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

CENAD-PD-PP

DEC 14 2012

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

SUBJECT: Review Plan Approval for Peckman River, New Jersey Flood Risk Management Feasibility Study

1. The attached Review Plan for the subject study has been prepared in accordance with EC 1165-2-209, Civil Works Review Policy.

2. The Review Plan has been coordinated with the Flood Risk Management Planning Center of Expertise of the South Pacific Division, which is the lead office to execute this plan. For further information, contact Mr. Eric Thaut at 415-503-6852. The Review Plan includes independent external peer review.

3. I hereby approve this Review Plan, which is subject to change as study 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.

Encl

KENT D. SAVRE
Colonel, EN
Commanding

REVIEW PLAN

Peckman River, New Jersey
Flood Risk Management Feasibility Study

New York District

MSC Approval Date: 29 May 2009
Last Revision Date: 26 October 2010
Latest Revision Date: 15 November 2012

US Army Corps
of Engineers ®

REVIEW PLAN

Peckman River, New Jersey
Flood Risk Management Feasibility Study

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the Peckman River, New Jersey Flood Risk Management Feasibility Study.

b. References

(1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010
(2) EC 1105-2-412, Assuring Quality of Planning Models, 31 March 2011
(3) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
(4) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
(5) PMP for Peckman River study
(6) NAD and/or New York District Quality Management Plans

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. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-209) and planning model certification/approval (per EC 1105-2-412).

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 decision documents is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The RMO for the peer review effort described in this Review Plan is the Flood Risk Management Planning Center of Expertise (FRM-PCX).

The RMO will coordinate with the Cost Engineering Directory of Expertise (DX) to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies. The FRM-PCX will coordinate the Type 1 IEPR with the RMC to ensure that the safety assurance review will be included in the Type 1 IEPR. In addition, the FRM-PCX will coordinate with the Ecosystem Restoration PCX on the Planning models to be used for environmental impact analysis.

3. STUDY INFORMATION

a. **Decision Document.** The study is the Peckman River, Essex and Passaic Counties, New Jersey Flood Risk Management Feasibility Study. The purpose of the report is to obtain Congressional authority for construction of the recommended plan for flood risk management within the study area. The feasibility report would be approved by the Chief of Engineers and would require Congressional authorization. Currently, an Environmental Assessment will be produced as the National Environmental Policy Act (NEPA) documentation for the study.

b. **Study/Project Description.** The Peckman River drainage area is approximately 9.8 square miles and is one of the major sub-watersheds of the Passaic River. The Peckman River originates in the Town of West Orange, New Jersey, and flows northeasterly through the Borough of Verona, the Township of Cedar Grove, the Township of Little Falls, and the Borough of Woodland Park (formerly West Paterson) to its confluence with the Passaic River. The elevation change along the river is approximately 260 feet with the majority of the drop occurring within Cedar Grove. Great Notch Brook is a major tributary to the Peckman River, entering the river just downstream of New Jersey State Highway 46. Great Notch Brook is subject to extremely rapid runoff from higher elevations in the eastern side of the watershed. Two other small tributaries enter the river in Cedar Grove.

The downstream portion of the Peckman River in Woodland Park is within close proximity to Dowling Brook, which is also a tributary to the Passaic River. During extreme flooding events, it has been reported that flows from the Peckman River inundate the area of Woodland Park located between the Peckman River and Dowling Brook.

The Peckman River is a tributary to the Passaic River, which, during certain flood events can cause backwater flooding from the Passaic. However, the event on the Passaic River may occur at a different frequency than a flood event on the Peckman River or there may only be an event on one river. In some cases, the flood events are tied together, but in other cases they may be separate and distinct events. At the FSM meeting held in July 2010, HQUSACE directed the study team to formulate for alternatives that are only focused on flash flooding caused by the Peckman River, not the Passaic River.

Factors Affecting the Scope and Level of Review. The interaction of the Peckman River with the Passaic River and the apparent lack of coincidental flows is a technical challenge in this study. At the FSM meeting HQUSACE directed the team not to formulate based on backwater flooding from the Passaic River, only from flash flooding of the Peckman River. Project risks are low-moderate and are likely to occur when presenting the study results to the Peckman River flood control board. The State of New Jersey may look to accept a lower level of protection than the NED plan would provide. If this occurs, the team must communicate the residual risks to the affected communities. The study is not likely to have significant interagency interest as this is a small, urbanized watershed, with limited high quality environmental or cultural resources. The study will not be highly controversial as it is a study that the residents are anxiously awaiting the results of and have been involved through open communication from early on in the process. The study is not likely to contain influential scientific information or be a highly influential scientific assessment as this study is a relatively straightforward flood risk management study. The decision document and proposed flood risk management solutions will not be based on novel methods. No public disputes with respect to the scope, cost or impact of the study are anticipated. With any flood risk management study, there exists a threat to human life and safety, but any residual risk resulting from the eventual NED (or

LPP) recommendations will be clearly communicated to the residents within the affected project areas.

c. **In-Kind Contributions.** Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. The in-kind products and analyses to be provided by the non-Federal sponsor include: No in-kind services are being provided by the sponsor.

4. DISTRICT QUALITY CONTROL (DQC)

All decision documents (including supporting data, analyses, environmental compliance documents, etc.) shall 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 shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC.

a. **Documentation of DQC.** District Quality Control is documented through the use of Dr Checks and is performed by senior level staff in the appropriate technical offices. A Quality Control Report is produced, which documents the comments, evaluation and responses as well as requires a signature of each of the DQC reviewers and the Office of Counsel representative reviewing the report.

b. **Products to Undergo DQC.** The products to undergo DQC include the In-progress Review Materials, the Alternative Formulation Briefing materials and the Draft and Final Feasibility Reports.

c. **Required DQC Expertise.** The required DQC expertise includes senior level NEPA/environmental impact analysis review, hydrologic and hydraulic review, economic analysis review, as well as plan formulation review.

5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.). 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 for the public and decision makers. 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.** ATR will occur prior to major decision points in the planning process so that the technical results can be relied upon in setting the course for further study. An in-depth review of the report and all appendices will be coordinated and documented by the PDT leader prior to HQUSACE policy compliance review. The Feasibility Scoping Meeting (FSM) documentation was reviewed by the ATR team in February 2010. The following forthcoming products are expected to undergo ATR: Alternative Formulation Briefing (May 2014); Draft Report, EA and appendices (February 2015); Final Report, EA and Appendices (February 2016).

b. Required ATR Team Expertise. See Table below for the ATR Team Members/Disciplines and the Expertise Required. The names, organizations, contact information, credentials, and years of experience of the ATR members are included in Attachment 1 because the ATR team has been established.

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision 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 planning, economics, environmental resources, etc).
Planning	The Planning reviewer should be a senior water resources planner with experience in formulation of flood risk management studies especially in urban, highly developed areas.
Economics	The economics reviewer should have extensive experience in urban flood risk management studies and a thorough understanding of HEC-FDA.
Environmental Resources	Team member will have independently completed EA/EIS's and be well versed in the NEPA process, partnerships with other environmental resource agencies and environmental concerns and constraints within urban settings.
Cultural Resources	Team member will have experience with 106 actions and documentation including mitigation for historical structures and archeological artifacts.
Hydrology	Team member should be an expert in the field of urban hydrology and hydraulics, have a thorough understanding of flash flooding and the use of HEC computer modeling systems.
Hydraulic Engineering	Team member should be an expert in the field of urban hydrology and hydraulics, have a thorough understanding of open channel systems and the use of HEC computer modeling systems.
Geotechnical Engineering	Team member should have expertise in underground culvert design and cut and cover construction techniques.
Civil Engineering	Team member will have a thorough understanding of design of culverts and channel improvements in a urban setting. A certified professional engineer is suggested.
Structural Engineering	Team member will have a thorough understanding of both structural and non-structural measures to include, but not be limited to, retaining walls, channel improvements and culverts. A certified professional engineer is suggested.
Cost Engineering	Team member will be familiar with cost estimating for similar projects in MII. Review includes construction schedules and contingencies for any document requiring Congressional authorization. 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 or IEPR team lead in conjunction with the geographic district's project manager.
Real Estate	Team member will be have at least 5 years experience with flood risk management studies and be familiar with urban planning and acquisition strategies.
Hazardous, Toxic and Radioactive Waste (HTRW)	Team member should have knowledge of HTRW issues common to urban environments and developed areas.
Risk Reviewer	Team member should have knowledge and experience in accordance with ER 1105-2-101

c. **Documentation of ATR.** DrChecks 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 selection, recommended 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 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, RMO, 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 either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks 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 verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

ATR may 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, based on work reviewed to date, for the AFB, draft report, and final report. A sample Statement of Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

IEPR may be required for decision 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 IEPR reviews 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 IEPR, or Safety Assurance Review (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 1 IEPR will be required for the Peckman River Basin Flood Risk Management Feasibility Study, based on projected implementation costs of $100M as well as the potential for life and safety impacts. Close coordination with the sponsor and public meetings are expected to negate significant public dispute with regard to a recommended plan as are coordination with USFWS and EPA and cultural/archeological interests. Flood risk management methods and models used in this study are typical of all Corps flood risk management studies with little room for interpretation and are not expected to change prevailing practices on this or future studies. It is expected that during

the Type 1 IEPR, a Safety Assurance Review would also be conducted for this study as per Paragraph 2.c.(3) of Appendix D of EC 1165-2-209.

b. **Products to Undergo Type I IEPR.** Type 1 IEPR will be performed on the draft feasibility report.

c. **Required Type I IEPR Panel Expertise.** See Table below for the ATR Team Members/Disciplines and the Expertise Required. The names, organizations, contact information, credentials, and years of experience of the ATR members are included in Attachment 1 because the ATR team has been established.

IEPR Panel Members/Disciplines	Expertise Required
Economics	The Economics Panel Member should have at least 10 years experience directly related to water resource economic evaluation or review; a comprehensive understanding of social well being and regional economic development as well as traditional Corps national economic development benefits; 5 or more years experience working with HEC-FDA; 2 or more years experience reviewing water resource economic documents justifying construction efforts; and a masters degree or higher in economics
Environmental	The environmental panel member should have at least 10 years of demonstrated experience in evaluating and conducting NEPA impact assessments. This should include experience determining scope and appropriate methodologies for a variety of projects/programs with high public and interagency interests. The panel member should be familiar with the evaluation of impacts in urban settings and stream/riparian corridor impacts. A masters degree or higher in a degree related to environmental studies is required.
Hydraulic Engineer	The Hydraulic engineer should be a registered professional engineer with a) a minimum 10 years experience in hydraulic engineering with emphasis on large public works projects, or b) a professor from academia with 15 or more years in hydraulic theory and practice. The engineer should be familiar with USACE application of risk and uncertainty analyses in flood risk management studies and with standard USACE hydrologic and hydraulic computer models. The engineer should have a masters degree or higher in engineering and actively participate in professional engineering societies/organizations to ensure he/she is capable of evaluating the Safety Assurance Review aspects of projects.
Plan Formulation	The plan formulation panel member should have 10 or more years of planning experience with at least 5 of those working with or for USACE on civil works studies/projects so that he/she is familiar with USACE civil works planning policies, methods and procedures. The panel member should have a masters degree or higher in a planning - related field of study.

Civil Engineer/Design	The Civil Engineer/Design panel member should be a registered professional engineer with a minimum 10 years experience in design of large public works projects. The engineer should have a masters degree or higher in engineering and actively participate in professional engineering societies/organizations to ensure he/she is capable of evaluating the Safety Assurance Review aspects of projects.

d. **Documentation of Type I IEPR.** The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-209, Appendix D. Panel comments will be compiled by the OEO and should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. IEPR comments should generally include the same four key parts as described for ATR comments in Section 4.d above. The OEO will prepare a final Review Report that will accompany the publication of the final decision document and shall:

- 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; and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

The final Review Report will be submitted by the OEO no later than 60 days following the close of the public comment period for the draft decision document. USACE shall consider all recommendations contained in the Review Report and prepare a written response for all recommendations adopted or not adopted. The final decision document will summarize the Review Report and USACE response. The Review Report and USACE response will be made available to the public, including through electronic means on the internet.

7. POLICY AND LEGAL COMPLIANCE REVIEW

All decision documents will be reviewed throughout the study process for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the home MSC Commander. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in decision documents.

8. COST ENGINEERING DIRECTORY OF EXPERTISE (DX) REVIEW AND CERTIFICATION

All decision documents 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 Type I IEPR team (if required) and in the development of the review charge(s). The DX will also provide the Cost Engineering DX certification. The RMO is responsible for coordination with the Cost Engineering DX.

9. MODEL CERTIFICATION AND APPROVAL

EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. Planning models, for the purposes of the EC, are defined as any models and analytical tools that planners use to define water resources management problems and opportunities, to formulate potential alternatives to address the problems and take advantage of the opportunities, to evaluate potential effects of alternatives and to support decision making. The use of a certified/approved planning model does not constitute technical review of the planning product. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

EC 1105-2-412 does not cover engineering models used in planning. The responsible use of well-known and proven USACE developed and commercial engineering software will continue and the professional practice of documenting the application of the software and modeling results will be followed. As part of the USACE Scientific and Engineering Technology (SET) Initiative, many engineering models have been identified as preferred or acceptable for use on Corps studies and these models should be used whenever appropriate. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

a. **Planning Models.** The following planning models are anticipated to be used in the development of the decision document: HEC-FDA 1.2. and a Stream Impact Assessment Spreadsheet Model. See the table below for a detailed description of these Planning models.

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
HEC-FDA 1.2.4 (Flood Damage Analysis)	The Hydrologic Engineering Center's Flood Damage Reduction Analysis (HEC-FDA) program provides the capability for integrated hydrologic engineering and economic analysis for formulating and evaluating flood risk management plans using risk-based analysis methods. The program will be used to evaluate and compare the future without- and with-project plans along the Wild River near River City to aid in the selection of a recommended plan to manage flood risk.	Certified
Stream Impact Assessment - spreadsheet model	Given the variety of alternatives formulated for this project, the urbanized nature of the Project Area and the lack of significant natural resources identified , a two phased approach will be utilized to evaluate and quantify the impacts to natural resources and the associated mitigation requirements of each impact. For the screening of preliminary alternatives, the following method will be used: • Consideration of the extent of development within and surrounding the Project Area and its effect on the	Not certified; will initiate approval process in 2nd quarter FY11.

	identification of suitable mitigation sites; • New Jersey Flood Hazard Area Control Act Rules, which regulates activities in the riparian zone and outlines mitigation requirements; • New Jersey Freshwater Wetlands Regulations; • New Jersey Green Acres Regulations, which regulates open space preservation and outlines mitigation requirements when the use on subject properties is modified for purposes other than recreation/open space; • Corps ETL 1110-2-571 Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams and Appurtenant Structures. It should be noted that this preliminary alternative screening method was approved by the ECO-PCX via email dated 13 September 2010 (Attachment 1). The alternative selected for further evaluation involves river channelization and the creation of a diversion culvert. Currently, there is no state specific or regional method that focuses on quantifying stream function and impacts resulting from channel modification activities that could be applied to this project. Therefore, the PDT will create a series of worksheets modeled after those developed and implemented by the Regulatory Divisions at the USACE Kansas City, Little Rock, Omaha and Rock Island Districts that quantifies the adverse impacts caused by the proposed activity and establishes the appropriate level and type of mitigation required to compensate for the impacts. A stream assessment and fish and macroinvertebrate studies utilizing the Environmental Protection Agency Rapid Bioassessment Protocols (EPA RBP) method were conducted as part of the Feasibility Study. The PDT will use the data obtained from the EPA RBP studies in conjunction with New Jersey State environmental regulations to assist in developing the worksheets. The worksheets will then be applied to each variation of the alternative created during the optimization process to compare the level of environmental impacts and mitigation requirements.	

b. Engineering Models. The following engineering models are anticipated to be used in the development of the decision document: HEC-RAS 4.0 and HEC-HMS are the two engineering models to be used in this study.

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
HEC-RAS 4.0 (River Analysis System)	The Hydrologic Engineering Center's River Analysis System (HEC-RAS) program provides the capability to perform one-dimensional steady and unsteady flow river hydraulics calculations. The program will be used for steady flow analysis to evaluate the future without- and with-project conditions along the Wild River and its tributaries. [For a particular study the model could be used for unsteady flow analysis or both steady and unsteady flow analysis. The review plan should indicate how the model will be used for a particular study.]	HH&C CoP Preferred Model
HEC-HMS	This model will be used to define the watersheds' physical features; describe the metrological conditions; estimate parameters; analyze simulations; and obtain GIS connectivity	HH&C CoP Preferred Model

10. REVIEW SCHEDULES AND COSTS

a. **ATR Schedule and Cost.** The current ATR schedule is as follows:
AFB : May – June 2013; Draft Feasibility Report: February 2015; Final Feasibility Report: February 2016. The estimate cost for the AFB effort is $40K, Draft Feasibility Report effort is $40K, and Final Feasibility Report effort is $20K. This budget inlcudes participation of the ATR lead at the AFB meeting, and the CWRB to address the ATR process and any significant and/or unresolved ATR concerns.

b. **Type I IEPR Schedule and Cost.** Type 1 IEPR will be conducted on the draft feasibility report, EA and appendices. The estimated date for the IEPR to occur is June 2015 at a cost of approximately $200K (includes travel to CWRB and participation in the CWRB). For decision documents presented to the CWRB, IEPR comments and responses will be discussed at the CWRB meeting.

c. **Model Certification/Approval Schedule and Cost.** It is expected that the use of the stream impact assessment model would require model certification/approval. The current schedule calls for the initiation of model approval process by April 2013 at a cost of $100K. The HEC-FDA model in use for this study has been previously certified.

11. PUBLIC PARTICIPATION

Members of the public have opportunities to comment on the development of this study throughout the study. There are monthly Peckman River Flood Commission meetings, which are open to all and the District will typically provide an update on the study in general. Also, as significant changes or developments in the feasibility study occur, the District presents this information to the Commission. Any significant comments or concerns raised at these flood commission meetings will be brought to the attention of the ATR and IEPR panels. In addition, at the end of the Feasibility study process, there will be a public meeting to outline the analysis, results and any residual risk to the public as a result of the decision. The final report will be available to the local municipality, the flood commission and will be available on the New York District Website. It is not anticipated that the public or state partner would recommend IEPR panel members, although that option is not precluded.

12. REVIEW PLAN APPROVAL AND UPDATES

The North Atlantic Division Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving district, MSC, RMO, and HQUSACE members) as to the appropriate scope and level of review for the decision document. Like the PMP, the Review Plan is a living document and may change as the study progresses. The home district is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC Commander approval are documented in Attachment 3. 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 RMO and home MSC.

13. REVIEW PLAN POINTS OF CONTACT

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

- Jodi McDonald, Chief, Flood Risk Management and Ecosystem Restoration Section, (917) -790-8720
- Larry Cocchieri, NAD PCX Coordinator, (347) - 370-4571
- Eric Thaut, Program Manager, Flood Risk Management Planning Center of Expertise, (415) 503-6852.

ATTACHMENT 1: TEAM ROSTERS

PDT

Name	Role	Phone Number	
Alicia Gould	Project Manager	917-790-8327	Alicia.gould@usace.army.mil
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ATR Team

Name	Role	Review District
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TBD	Civil Design	Huntington
Jeffrey Zylland	Biology/NEPA	Huntington
Ken Halstead	Hydrology/Hydraulics	Huntington
Natalie McKinley	Economics	Huntington
TBD	Cost-Engineering*	Walla Walla
TBD	Real Estate	Huntington
TBD	Cultural Resources	Huntington

* The cost engineering team member nomination will be coordinated with the NWW Cost Estimating Center of Expertise as required. NWW will determine if the cost estimate will need to be reviewed by PCX staff. **All resumes will be reviewed and approved by the PCX prior to initiating any ATR.

Vertical Team

Name	Role	Phone Number	Email
Thomas J. Hodson	NAN Plan Formulation Branch Chief	917-790-8602	Thomas.J.Hodson@usace.army.mil
Anthony Ciorra	NAN PPMD Civil Works Branch Chief	917-790-8208	Anthony.ciorra@usace.army.mil
Leonard J. Houston	NAN Environmental Analysis Branch Chief	917-790-8702	Leonard.houston@usace.army.mil

Frank Santangelo	NAN Civil Resources Branch Chief	917-790-8266	Frank.a.santangelo@usace.army.mil
Peter Blum	NAD Planning CoP	718-765-7066	Peter.R.Blum@usace.army.mil
Joe Forcina	NAD DST Lead	718-765-7084	Joseph.Forcina@usace.army.mil
Pete Luisa	NAD RIT	202-761-5782	Pete.C.Luisa@usace.army.mil
Eric Thaut	FRM PCX Lead	415-503-6852	Eric.w.thaut@usace.army.mil

IEPR Team

Name	Discipline
TBD	Plan Formulation
TBD	Civil Design
TBD	Biology/NEPA
TBD	Hydrology/Hydraulics
TBD	Economics

ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECSION DOCUMENTS

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[sm].

SIGNATURE _____ Date _____
Name
ATR Team Leader
Office Symbol/Company

SIGNATURE _____ Date _____
Name
Project Manager
Office Symbol

SIGNATURE _____ Date _____
Name
Architect Engineer Project Manager[1]
Company, location

SIGNATURE _____ Date _____
Name
Review Management Office Representative
Office Symbol

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 _____ Date _____
Name
Chief, Engineering Division
Office Symbol

SIGNATURE _____ Date _____
Name
Chief, Planning Division
Office Symbol

[1] Only needed if some portion of the ATR was contracted

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number
26 October 2010	Reformatted RP to the new template.	All
15 November 2012	Updated for 2012 request for updates	Dates Only

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

Term	Definition	Term	Definition
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
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMC	Risk Management Center
IEPR	Independent External Peer Review	RMO	Review Management Organization
ITR	Independent Technical Review	RTS	Regional Technical Specialist
LRR	Limited Reevaluation Report	SAR	Safety Assurance Review
MSC	Major Subordinate Command	USACE	U.S. Army Corps of Engineers
		WRDA	Water Resources Development Act