



DEPARTMENT OF THE ARMY  
NORTH ATLANTIC DIVISION, CORPS OF ENGINEERS  
FORT HAMILTON MILITARY COMMUNITY  
GENERAL LEE AVENUE, BLDG 301  
BROOKLYN, NY 11252

REPLY TO  
ATTENTION OF:

CENAD-RBT

25 May 2012

MEMORANDUM FOR Commander, New York District, ATTN: CENAN-EN (Mr. Connolly),  
26 Federal Plaza, Room 2039A, New York, NY 10278-0090

SUBJECT: Review Plan Approval for Raritan Bay and Sandy Hook Bay, New Jersey, Hurricane and Storm Damage Reduction, Port Monmouth Shore Protection Component – Revised Plan

1. References:

a. Memorandum, CENAN-EN-MC-F, 19 April 2012, Subject: Revised Review Plan for Raritan Bay and Sandy Hook Bay, New Jersey, Hurricane and Storm Damage Reduction, Port Monmouth Shore Protection Component and Post Authorization Change Report

b. Memorandum, CENAD-RBT, undated, Subject: Review Plan Approval for Raritan Bay and Sandy Hook Bay, New Jersey, Hurricane and Storm Damage Reduction, Port Monmouth Shore Protection Component

c. EC 1165-2-209, Water Resources Policies and Authorities – Civil Works Review Policy, 31 January 2010

2. The enclosed Review Plan for the shore protection component of the Raritan Bay and Sandy Hook Bay Hurricane and Storm Damage Reduction, Port Monmouth, New Jersey project has been prepared in accordance with Reference 1.c. The shore protection component consists of a sand dune and berm system with one terminal groin. Appurtenant structures include an extension to an existing fishing pier, pedestrian and vehicular dune crossovers, and vegetation.

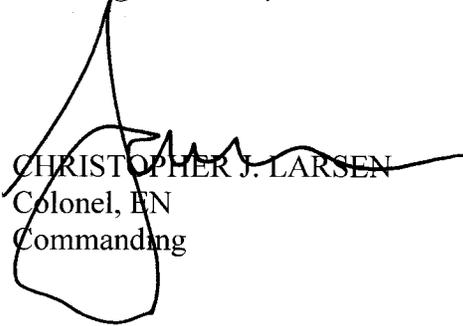
3. NAD Business Technical Division is the Review Management Organization (RMO) for the Design Documentation Report and plans and specifications. The Planning Center of Expertise (PCX) for Coastal Storm Damage Reduction is the RMO for the Engineering Documentation Report/Post Authorization Change Report. The Review Plan does not include Independent External Peer Review since the project does not involve potential hazards which pose a significant threat to human life.

4. Since its initial approval (Ref. 1.b), the Review Plan has been revised to include review of the Post Authorization Change Report, to add PCX for Storm Damage Reduction as an RMO, to add Plan Formulation and Structural Engineering to ATR Team, to add Cost Engineering DX review, and to make minor updates to schedule and Points of Contact (Ref. 1.a).

SUBJECT: Review Plan Approval for Raritan Bay and Sandy Hook Bay, New Jersey, Hurricane and Storm Damage Reduction, Port Monmouth Shore Protection Component – Revised Plan

5. The revised Review Plan for the shore protection component of the Raritan Bay and Sandy Hook Bay Hurricane and Storm Damage Reduction is approved. The Review Plan is subject to change as circumstances require, consistent with study development under the Project Management Business Process. Subsequent revisions to this Review Plan or its execution will require new written approval from this office.
6. In accordance with Reference 1.c, Appendix B, Paragraph 5, this approved Review Plan shall be posted on your district website for public review and comment.
7. The Review Plan is for the shore protection component only. Other components of the project will require separate Review Plans which may involve other RMOs and types of review.
8. The Points of Contact for this action are Alan Huntley, Business Technical Division, 347-370-4664 or Alan.Huntley@usace.army.mil, and Lawrence Cocchieri, PCX for Coastal Storm Damage Reduction, 347-370-4571 or Lawrence.J.Cocchieri@usace.army.mil.

Encl  
as



CHRISTOPHER J. LARSEN  
Colonel, EN  
Commanding

CF (w/ encl):  
CEMP-NAD (C. Shuman)  
CENAD-PDC (L. Monte)  
CENAD-PDX (L. Cocchieri)

CENAN-EN-MC-F

19 April 2012

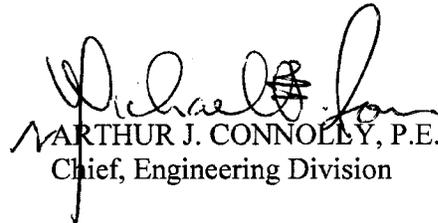
MEMORANDUM FOR Commander, North Atlantic Division. ATTN: Business Technical Division

SUBJECT: Revised Review Plan for Raritan Bay and Sandy Hook Bay, New Jersey, Hurricane and Storm Damage Reduction, Port Monmouth Shore Protection Component and Post Authorization Change Report

1. In accordance with EC 1165-2-209 (Civil Works Review Policy), enclosed for your review and approval is the subject document. The revisions are summarized in Attachment 5 of the document.
2. The Review Plan has been coordinated with the PCX-CSDR.
3. The point of contact for the Review Plan is Sheila Rice McDonnell of my staff at (917)790-8297.

Encl  
Review Plan

CF:  
C, CENAN-PL  
C, CENAN-PP

  
ARTHUR J. CONNOLLY, P.E.  
Chief, Engineering Division

**Review Plan for  
Raritan Bay and Sandy Hook Bay, New Jersey  
Hurricane and Storm Damage Reduction  
Port Monmouth Shore Protection Component and  
Post Authorization Change Report**

New York District  
U.S. Army Corps of Engineers

**MSC Approval Date: 21 December 2011  
Last Revision Date: 16 April 2012**

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## 1. PURPOSE AND REQUIREMENTS

**a. Purpose.** This Review Plan defines the scope and level of peer review for the shore protection component of the overall Raritan Bay and Sandy Hook Bay, Hurricane and Storm Damage Reduction, Port Monmouth, New Jersey project and the associated Post Authorization Change (PAC) Report.

### **b. References**

- (1) EC 1165-2-209, Civil Works Review Policy, 31 Jan 2010
- (2) ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 Aug 1999
- (3) ER 1110-1-12, Engineering and Design Quality Management, 31 Jul 2006, as revised through 31 Mar 2011
- (4) WRDA 2007 H. R. 1495 Public Law 110-114, 8 Nov 2007
- (5) ER 1105-2-100, Planning Guidance Notebook, Appendix G, 30 June 2004

**c. Requirements.** This review plan was developed in accordance with EC 1165-2-209, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review.

## 2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for implementation documents is the Major Subordinate Command (MSC), while for decision documents is the appropriate Planning Center of Expertise (per EC 1165-2-209). Therefore the RMO for the peer review of the Design Documentation Report and plans and specifications described in this Review Plan is the North Atlantic Division. The RMO for the peer review of the Engineering Documentation Report, which will serve as the PAC Report is the Planning Center of Expertise for Coastal Storm Damage Reduction (PXC-CSDR).

## 3. PROJECT INFORMATION

**a. Implementation Documents.** This Review Plan has been prepared for the Design Documentation Report (DDR), Engineering Documentation Report (EDR)/Post Authorization Change Report (PACR), plans and specifications (P&S) for the shore protection component of the Raritan Bay and Sandy Hook Bay Hurricane and Storm Damage Reduction, Port Monmouth, New Jersey project. The purpose of these documents is to provide a record of final design for the shore protection component and to support the Project Partnership Agreement. Approval

of these documents is at the District Command level. An Environmental Assessment with a Finding of No Significant Impact (FONSI) has been prepared and signed by the District Engineer.

**b. Post Authorization Change Report.** This Review Plan has also been prepared for the PAC Report for the Raritan Bay and Sandy Hook Bay Hurricane and Storm Damage Reduction, Port Monmouth, NJ project. The purpose of the PAC is to document changes where an authority determination must be made by the Commander USACE, and changes where cost increases exceed the limit established by Section 902 of the WRDA of 1986. The EDR will serve as the PAC Report, with all required components incorporated at the end of the EDR.

**c. Project Description.** A Feasibility Report and Environmental Impact Statement for the Port Monmouth project were completed in June 2000 and the Chief of Engineers Report was signed on 29 December 2000. Construction of the Port Monmouth project was authorized under Section 101 of the Water Resources Development Act of 2000. The Record of Decision was signed on 28 May 2008.

The recommended plan resulting from the Feasibility Report provides for reduction of storm damages from coastal erosion and flooding and inland flooding along Pews and Compton Creeks caused by high surge events in Raritan Bay through storm protective dune, berm, beach fill, levees, floodwalls, closure gates, pump stations, interior drainage facilities, road raising and wetland mitigation. The State of New Jersey, acting through the Department of Environmental Protection, is the non-Federal sponsor for the project.

The shore protection component, which will be the first constructible element, consists of a sand dune and berm system, with one rubblemound terminal groin. Appurtenance structures include an extension to an existing fishing pier, pedestrian and vehicular dune crossovers, and vegetation. Project design includes beach renourishment, and an annual cost for post-storm emergency rehabilitation. Accordingly, the design, quantities and costs for this component have progressed in detail since the completion of the feasibility study. The implementation documents for the shore protection component reflect a post-Feasibility design modification resulting from a value engineering proposal made for the shore protection portion of the Feasibility Recommended Plan by the Office of Chief Engineers Value Engineering Study Team (OVEST) in February 2003. The design modification consists of use of one terminal groin at the western end of the project as a closure structure rather than use of a sand taper closure.

It was determined that the updated Port Monmouth project cost would exceed the Section 902 cap. A PAC Report would be necessary to re-authorize the project for the updated cost.

**d. Factors Affecting the Scope and Level of Review.** The focus of this Review Plan is on the implementation documents for the shore protection component of the

overall Raritan Bay and Sandy Hook, Hurricane and Storm Damage Reduction, Port Monmouth, NJ Project and on the PAC Report.

Detailed design has not yet been initiated on the flood risk management component of the project. However, since the EDR will serve as the PAC Report and will be used to support the Project Partnership Agreement, the costs for the flood risk management component have been updated to current price levels in order to present a total project cost.

An assessment of the need for a Type II Independent External Peer Review, Safety Assurance Review, is documented in Section 6 of this Review Plan. This assessment by the New York District Chief of Engineering Division considered life safety and other factors including whether the project involves the use of innovative materials or techniques; whether project design includes redundancy, resiliency, and robustness; and whether the project has unique construction sequencing. This assessment was done for the shore protection component only. However, it should be noted that future assessments will be performed for flood risk management components when appropriate.

#### **4. DISTRICT QUALITY CONTROL (DQC)**

All implementation documents will undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). The home district will manage the DQC.

- a. Documentation of DQC.** DQC will be documented through the use of DrChecks<sup>sm</sup> and a DQC report, which will be signed by all reviewers.
- b. Products to Undergo DQC.** Products that will undergo DQC include DDR, EDR/PAC Report, Plans and Specifications and Cost Estimate.
- c. Required DQC Expertise.** DQC will be performed by staff in the home district that are not involved in the study. Additional Quality Control will be performed by the Project Delivery Team during the course of completing the design.

#### **5. AGENCY TECHNICAL REVIEW (ATR)**

ATR is mandatory for all implementation documents and PAC Reports. The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner. ATR is managed within USACE by the designated RMO and is conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. ATR teams will

be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC.

**a. Products to Undergo ATR.** The products that will undergo ATR include the DDR, EDR/PAC Report, Plans and Specifications and Cost Estimate.

**b. Required ATR Team Expertise.**

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works implementation documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. The ATR lead may also serve as a reviewer for a specific discipline (such as economics, environmental resources, etc).
Economics	Team member will have extensive experience in coastal storm damage and coastal risk reduction projects and a thorough understanding of HEC-FDA. The reviewer will also have extensive experience in performing 902 CAP analyses and will be familiar with the economic requirements of a Post Authorization Change Report.
Environmental Resources	Team member will have independently completed EA/EIS's and be well versed in the NEPA process, will have participated in partnerships with other environmental resource agencies, will have experience with identifying and resolving environmental issues in a coastal ecosystem, and will have experience with Section 106 actions and documentation.
Coastal Engineering	Team member will be an expert in the field of coastal processes and have a thorough understanding of sediment transport, application of wave forces and water levels over the likely range of storm return periods, beach fill design including renourishment, appurtenant structures for beach fill design, design of rubblemound structures, and determination of risk due to sea level rise.
Civil Engineering	Team member will be an expert in the field of civil engineering, especially in review of coastal projects.
Cost Engineering	Team member will be an expert in cost estimating for similar projects in MII. Review includes construction schedules and contingencies. The team member will be a Certified Cost Technician, a Certified Cost Consultant, or a Certified Cost Engineer. As the Cost Engineering Center of Expertise, Walla Walla District will assign this team member as part of a separate effort coordinated by the ATR team lead.
Structural Engineering	Team member will be an expert in the field of structural engineering, especially in review of coastal structures.

Plan Formulation	<p>Team member will be a senior water resources planner with experience in coastal storm damage and coastal risk reduction projects, should be familiar with coastal engineering processes, and have experience relevant to issues that may arise during the Engineering and Design Phase, including but not limited to, the creation of Construction Implementation Documents. The focus of the planning review will be to confirm that the recommended plan is consistent with current policies and procedures. The reviewer should also have experience in the development of Post Authorization Change Reports and should be familiar with the Report's requirements.</p>
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**c. Documentation of ATR.** DrChecks<sup>sm</sup> review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. The four key parts of a quality review comment will normally include:

- (1) The review concern – identify the product's information deficiency or incorrect application of policy, guidance, or procedures;
- (2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not be properly followed;
- (3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
- (4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist.

The ATR documentation in DrChecks<sup>sm</sup> will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the district, PCX-CSDR, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in ER 1110-1-12. Unresolved concerns can be closed in DrChecks<sup>sm</sup> with a notation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;
- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue (if any); and
- Include a copy of each ATR comment, the PDT response, a brief summary of the pertinent points in the follow on discussion, including any vertical coordination, and the agreed upon resolution.

ATR will be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Technical Review should be completed for the shore protection component DDR, EDR/PAC Report, and Plans and Specifications. A sample Statement of Technical Review is included in Attachment 2.

## **6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)**

An IEPR may be required for implementation documents under certain circumstances. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-209, is made as to whether IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

- **Type I IEPR.** Type I IEPRs are managed outside the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-209.

- **Type II IEPR.** Type II IEPRs, or Safety Assurance Reviews (SAR), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels will conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.

**a. Decision on IEPR.** Type I IEPR is not applicable as per EC 1165-2-209, Civil Works Review Policy, since the Port Monmouth project is in the Preconstruction Engineering and Design Phase.

Type II Independent External Peer Review, Safety Assurance Review, is required by EC 1165-2-209 for any hurricane and storm risk management projects where issues of life safety are present. As documented in Memorandum for Record dated 25 October 2011 (Attachment 4), New York District Chief, Engineering Division made a risk informed assessment of whether there is a significant threat to human life as a result of the Raritan and Sandy Hook Bay, Hurricane and Storm Damage Reduction, Port Monmouth, NJ Shore Protection Component. The key factors considered were:

- (1) The Port Monmouth Hurricane and Storm Damage Reduction shore protection project components provide reduction in storm damage by reducing wave-induced property damage and reducing shoreline storm erosion.
- (2) The Port Monmouth Hurricane and Storm Damage Reduction shore protection project component does not protect critical public facilities. The project does not protect a primary or intermediate storm evacuation route. All storm evacuations can be accomplished by other thoroughfares within the project area. Failure of the shore protection component of the project would most likely be from gradual erosion followed by a significant coastal storm event. The State of New Jersey and Monmouth County have the resources to monitor the shore protection component of the project if there is erosion that reduces the features of the project (beach width and height and dune width and height). The Corps and the State have capabilities to maintain the shore protection project features over the life of the project.
- (3) Furthermore, traditional and proven design features and traditional and proven construction materials and methodologies will be used. All elements in construction, including Munitions and Explosives of Concern (MEC), that may pose a risk are identified and methodologies are in place to reduce the human life safety risk to low. All aspects of the Guide Spec Section 01 35 30, Munitions and Explosives of Concern (MEC) Construction Support, for beachfill projects will be incorporated into the specifications for the Port Monmouth shore protection

contract documents. The latest revision of the guide specifications developed by the Corps of Engineers Military Munitions Design Center at CENAB will be used.

Based on a risk informed assessment which considered life safety factors, New York District Chief, Engineering Division determined that there is not a significant threat to human life associated with the Raritan Bay and Sandy Hook Bay, Hurricane and Storm Damage Reduction, Port Monmouth, NJ, Shore Protection Component. Accordingly, a Type II IEPR, Safety Assurance Review, is not required for the shore protection component.

- b. Products to Undergo IEPR.** Not applicable to shore protection component.
- c. Required IEPR Panel Expertise.** Not applicable to shore protection component.
- d. Documentation of IEPR.** Not applicable to shore protection component.

## **7. POLICY AND LEGAL COMPLIANCE REVIEW**

All implementation documents and the PAC Report will be reviewed for their compliance with law and policy. Guidance for policy and legal compliance reviews of decision documents like the PAC Report is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the designs and the supporting analyses and coordination comply with law and policy. DQC and ATR facilitate the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of results in implementation documents.

## **8. COST ENGINEERING DIRECTORATE OF EXPERTISE (DX) REVIEW AND CERTIFICATION**

The EDR/PAC report shall be coordinated with the Cost Engineering DX, located in the Walla Walla District. The DX will assist in determining the expertise needed on the ATR team and in the development of the review charge(s). The DX will also provide the Cost Engineering DX certification. The RMO (PXC-CSDR) is responsible for coordination with the Cost Engineering DX.

## **9. MODEL CERTIFICATION AND APPROVAL**

Not applicable since the Port Monmouth project is in the Preconstruction Engineering and Design Phase and this relates to the use of certified or approved models for planning activities.

## **10. REVIEW SCHEDULES AND COSTS**

- a. ATR Schedule and Cost.** The schedule and costs budgeted for ATR reviews are as follows:

90% DDR, EDR/PACR, Plans & Specifications, Cost Estimate-May 2012 (\$30,000)  
100% DDR, EDR/PACR, Plans & Specifications, Cost Estimate-Jul 2012 (\$10,000)

b. **IEPR Schedule and Cost.** Not applicable to shore protection component.

c. **Model Certification/Approval Schedule and Cost.** Not applicable.

## **11. PUBLIC PARTICIPATION**

There will be public meetings prior to the start of each construction contract. There will be public meetings to discuss the overall Port Monmouth Project and its sequencing. Also, as significant changes or developments occur, the District will present this information to the NJDEP, the county and local municipality. Any significant comments or concerns raised by the Project Delivery Team that will include our Non-Federal sponsors and stakeholders will be brought to the attention of the ATR panel. In addition, the review plan and updated fact sheets will be posted on the New York District's web site.

## **12. REVIEW PLAN APPROVAL AND UPDATES**

The North Atlantic Division Commander, or his representative, is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving district, PCX-CSDR (RMO), MSC (RMO), and HQUSACE members) as to the appropriate scope and level of review for the implementation and Post Authorization Change documents. Like the PMP, the Review Plan is a living document and may change as the engineering and design progresses. The home district is responsible for keeping the Review Plan up to date. Changes to the review plan since the last MSC Commander approval are documented in Attachment 5. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the PCX-CSDR (RMO).

## **13. REVIEW PLAN POINTS OF CONTACT**

Public questions and/or comments on this review plan can be directed to the following points of contact:

- Sheila Rice McDonnell, NAN, EN Technical Manager, 917-790-8297
- Donald E. Cresitello, NAN, Planner, 917-790-8608
- John Bianco, NAD Technical Business Division, 347-370-4586
- Lawrence Cocchieri, Deputy Director, National Planning Center of Expertise – Coastal Storm Damage Reduction, 347-370-4571

**ATTACHMENT 1: TEAM ROSTERS**

**PDT**

<b>Name</b>	<b>Role</b>	<b>Phone Number</b>	<b>E-mail Address</b>
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Sean O'Donnell	Structural Engineering	x-8286	<a href="mailto:Sean.B.O'Donnell@usace.army.mil">Sean.B.O'Donnell@usace.army.mil</a>

**ATR Team\***

<b>Name</b>	<b>Role</b>	<b>Review District</b>
Gregory Baer	ATR Lead	HQ
Ed O'Leary	Economics	NAE
Robert Pruhs	Environmental Resources	NAO
Joe Reed	Civil Engineering	NAB
Randy Wise	Coastal Engineering	NAP
TBD	Cost Engineering	TBD
TBD	Structural Engineer	TBD
TBD	Plan Formulation	TBD

\*All resumes will be reviewed and approved by the MSC prior to initiating any ATR.

**Vertical Team**

<b>Name</b>	<b>Role</b>	<b>Phone Number</b>	<b>E-mail Address</b>
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**ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW**

**COMPLETION OF AGENCY TECHNICAL REVIEW**

The Agency Technical Review (ATR) has been completed for the <type of product> for <project name and location>. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-209. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrChecks<sup>sm</sup>.

**SIGNATURE**

\_\_\_\_\_  
Name  
ATR Team Leader  
Office Symbol/Company

\_\_\_\_\_  
Date

**SIGNATURE**

\_\_\_\_\_  
Name  
Project Manager  
Office Symbol

\_\_\_\_\_  
Date

**SIGNATURE**

\_\_\_\_\_  
Name  
Architect Engineer Project Manager<sup>1</sup>  
Company, location

\_\_\_\_\_  
Date

**SIGNATURE**

\_\_\_\_\_  
Name  
Review Management Office Representative  
Office Symbol

\_\_\_\_\_  
Date

**CERTIFICATION OF AGENCY TECHNICAL REVIEW**

Significant concerns and the explanation of the resolution are as follows: Describe the major technical concerns and their resolution.

As noted above, all concerns resulting from the ATR of the project have been fully resolved.

**SIGNATURE**

\_\_\_\_\_  
Name  
Chief, Engineering Division  
Office Symbol

\_\_\_\_\_  
Date

**SIGNATURE**

\_\_\_\_\_  
Name  
Architect Engineer Principal  
Office Symbol

\_\_\_\_\_  
Date

<sup>1</sup> Only needed if some portion of the ATR was contracted

**ATTACHMENT 3: ACRONYMS AND ABBREVIATIONS**

<b>Term</b>	<b>Definition</b>	<b>Term</b>	<b>Definition</b>
AFB	Alternative Formulation Briefing	NED	National Economic Development
ASA(CW)	Assistant Secretary of the Army for Civil Works	NER	National Ecosystem Restoration
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
CSDR	Coastal Storm Damage Reduction	O&M	Operation and maintenance
DPR	Detailed Project Report	OMB	Office and Management and Budget
DQC	District Quality Control/Quality Assurance	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DX	Directory of Expertise	OEO	Outside Eligible Organization
EA	Environmental Assessment	OSE	Other Social Effects
EC	Engineer Circular	PCX	Planning Center of Expertise
EIS	Environmental Impact Statement	PDT	Project Delivery Team
EO	Executive Order	PAC	Post Authorization Change
ER	Ecosystem Restoration	PMP	Project Management Plan
FDR	Flood Damage Reduction	PL	Public Law
FEMA	Federal Emergency Management Agency	QMP	Quality Management Plan
FRM	Flood Risk Management	QA	Quality Assurance
FSM	Feasibility Scoping Meeting	QC	Quality Control
GRR	General Reevaluation Report	RED	Regional Economic Development
Home District/MSD	The District or MSD responsible for the preparation of the decision document	RMC	Risk Management Center
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMO	Review Management Organization
IEPR	Independent External Peer Review	RTS	Regional Technical Specialist
ITR	Independent Technical Review	SAR	Safety Assurance Review
LRR	Limited Reevaluation Report	USACE	U.S. Army Corps of Engineers
MSC	Major Subordinate Command	WRDA	Water Resources Development Act

## MEMORANDUM For Record

**SUBJECT:** Raritan Bay and Sandy Hook Bay, Hurricane and Storm Damage Reduction, Port Monmouth, NJ, Shore Protection Component- Risk Informed Assessment of Significant Threat to Human Life

**1. Project Information.** The recommended plan resulting from the Feasibility Report for Raritan Bay and Sandy Hook Bay, Hurricane and Storm Damage Reduction, Port Monmouth, NJ provides for reduction of storm damages from coastal erosion and flooding and inland flooding along Pews and Compton Creeks caused by high surge events in Raritan Bay through storm protective dune, berm, beach fill, levees, floodwalls, closure gates, pump stations, interior drainage facilities, road raising and wetland mitigation. The State of New Jersey, acting through the Department of Environmental Protection, is the non-Federal sponsor for the project. A Review Plan is being prepared for the implementation documents for the shore protection component of project.

**2. Project Description.** The shore protection component of the Port Monmouth project, which will be the first constructible element, consists of a sand dune and berm system, with one rubblemound terminal groin. Appurtenant structures include an extension to an existing fishing pier, pedestrian and vehicular dune crossovers, and vegetation. Project design includes beach renourishment, and an annual cost for post-storm emergency rehabilitation.

**3. Risk Informed Assessment.** In accordance with EC 1165-2-209 (31 Jan 10), Civil Works Review Policy, a risk informed assessment was made as to whether there is a significant threat to human life from the shore protection project component (Table 1). The key factors considered are:

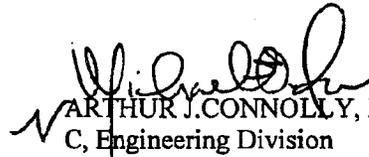
- a. The Port Monmouth Hurricane and Storm Damage Reduction shore protection project components provide reduction in storm damage by reducing wave-induced property damage and reducing shoreline storm erosion.
- b. The Port Monmouth Hurricane and Storm Damage Reduction shore protection project component does not protect critical public facilities. The project does not protect a primary or intermediate storm evacuation route. All storm evacuations can be accomplished by other thoroughfares within the project area. Failure of the shore protection component of the project would most likely be from gradual erosion followed by a significant coastal storm event. The State of New Jersey and Monmouth County have the resources to monitor the shore protection component of the project if there is erosion that reduces the features of the project (beach width

and height and dune width and height). The Corps and the State have capabilities to maintain the shore protection project features over the life of the project.

- c. Furthermore, traditional and proven design features and traditional and proven construction materials and methodologies will be used. All elements in construction, including MEC (Munitions and Explosives of Concern), that may pose a risk are identified and methodologies are in place to reduce the human life safety risk to low.

**4. Determination.** Based on a risk informed assessment which considered life safety factors, I have determined that there is not a significant threat to human life associated with the Raritan Bay and Sandy Hook Bay, Hurricane and Storm Damage Reduction, Port Monmouth, NJ, Shore Protection Component. Accordingly, it is recommended that a Type II IEPR, Safety Assurance Review, is not warranted for the shore protection component.

Encl

  
ARTHUR J. CONNOLLY, P.E.  
C, Engineering Division

Risk Informed Assessment. In accordance with EC 1165-2-209 (31 Jan 10), Civil Works Review Policy, Appendix E, Paragraph 2, a risk informed assessment was made as to whether there is a significant threat to human life from the shore protection project component, which would thereby require a Safety Assurance Review.

**Table 1: Risk Assessment for Significant Threat to Life Safety, Port Monmouth Shore Protection Component**

No.	Risk Factor (Significant Threat to Life Safety)	Risk Magnitude (H/M/L)	Basis of Concern	Risk Assessment
I	Land Use adjacent to the project	Low	Port Monmouth is a suburban community located in northern Middletown Township, Monmouth County, New Jersey. The northern border is defined by Raritan Bay. West of the project area are the communities of Keansburg and East Keansburg. East of the project area is the community of Belford	Land use is primarily residential, single family homes. Risk Assessment details are provided in 1a-c below.
1a	Population Density	Low	Port Monmouth is approximately 1.3 square miles with an estimated population of 4,204 (US Census survey 2005-2009), or 3,234 persons/sq. mi.	Port Monmouth has a suburban population density consistent with smaller homes and yards. Due to population density, many people could be affected by flooding and/or project failure, after construction of the entire line of protection which includes the shore protection component plus levees and floodwalls. Construction of the shore protection portion alone will not increase risk of flooding/ (inundation) over pre-project conditions because this component alone has no effect on inundation. The risk of inundation due to sudden catastrophic failure is also unaffected by completion of the shore protection component alone.
1b	Critical Facilities Affected (e.g. schools, hospitals, assisted living/nursing homes, evacuation routes)	Low	Port Monmouth Road on the northern border of the project area and State Route 36 on the southern border of the project area provide East/West evacuation routes from the project area. Wilson Avenue, Main Street, and Church Street provide evacuation routes south of the project area away from Raritan Bay. Emergency services located in the project area are a Fire House on Main Street and a First Aid station on Wilson Avenue. A Daycare facility is also located within the project area on Main Street.	Critical facilities in the project area consist primarily of evacuation routes for the resident population plus other local services. Multiple alternative evacuation routes exist that will be unaffected by failure of the shore protection component.
1c	Number or types of structures in	Low	There are 969 residential structures and 45 nonresidential structures	Many residential structures may be affected by flooding or project failure,

	floodplain		within the project area.	however sufficient evacuation routes exist to remove population and reduce risk to life and safety.
2	Inundation of protected side due to project failure	Low	Following completion of the line of protection, the project will be subject to risk due to catastrophic failure of any portion of the levee, closure gate, or interior drainage facilities.	Completion of the shore protection component alone does not have a risk of inundation due to sudden catastrophic failure. Elevated water levels will flank the dune/berm system and will move inland via Pews and Comptons Creeks resulting in a flood and life safety risk equal to existing conditions. Completion of the line of protection under future contracts will increase this risk.
3	Shoreline Storm Erosion	Low	Coastal storms often result in significant shore erosion over short time periods which can undermine structures	Construction of the shore protection component will increase berm width, dune height, and dune volume which will lessen the risk of storm erosion relative to existing conditions
4	Wave Attack	Low	Overtopping of the dune/berm by waves during high water level events can result in damage to structures from direct wave impact.	Construction of the shore protection component will increase berm width, dune height, and dune volume which will lessen the risk of damage due to wave attack.
5	Use of unique or non-traditional design methods	Low	Unique or non-traditional design methods may be poorly understood or inadequately designed and may be more subject to failure than proven design methods.	Engineering for the project elements employed accepted methods in accordance with COE guidance. No innovative or precedent setting methods or models were used.
6	Use of unique or non-traditional design features	Low	Unique or non-traditional design features may be poorly understood or inadequately designed and may be more subject to failure than proven design features.	Design of the shore protection component features fall within prevailing practice and include only time-tested design features (e.g. berm, dune, rubblemound terminal groin).
7	Use of unique or non-traditional construction materials or methods	Low	Unique or non-traditional construction materials or methods may be poorly understood or executed inadequately resulting in a project feature that may be more subject to failure than those built with proven materials and methods.	All materials and construction techniques used for the shore protection component are in common practice.
8	Does the project have unique construction sequencing or a reduced or overlapping design/construction schedule?	Low	Unique or accelerated construction sequencing may lead to poor quality work, leading to greater possibility of future project failure.	The shore protection component does not have any accelerated design or construction scheduling. Sufficient time is available for completion of construction including all environmental shut-down windows.
9	Inherent risk with construction methods: MEC in borrow sites	Low	The offshore borrow site for beach and dune fill is known to contain munitions and explosives of concern (MEC). MEC may be taken up into the dredge and possibly be placed on the beach within the sand fill, and may explode at some future time.	Methods have been developed to eliminate the danger of picking up MEC from the borrow site into the dredge, and/or pumping MEC onto the project site. These controls consist of screens placed on the drag head and on the pump-out to prevent uptake of MEC and/or placement of MEC on the beach. This technology has been

				used successfully since the mid-1990s in the designated borrow site, and is fully incorporated into project specifications and costs. Remaining risk would result from failure of the screens, or presence of MEC smaller than the screen opening size.
10	Does the project design require:			
10a	Redundancy	Low	Failure of one critical project element would result in sudden, catastrophic damage. Duplication of critical components of the protective system are required to increase the reliability of the system.	Construction of the shore protection components greatly reduces the risk to human life and property relative to the existing condition, which is seriously eroded. Nonperformance of the shore protection segment would result in flood levels, erosion, and/or wave forces less than or equal to those present under existing conditions.
10b	Resiliency	Low	Erodible structures are reduced in volume over time, providing less protective capacity.	The shore protection segment of the project includes resiliency in the form of regular beach renourishment, and post-storm emergency dune and berm rehabilitation. Estimated annual costs also include allowance for maintenance of the stone groin, and monitoring of all shore protection elements.
10c	Robustness	Low	Natural events can occur that are greater than the optimized project design, and may lead to project failure.	The berm and dune design considered storm events up to a 500-year return interval, and long-term erosion derived from the sediment budget which reflects sea-level rise over the period of analysis. Dune and berm designs are adaptable to changes in water level due to climate change (sea level rise), with opportunities to incorporate additional volume and/or dune/berm elevation as part of regularly scheduled renourishment operations. Worst-case wave and water level conditions for the groin occur when still water levels are at or near the structure crest elevation, which falls within the range of water levels considered during design.

**ATTACHMENT 5: REVIEW PLAN REVISIONS**

<b>Revision Date</b>	<b>Description of Change</b>	<b>Page / Paragraph Number</b>
16 Apr 2012	Post Authorization Change Report-added requirement to review document to the RP	various
16 Apr 2012	Required ATR Team Expertise- added Plan Formulation and Structural disciplines.	4-5/5.b
16 Apr 2012	Cost Engineering DX Review and Certification revised	8/8
16 Apr 2012	Review schedule updated	9/10
16 Apr 2012	Review Plan Points of Contact updated	9/13
16 Apr 2012	PDT and ATR Team Rosters updated	10/Attachment 1
16 Apr 2012	Review Plan revisions added	19/Attachment 5