be about \$921,200,000 and the non-Federal share would be about \$468,300,000. The cost of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas is estimated at \$352,200,000. The State of California would be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction, a cost currently estimated at about \$5,300,000 per year.

5. Based on a 4.375-percent discount rate and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be \$82,500,000, including operation, maintenance, repair, replacement, and rehabilitation (OMRR&R). The selected plan is estimated to be 81 percent reliable in providing flood risk management for the study area from the one-percent flood event. The selected plan would reduce average annual flood damages by about 96 percent and would leave average annual residual damages estimated at \$19,000,000. Average annual economic benefits are estimated to be \$502,500,000; net average annual benefits are \$420,000,000. The benefit-to-cost ratio is 6 to 1.

6. In accordance with the provisions of Section 104 of WRDA 1986, the reporting officers recommend the non-Federal sponsor receive credit for work carried out which is compatible with the plan recommended for authorization, an amount currently estimated to be \$519,230,000. This credit eligibility was approved in concept by the Assistant Secretary of the Army for Civil Works on 19 July 2007, 7 April 2009, 4 May 2010, and 10 November 2010, contingent upon the determination of the actual elements of such non-Federal work requiring authorization as features of the new Federal improvements, and inclusion of these elements in the plan recommended by this reevaluation report. Section 104 credit does not relieve the non-Federal sponsor of the requirement to pay five percent of the project costs in cash during construction of the remainder of the project. No Section 104 credit is available for non-Federal work commenced after project authorization. The non-Federal features of the plan constructed or being constructed that are recommended under the above criteria include the following:

a. Strengthen approximately 5.5 miles of the Natomas Cross Canal south levee by flattening the landside levee slope and installing seepage cut-off walls.

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b. Strengthen approximately 4.9 miles of the Sacramento River east levee from Verona to Elverta Road by constructing a landside adjacent levee and installing seepage cut-off walls and landside seepage berms.

c. Strengthen approximately 4.0 miles of the Sacramento River east levee from Elverta Road past Interstate Highway 5 by constructing a landside adjacent levee and installing seepage cut-off walls and landside seepage berms.

d. Strengthen approximately 3.7 miles of the Sacramento River east levee from just downstream of Interstate Highway 5 to just past Powerline Road.

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 Natomas Basin study process. The recommended plan was developed utilizing a systems approach in formulating flood risk management solutions and in evaluating the impacts and benefits of those solutions. The levee system was viewed in context with the overall Sacramento River Flood Control Project to ensure that the recommended plan complemented the goals of the larger system and did not induce any negative impacts to other system components. A collaborative approach to solving water resource problems was implemented that included engagement of the project sponsors throughout the feasibility process, integration of the recommended plan with the sponsors' Natomas Levee Improvement Program, coordination with State and Federal resource agencies during National Environmental Policy Act (NEPA) compliance document preparation, and incorporation of the agencies' draft report comments into the final report.

8. In accordance with the Corps Engineering Circular EC 1165-2-209 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 independent Agency Technical Review (ATR), an independent External Peer Review (IEPR), and a USACE Headquarters policy and legal review. The ATR resulted in comments on levee performance curves, the plan formulation process, appropriate cost sharing percentages, issues related to levee vegetation, and historic versus modeled flood damage comparison. Consensus and resolution was reached on all ATR comments. The IEPR was managed by an outside eligible organization (Battelle Memorial Institute) that assembled a panel of six experts with combined expertise in the fields of geotechnical, hydraulic engineering, economics, and environmental/NEPA. Ultimately, the panel identified and documented 35 comments. Six of the panel comments were classified as having high significance. These comments were related to the plan formulation process and the without project conditions, additional clarification of the discussion on induced floodplain development as related to Executive Order (EO) 11988, and clarification of including Native American residents in the discussion of EO 12898. An additional comment requested

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clarification on the order of implementation for levee fixes. In response, sections in the main report and Economics Appendix were expanded to include additional information on the plan formulation and economic analysis process, including a reach-by-reach description of the problems and solutions that were considered in developing the system-wide alternatives. The rationale for the project not inducing growth was provided and the report was revised to clarify the discussion on EO 11988, and sections of the report were revised to indicate compliance with EO 12898 in that no Native American tribes currently reside in the project area as a distinct population group. Level II IEPR for Safety Assurance will be conducted in accordance with EC 1165-2-209 during the implementation of the Project Engineering and Design phase. The IEPR panel has concurred with all of the USACE responses and this process has led to improved report quality.

9. The USACE Headquarters review indicates that the project recommended by the reporting officers is technically sound, environmentally and socially acceptable, and economically justified. The goal to reduce loss of life is incorporated into this project but it is a shared responsibility that can never be completely mitigated by structural solutions. Discussion in the report states that residual risk will remain with this plan in place and emphasizes the roles of all partners in addressing and communicating residual risk, including the need for a well coordinated flood evacuation plan and implementation of local measures to mitigate residual risk through prudent land use planning. 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 and complies with other administrative and legislative policies and guidelines.

10. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the Common Features project be modified to reduce flood risk for the Natomas Basin portion of the American River Watershed in the vicinity of Sacramento, California, in accordance with the reporting officers' recommended plan, at an estimated cost of \$1,389,500,000 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, and in accordance with the required items of cooperation that the non-Federal sponsor shall agree to perform:

a. Provide a minimum of at least 25 percent of total project costs for the lower American River portion of the project and at least 35 percent for the Natomas Basin portion of the project but not to exceed 50 percent of total project costs as further specified below:

(1) Provide a cash contribution equal to five percent of total project costs;

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

(3) 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;

(4) Provide, during construction, any additional funds necessary to make its total contribution equal to at least 25 percent of total project costs for the lower American River portion of the project and at least 35 percent for the Natomas Basin portion of the project;

b. Provide 100 percent of all costs for local betterments.

c. Shall 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 obligations for the project unless the Federal agency providing the Federal portion of such funds verifies in writing that expenditure of such funds for such purpose is authorized;

d. Not less than once each year, inform affected interests of the extent of flood risk management afforded by the project;

e. Agree to participate in and comply with applicable Federal floodplain management and flood insurance programs;

f. Comply with Section 402 of the Water Resources Development Act of 1986, as amended (33 U.S.C. 701b-12), which requires a non-Federal interest to prepare a floodplain management plan within one year after the date of signing a project cooperation agreement, and to implement such plan not later than one year after completion of construction of the project;

g. 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 flood risk management levels provided by the project;

h. Prevent obstructions or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) such as any new developments on

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project lands, easements, and rights-of-way or the addition of facilities which might reduce the level of flood risk management the project affords, hinder operation and maintenance of the project, or interfere with the project's proper function;

i. Comply with all 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. 4601-4655), and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way required for construction, operation, and maintenance of the project, including those necessary for relocations, the borrowing of materials, or the disposal of dredged or excavated material; and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act;

j. 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;

k. Give the Federal Government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-Federal sponsor owns or controls for access to the project for the purpose of completing, inspecting, operating, maintaining, repairing, rehabilitating, or replacing the project;

l. 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;

m. Keep and maintain books, records, documents, or other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of three years after completion of the accounting for which such books, records, documents, or other evidence are required, to the extent and in such detail as will properly reflect total project costs, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 Code of Federal Regulations (CFR) Section 33.20;

n. Comply with all applicable Federal and State laws and regulations, including, but not limited to: Section 106 of the National Historic Preservation Act of 1966, Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d) and Department of Defense Directive 5500.11 issued pursuant thereto; Army Regulation 600-7, entitled "Nondiscrimination

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on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army”; and all applicable Federal labor standards requirements including, but not limited to, 40 U.S.C. 3141- 3148 and 40 U.S.C. 3701 – 3708 (revising, codifying and enacting without substantial change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. 276a et seq.), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 et seq.) and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c et seq.);

o. 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 sponsor with prior specific written direction, in which case the non-Federal sponsor shall perform such investigations in accordance with such written direction;

p. 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;

q. 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; and

r. Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended (42 U.S.C. 1962d-5b), and Section 103(j) of the Water Resources Development Act of 1986, Public Law 99-662, as amended (33 U.S.C. 2213(j)), which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until each non-Federal interest has entered into a written agreement to furnish its required cooperation for the project or separable element.

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

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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.



R. L. VAN ANTWERP
Lieutenant General, US Army
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