DEPARTMENT OF THE ARMY
NORTH ATLANTIC DIVISION, US ARMY CORPS OF ENGINEERS
FORT HAMILTON MILITARY COMMUNITY
BROOKLYN, NEW YORK 11252-6700

REPLY TO
ATTENTION OF

JAN 29 2008

CENAD-PSD-P

MEMORANDUM FOR Commander, New York District, ATTN: CENAN-PP

SUBJECT: Review Plan Approval for Hudson-Raritan Estuary (HRE), Hackensack Meadowlands Ecosystem Restoration Feasibility Study

1. Reference:

a. EC 1105-2-408, Peer Review of Decision Documents, 31 May 2005.

b. Memorandum, CECW-CP, 30 March 2007, subject: Peer Review Process.

2. The enclosed Review Plan for the Hudson-Raritan Estuary (HRE), Hackensack Meadowlands Ecosystem Restoration Feasibility Study has been prepared in accordance with the referenced guidance.

3. The Plan has been made available for public comment, and any comments received have been incorporated. It is being coordinated with the Ecosystem Restoration Planning Center of Expertise of Mississippi Valley Division, which is the lead office to execute this plan. The Plan currently includes external peer review.

4. I hereby approve this Plan, which is subject to change as study circumstances require, consistent with study development under the Project Management Business Process. Subsequent revisions to this Plan or its execution will require new written approval from this office.

Encl

Joseph R. Vietri
Chief, Planning & Policy Community of Practice
Program Support Division
Programs Directorate

QUALITY CONTROL (QC) AND INDEPENDENT TECHNICAL REVIEW (ITR) PLAN

1.0 PURPOSE

This review plan presents the process that assures quality products for the Hudson-Raritan Estuary (HRE), Hackensack Meadowlands ecosystem restoration feasibility study. This QC and ITR plan defines the responsibilities and roles of each member on the study and technical review team.

The product to be reviewed by the technical review team is the HRE- Hackensack Meadowlands Feasibility Report, including the Meadowlands Comprehensive Restoration Implementation Plan (MCRIP). Under the provisions of new U.S. Army Corps of Engineers (USACE) policy, as detailed in EC1105-2-408 dated May 31, 2005, the ITR will be conducted by specialists from organizations outside of the district responsible for the study. ITR will be conducted for all decision documents and will be independent of the technical production of the project. This QC and ITR plan is, by reference, a part of the project management plan for this master plan.

2.0 APPLICABILITY

This document provides the quality control plan for the HRE-Hackensack Feasibility Report. It identifies quality control processes and independent technical review for all work to be conducted under this study authority, including in-house, sponsor and contract work.

3.0 REFERENCES

EC 1105-2-408 "Peer Review of Decision Documents" (May 31, 2005)
EC 1105-2-407 "Planning Models Improvement Program: Model Certification" (May 31, 2005)
EC 1105-2-409 "Planning in a Collaborative Environment" (May 31, 2005)
ER 1105-2-100 "Planning Guidance Notebook and Appendices"

4.0 GENERAL PROJECT DESCRIPTION

The Hackensack Meadowlands (Meadowlands) is located with the Hudson-Raritan Estuary Study area, the boundaries of which are delineated as by a 25 mile radius from the status of Liberty, within the State of New Jersey. Prior to occupation by European immigrants, the Meadowlands contained over 20,000 acres of wildlife habitat, most of which were wetlands (~18,600 tidal estuarine, 1,500 freshwater). Large stands of Atlantic white cedar were contained within the Meadowlands boundaries. Subsequent manipulation by humans cut down most of the white cedar stands, ditched, channeled and constructed levees near the Hackensack River, and dammed waters for irrigation and water supply. All of these activities led to the alteration of the natural hydrology of the area. Much of the wetland area in the Meadowlands is degraded due to physical disturbances, such as filling and alterations to natural hydrologic connections, and the prevalence of *Phragmites*. Leachate contamination from extensive landfills in the area is common. Numerous point sources, stormwater runoff from developed areas and highways, and

other non-point sources have severely degraded water and sediment quality in areas of the habitat complex.

Additionally, invasion of exotic species of flora has further reduced the carrying capacity of the Meadowlands. There are several floral invasive species that comprise the main reason for the loss of native vegetation; these invasive species are *Phragmites australis* (Phragmites) and *Lythrum salicaria* (purple loosestrife). Currently, 5,200 acres (~62%) of the Meadowlands wetland and aquatic habitat is comprised of *Phragmites australis*. Currently, about 8,500 acres of wetlands (42%) remain, mostly in private ownership. At least some of these private lands have proposed development. Thus past and current threats of development create a scenario for further reduction of wildlife habitat.

Nonetheless, these remaining wetlands and open space are significant, albeit with reduced carrying capacity, for concentrations of Federal trust species including waterfowl, wading birds, shorebirds, raptors, anadramous fish, estuarine fish, and terrapins. The significance of the Meadowlands relates to it being one of the largest wetland complexes remaining in the NY/NJ Harbor ecosystem, it is also one of the largest contiguous blocks of open space in the highly developed landscape of the New York City metropolitan area. These remaining marshes and adjacent open uplands are important as refugia for those species not tolerant of disturbances, and as stepping stones for migratory birds and insects between larger nearby open spaces.

A reconnaissance study was authorized by a resolution of the Committee on Transportation and Infrastructure of the United States House of Representatives, adopted 15 April 1999, to determine the feasibility of environmental restoration and protection related to water resources and sediment quality within the New York and New Jersey Port District, including but not limited to creation, enhancement, and restoration of aquatic, wetland, and adjacent upland habitats. Engineering solutions are available to meet ecosystem restoration goals and objectives, such as improvements in fish and wildlife habitat values. The New Jersey Meadowlands Commission (NJMC) has is the non-Federal partner for the Feasibility Study.

Two primary water resource needs will be addressed in the feasibility study: (1) a single comprehensive Meadowlands-wide analysis of ecosystem restoration opportunities to be used as an implementation plan for future restoration with in the Meadowlands, including but not limited to analysis and recommended solutions to salt marsh restoration, infrastructure encroachments on tidal flow, water management control structures, contaminated sediment impacts on biota, brownfields impact on coastal habitat, benthic habitat restoration, and refuse landfill impacts on coastal habitat and, (2) ecosystem restoration at specific sites identified as priority restoration sites.

5.0 REVIEW REQUIREMENTS

Initial Quality Control (QC) review will be handled within the Section or Branch performing the work. Additional QC will be performed by the Project Delivery Team (PDT) during the course of completing the integrated Feasibility Study. The detailed checks of computations and methodology should be performed at the District level, and the processes for this level of review are well established. Pursuant to EC 1105-2-408, item 2 c (2), Models used in the preparation of

decision documents covered by this Circular will be reviewed in accordance with EC 1105-2-407, Planning Models Improvement Program: Model Certification. The uses and applications of models in individual studies that lead to the preparation of decision documents covered by this Circular will be reviewed in accordance with the requirements of this Circular.

Pursuant to EC 1105-2-408, the Feasibility Report and EIS will need an ITR team endorsed by the Planning Center of Expertise (PCX) for Environmental Restoration (National Ecosystem Planning) Projects. Dr. David Vigh (CEMVD-RB-T) will validate the assignment of this team. It is anticipated that an ITR and External Peer Review (EPR) will be necessary, based upon the initial Risk Screening Process conducted by the PDT noted in Section 9. The review process will focus on:

- Review of the planning process and criteria applied.
- Review of the methods of preliminary analysis and design.
- Compliance with authority and NEPA requirements.
- Completeness of preliminary support documents.
- Spot checks for interdisciplinary coordination.

6.0 REVIEW PROCESS

It is anticipated that the ITR review process will begin after the ITR team has been assigned, and will cover key formulation and benefit and cost assessment areas. Major review process milestones are listed below:

- HRE Hackensack MCRIP
- Alternative Formulation Briefing
- Draft Feasibility Report & Programmatic EIS Review
- Final Feasibility Report & Programmatic EIS Review

7.0 REVIEW COST

The cost of the ITR and EPR are to be determined between the team and the PCX. It is assumed that documents to be reviewed will be transmitted electronically via the ftp site. Comments will be made and addressed in Dr. Checks. It is also assumed that the external ITR team will be working virtually. Only under extreme circumstances should the external ITR team, or a representative of that team, be required to physically attend team or milestone meetings. The team should participate in all remaining milestone meetings; however, via conference call or video teleconference as warranted to improve efficiency.

8.0 REVIEW SCHEDULE

Note that since the commencement of this study preceded the requirement for PCX involvement and development of this review plan, the review schedule below is tailored to work remaining to be completed:

TASK	START DATE	FINISH DATE
*Develop ITR Plan and post to Web Site, PCX	Aug 2007	
*Identify Regional ITR resources and Recommend ITR Plan to PCX	Aug 2007	
*PCX Approves or Assigns ITR Team	Sep 2007	
*Sponsor Approves QC/ITR Plan	Sep 2007	
*District evaluations of USACE restoration sites per approved model	TBD	
*Alternative Formulation Briefing	TBD	
*AFB → External Peer Review	TBD	
*Review Draft FR/PEIS External ITR/EPR	TBD	
*Review of Final FR/PEIS	TBD	

9.0 PROJECT RISK

The PDT has completed an initial risk assessment associated with this project based upon five factors and rated the project quantitatively among five levels of project risk of failure ranging from low to high (risk score class). The PDT scored each Project Risk Item in the Review Plan Score Guide (Table 9.1) and calculated an overall Average Project Risk Assessment Score. The exact value of the scores were not as important as compared to what risk score class (low, medium or high) the Average Project Risk Assessment Score was classified. Based upon the PDT analysis, the project is moderate to high in risk due to its scale and complexity.

The PDT considered previous District project experience when making this analysis. No attempt was made to tie this to a national scale of rating. The Project Schedule and Cost were assessed as a low degree of risk if they both remained flexible and a high degree of risk if the Project schedule and cost was fixed. Staff Technical Experience was assessed as a low degree of risk if the staff had a high level of ecosystem restoration experience and a high degree of risk if the staff had a low level of ecosystem restoration experience. The results of the evaluation are tabulated as follows:

Table 9.1 Review Plan Score Guide

Project Risk Item	**Risk Assessment Score (Low Degree to High Degree)**					**Score**
	Low		Medium		High	
Project Complexity	1	2	3	4	5	4
Customer Expectations	1	2	3	4	5	5
Product Schedule/Cost	1	2	3	4	5	5
Staff Technical Experience	1	2	3	4	5	4
Failure Impact and Consequences	1	2	3	4	5	3
Average Project Risk Assessment Score						**4.2 (Medium-High)**

10.0 REVIEW PLAN

The components of the review plan were developed pursuant to the requirements of EC1105-2-408.

10.1 Team Information

The decision document that will be the ultimate focus of the peer review process is the HRE Hackensack Meadowlands Feasibility Report, which will contain the HRE Meadowlands Comprehensive Restoration Implementation Plan as the watershed report. The purpose of the decision document and associated Programmatic EIS will be to guide the Corps' efforts to restore habitat for the development and protection of valuable habitats in the Hudson-Raritan Estuary. The project team is listed below. This list provides the points of contact of NAN team members who are available to answer specific technical questions as part of the review process. The list also provides the names and organization of participating outside entities.

District Project Team Members:

MAIN REPORT PRODUCT	STUDY TEAM MEMBERS	REVIEW TEAM MEMBER
Feasibility Report Main Text	CENAN-PL-F	All review team members will review this document internally External ITR: TBD
NEPA Documentation	CENAN-PL-E	All review team members will review this document internally External ITR: TBD

Sections	STUDY TEAM MEMBER	REVIEW TEAM MEMBER
Plan Formulation	CENAN-PL-F	TBD – PCX
Economics	CENAN-PL-F	TBD – PCX
Environmental	CENAN-PL-E	TBD – PCX
Cultural Resources	CENAN-PL-E	TBD – PCX
Real Estate	CENAN-RE	TBD – PCX
Hydrology and Hydraulics	CENAN-EN	TBD – PCX
Geotechnical/HTRW	CENAN-EN	TBD – PCX
HTRW	CENAN-PL-E	TBD – PCX
GIS	CENAN-PL-E	TBD – PCX
Counsel	CENAN-OC	TBD - PCX
Cost Engineering	CENAN-EN-C	TBD – PCX (NWW)

10.2 Scientific Information
Based upon the self evaluation by the project team, it is possible that the USACE report to be disseminated will contain influential scientific information. Influential scientific information is defined by the Office of Management Budget as scientific information the agency reasonably can determine will have or does have a clear and substantial impact on important public policies or private sector decisions. The environmental restoration measures that were identified will be evaluated using standard and innovative biological and economic measurement processes.

10.3 Timing
The ITR process will begin with an assessment of the Meadowlands Comprehensive Restoration Implementation Plan Report. It is anticipated that work would start upon sponsor approval.

10.4 External Peer Review Process
Due to the complexity, scale, and potential for influential or innovative analyses, it is anticipated that external peer review would be required.

10.5 Public Comment
Public involvement is anticipated during the outreach phase starting with the outreach period between the draft and final Feasibility Report and Programmatic EIS. Further public involvement activities have not been scheduled at this time.

10.6 ITR Reviewers [This will be updated based on project team and MVD negotiations.]
It is anticipated that at least eleven reviewers total should be available in the following disciplines: hydraulics, water quality, real estate, geotechnical, HTRW, GIS, legal, economics, ecology, planning, and cost estimating. The reviewer contact information should be stated in Section 10.1 of this review plan. Cost Estimating - as required by HQUSACE, the review will be conducted by Cost Estimating Center of Expertise (NWW).

10.7 External Peer Review Selection
This will be determined conclusively in conjunction with the PCX and vertical team.