



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

**REPLY TO
ATTENTION OF**

CECW-PM (1105-2-10a)

DEC 30 2003

SUBJECT: New Jersey Shore Protection Study, Manasquan Inlet to Barnegat Inlet

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on the study of hurricane and storm damage reduction for Manasquan Inlet to Barnegat Inlet, New Jersey. It is accompanied by the report of the district and division engineers. These reports are in partial response to resolutions of the Committee on Public Works and Transportation of the House of Representatives dated 10 December 1987 and the Committee on Environment and Public Works of the United States Senate dated 15 December 1987. These resolutions requested review of existing reports of the Chief of Engineers for the entire New Jersey coast with a view to study, in cooperation with the State of New Jersey, its political subdivisions and agencies and instruments thereof, the changing coastal processes along the coast of New Jersey. Preconstruction engineering and design activities, if funded, would be continued under the study authorities cited above.

2. The reporting officers recommend constructing a dune and berm using sand obtained from offshore borrow sources. The sand fill dune and berm would extend approximately 14 miles from Berkeley Township at the boundary of Island Beach State Park northward to Point Pleasant Beach at the Manasquan Inlet south jetty.

a. The design dune would have a crest width of 25 feet and side slopes of 1V:5H. The dune crest elevation would be +22 feet North Atlantic Vertical Datum (NAVD) along the entire reach except at Seaside Heights and northern Point Pleasant Beach. At these two locations the dune design crest elevation would be +18 feet NAVD. The plan includes planting 175 acres of dune grass on the newly constructed dune. Dune crossovers for pedestrian use would be provided at 247 existing access locations, including handicap access at regular intervals. Eleven dune crossovers would be provided to accommodate service vehicles. Sand fencing would be included along the perimeter of the dune base and at each crossover to protect the dune. Approximately 206,000 linear feet of fencing would be required.

b. The design berm would be constructed to elevation +8.5 feet NAVD at all locations, except at northern Point Pleasant Beach, where berm elevation would be +11.5 feet NAVD. The berm would extend 75 feet seaward from the toe of the dune along the entire reach except at

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Seaside Heights and northern Point Pleasant Beach. At these two locations, the berm width would be 100 feet extending seaward from the toe of the dune. At all locations, the design beach foreshore would slope 1V:10H from the berm crest down to mean high water (MHW). Below MHW, the design beach slope would parallel the existing beach slope down to the depth of closure at -26 feet NAVD.

c. The initial sand fill requirement is estimated as 10,689,000 cubic yards. This amount includes an initial fill quantity of 9,728,000 cubic yards and advance nourishment of 961,000 cubic yards. Periodic nourishment would be required at about 4-year intervals after completing the initial construction in order to maintain the integrity of the design beach template over the project life. Twelve nourishment cycles, totaling about 12,358,000 cubic yards over the 50-year period of Federal participation, are anticipated.

d. No compensatory environmental mitigation is proposed. However, monitoring during initial construction and subsequent beach nourishment cycles would be undertaken to avoid significant impacts to benthic habitats, surf clam populations, and Federally threatened species including the piping plover (*Charadrius melodus*) and seabeach amaranth (*Amaranthus pumilus*).

3. Based on October 2003 price levels, the initial construction cost of the plan is estimated at \$62,377,000. Under cost sharing specified by the Water Resources Development Act (WRDA) of 1986, Public Law 99-662, the initial construction would be cost shared 65 percent by the Federal Government and 35 percent by the non-Federal sponsor. The Federal share of this first cost is \$40,546,000 and the non-Federal share is \$21,831,000. Cost of lands, easements, rights-of-way, relocations, and dredged material disposal areas is estimated at \$3,913,000 and will be credited toward the non-Federal sponsor's cash contribution.

4. Over the 50-year period of Federal participation, the total periodic nourishment costs are estimated to be \$103,837,000 (October 2003 price level). Based on the amendments to the WRDA of 1986 cost sharing requirements implemented in response to the WRDA of 1999, Public Law 106-53, cost sharing for the periodic nourishment would be 50 percent Federal (\$49,082,500) and 50 percent non-Federal (\$49,082,500) for sand placement costs and 100 percent non-Federal (\$5,672,000) for dune grass, sand fence, and crossover replacement costs.

5. The ultimate cost of construction which includes initial construction, project monitoring, and periodic nourishment during the 50 years of Federal participation is estimated to be \$166,214,000 (October 2003 price level). The Federal costs are estimated at \$89,628,500 and the non-Federal costs at \$76,585,500. All costs also include pre-construction engineering and design. Cost of operation, maintenance, repair, replacement, and rehabilitation is not included in this cost and is a non-Federal responsibility. The recommended cost sharing percentages presented in this report are contingent upon the District Engineer, Philadelphia, certifying that the non-Federal sponsor has provided appropriate real estate instruments ensuring public use and access as stated in law and regulation prior to initiating project construction.

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6. The analysis of the selected plan is based on an October 2003 price level and the Federal discount rate of 5.625 percent. The selected plan, which is the national economic development (NED) plan, has primary outputs based on hurricane and storm damage reduction. The plan provides equivalent annual net benefits of approximately \$6,174,000 and has a benefit-to-cost ratio of 2.1 to 1.

7. Washington level review indicates that the plan developed is technically sound, economically justified, and socially and environmentally acceptable. The plan conforms to the essential elements of U.S. Water Resources Council's Economic and Environmental Principals and Guidelines for Water and Related Land Resources Implementation Studies and complies with other administration and legislative policies and guidelines. The views of interested parties, including Federal, State, and local agencies have been considered. Currently, a portion of the project shoreline length has been identified as being owned and operated by private, for profit entities, with some additional shoreline segments that are owned by private, non-profit entities. The Philadelphia District will undertake further coordination with the non-Federal project sponsor during the preconstruction engineering and design phase to ensure that public access to all segments of the 14 mile long project is consistent with law and regulations.

8. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend construction of this project for hurricane and storm damage reduction in accordance with the reporting officers' recommended NED plan with such modifications as in the discretion of the Chief of Engineers may be advisable. Also, this recommendation is subject to the non-Federal sponsor agreeing to comply with all applicable Federal laws and policies and other requirements including, but not limited to:

a. Provide 35 percent of initial project costs assigned to hurricane and storm damage reduction, plus 50 percent of the initial project costs assigned to protecting undeveloped public lands, plus 50 percent of initial project costs assigned to recreation, 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) Enter into an agreement which provides, prior to construction, 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, and perform or ensure the performance of any relocations determined by the Federal Government to be necessary for the initial construction, periodic nourishment, operation, and maintenance of the project;

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(4) Provide, during construction, any additional amounts as are necessary to make its 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, repair, replace, and rehabilitate the completed project, or functional portion of the project, at no cost to the Federal Government, in a manner compatible with the project authorized purposes and in accordance with applicable Federal and State laws and regulations and any specific directions prescribed by the Federal Government;

c. Give the Federal Government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-Federal sponsor, now or hereafter, owns or controls for access to the project for the purpose of inspecting, operating, maintaining, repairing, replacing, rehabilitating, or completing the project. No completion, operation, maintenance, repair, replacement, or rehabilitation by the Federal Government shall relieve the non-Federal sponsor of responsibility to meet the non-Federal sponsor's obligations, or to preclude the Federal Government from pursuing any other remedy at law or equity to ensure faithful performance;

d. 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 project and any project-related betterments, except for damages due to the fault or negligence of the United States or its contractors;

e. Keep and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project 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;

f. 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, maintenance, repair, and rehabilitation 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

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

g. 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;

h. 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;

i. If applicable, 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 required for the initial construction, periodic nourishment, operation, and maintenance of the project, including those necessary for relocations, borrow materials, and dredged or excavated material disposal, and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act;

j. Comply with all applicable Federal and State laws and regulations, including, but not limited to, 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, 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", and Section 402 of the Water Resources Development Act of 1986, as amended (33 U.S.C. 701b-12), requiring non-Federal preparation and implementation of floodplain management plans;

k. 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;

l. Participate in and comply with applicable Federal floodplain management and flood insurance programs;

m. 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;

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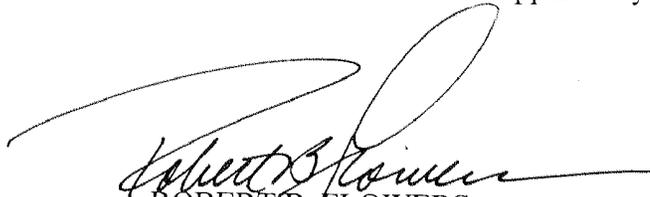
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- n. Prescribe and enforce regulations to prevent obstruction of or encroachment on the project that would reduce the level of protection it affords or that would hinder future periodic nourishment and/or the operation and maintenance of the project;
- o. Not less than once each year, inform affected interests of the extent of protection afforded by the project;
- p. Publicize floodplain information in the area concerned and provide this information to zoning and other regulatory agencies for their use in preventing unwise future development in the floodplain, and in adopting such regulations as may be necessary to prevent unwise future development and to ensure compatibility with protection levels provided by the project;
- q. 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;
- r. Provide and maintain necessary access roads, parking areas, and other public use facilities, open and available to all on equal terms;
- s. Recognize and support the requirements of 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; and
- t. 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.

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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 nor the perspective of higher review levels within the executive branch. Consequently, the recommendation may be modified before it is transmitted to Congress as a proposal for authorization and implementation funding. However, prior to transmittal to Congress, the non-Federal sponsor, the State of New Jersey; 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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