



DEPARTMENT OF THE ARMY  
U.S. ARMY CORPS OF ENGINEERS, NORTH ATLANTIC DIVISION  
FORT HAMILTON MILITARY COMMUNITY  
302 GENERAL LEE AVENUE  
BROOKLYN NY 11252-6700

CENAD-PD-PP

DEC 22 2016

MEMORANDUM FOR Commander, Baltimore District, 10 South Howard Street  
Baltimore, MD 21201

SUBJECT: Review Plan Approval for Washington D.C. Local Flood Protection Project,  
Limited Reevaluation Report (LRR) Study

1. Reference CENAB-PL-P memorandum dated 22 November 2016, subject as above.
2. The Flood Risk Management Planning Center of Expertise of the South Pacific Division is the lead office to execute the referenced Review Plan. The Review Plan does not include Independent External Peer Review, as no new plan formulation will be performed.
3. The enclosed Review Plan is approved for execution and 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 require new written approval from the NAD Commander.
4. The point of contact is Mr. Larry Cocchieri, NAD Planning Program Manager, 347-370-4571, Lawrence.J.Cocchieri@usace.army.mil.

Encl

A handwritten signature in black ink, appearing to read "W. H. Graham", is positioned above the typed name.

WILLIAM H. GRAHAM  
Brigadier General, USA  
Commanding



**DEPARTMENT OF THE ARMY**  
BALTIMORE DISTRICT, CORPS OF ENGINEERS  
10 S. HOWARD STREET  
BALTIMORE, MARYLAND 21201

November 22, 2016

CENAB-PL-P

MEMORANDUM FOR COMMANDER, U.S. Army Engineer Division North Atlantic, (CENAD-PD-X/Mr. Cocchieri), Fort Hamilton Military Community, 302 General Lee Avenue, Brooklyn, NY 11252-6700

SUBJECT: Washington D.C. Local Flood Protection Project (LFPP), Limited Reevaluation Report (LRR) and Supplemental Environmental Assessment (EA) - Project Review Plan update

1. References:

- a. EC 1165-2-214, Civil Works Review, 15 DEC 2012
- b. ECB 2016-9, Civil Works Review dated 4 MAR 2016.
- c. Memorandum, CENAD-PD-PP, 14 December 2012, subject: Review Plan Approval for Washington D.C. Local Flood Protection Project (LFPP), Limited Reevaluation Report (LRR).
- d. Memorandum, CESPDP-PDP (FRM-PCX), 18 September 2016, subject: Washington D.C. Local Flood Protection Project (LFPP), Limited Reevaluation Report (LRR) and Supplemental Environmental Assessment (EA), Flood Risk Management Center of Expertise Recommendation for Review Plan revision approval (Enclosure 1).

2. The Washington D.C. LFPP LRR and EA requires a review plan (reference 1a and 1b). The subject review plan was initially approved on 14 December 2012 (reference 1c) prior to the requirement for an EA. The project review plan has been updated to include revisions to the scope.

3. The Flood Risk Management Planning Center of Expertise reviewed and endorsed the subject review plan (reference 1d).

4. CENAB requests review and approval of the updated review plan, dated 7 October 2016 (Enclosure 2).

## **REVIEW PLAN**

**Washington D.C. Local Flood Protection Project  
Limited Reevaluation Report and  
Supplemental Environmental Assessment**

**Baltimore District**

**Original MSC Approval Date: 14 December 2012  
Last Revision Date: 7 October 2016**



**US Army Corps  
of Engineers®**

**REVIEW PLAN**

**Washington D.C. Local Flood Protection Project  
Limited Reevaluation Report**

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## 1. PURPOSE AND REQUIREMENTS

**Purpose.** This Review Plan defines the scope and level of peer review for the Washington D.C. Local Flood Protection Project (LFPP) Limited Reevaluation Report (LRR) and Environmental Assessment (EA). It is noted that this Review Plan was previously submitted for review in 2012 and approved by the North Atlantic Division (NAD) on 14 December 2012. In a Memorandum for Record dated 18 September 2013, NAD determined that the LRR was not policy compliant as it did not fully address the National Environmental Policy Act (NEPA) requirements. Following the receipt of funding, work to address the NEPA requirements began in fiscal year 2016. The Review Plan has been updated accordingly.

### a. References

- (1) SMART Planning Principles
- (2) EC 1105-2-412, Assuring Quality of Planning Models, 31 March 2011
- (3) ECB 2016-9, Civil Works Review
- (4) EC 1165-2-214, Water Resources Policies and Authorities Civil Works Review, 15 December 2012
- (5) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
- (6) ER 1105-2-100, Planning Guidance Notebook & Appendices D, F, G, and Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
- (7) Baltimore District Quality Control Standard operating Procedures, 25 September 2015

- b. Requirements.** This review plan was developed in accordance with EC 1165-2-214 and ECB 2016-9, 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 1165-2-214) and planning model certification/approval (per EC 1105-2-412).

## 2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall ATR 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 PCX.

The RMO will coordinate with the Cost Engineering ATR and Mandatory Center of Expertise (MCX) to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies.

## 3. STUDY INFORMATION

- a. Decision Document.** The Washington D.C. and Vicinity LFPP is located in downtown Washington and protects the monumental core and large portions of downtown. Due to changes in project design required to meet risk and uncertainty and reliability standards, the project cost estimate has

exceeded the Section 902 cost limit. Therefore, a LRR and EA is to be prepared for approval by the MSC and will be provided to HQUSACE and the ASA (CW) and submitted to Congress for consideration. The project must be re-authorized at a higher cost level before further construction can be done. The purpose of the LRR is to serve as a USACE post-authorization change decision document that recommends to Congress an increase in the authorized total project cost for the Project. The LRR will document the updated total project cost estimate, economic analysis, hydrologic and hydraulic (H&H) analysis, sea-level rise (SLR) analysis, risk and uncertainty analysis, interior flooding analysis, environmental impacts of the design, and requirements for real estate, sponsor coordination, and public involvement.

- b. Study/Project Description.** The project is located in the downtown area of Washington, D.C. and consists of features at two different sites: Potomac Park and Fort McNair. The Potomac Park site is located just north of the Reflecting Pool, on National Park Service (NPS) grounds along the National Mall. The Fort McNair site is located approximately two miles southeast of the Reflecting Pool, near P and 2nd Streets SW, on and adjacent to the grounds of Fort McNair owned by the US Army (Figures 1, 2).

Specific project features located at these two sites are as follows:

1. A levee between the Lincoln Memorial and the Washington Monument, known as the "Potomac Park Levee" or "Reflecting Pool Levee" (Potomac Park site)
2. Three closures located at:
  - a. 23rd Street and Constitution Avenue, NW (Potomac Park site)
  - b. 17th Street and Constitution Avenue, NW (Potomac Park site)
  - c. 2nd and P Streets, SW (Fort McNair site)

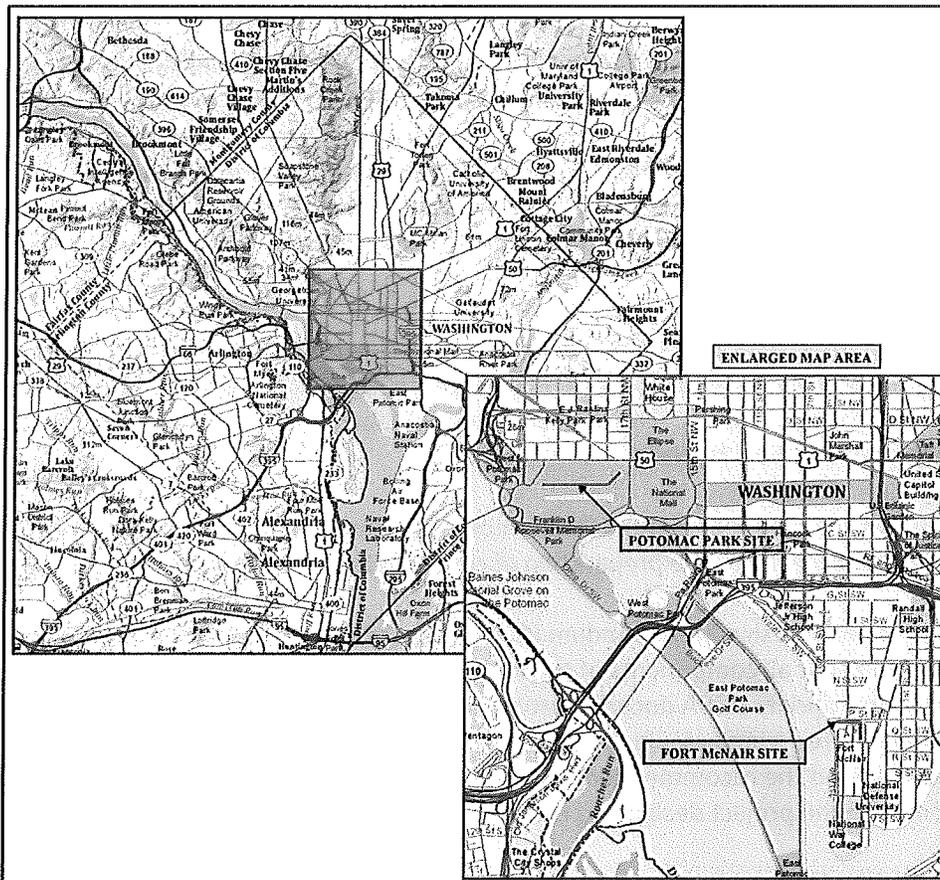
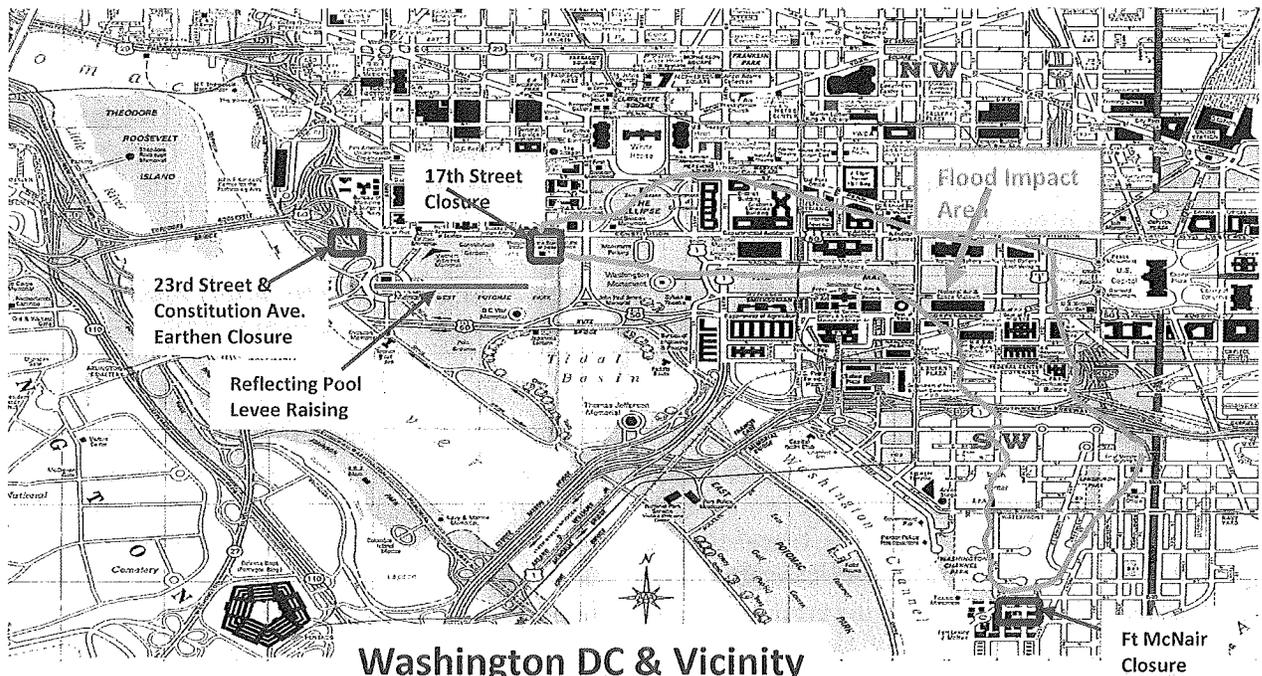


Figure 1: Location Map



Washington DC & Vicinity  
Local Flood Protection Project

Figure 2: Project Map

The Flood Control Act of 1936 authorized the Project to contain a coincident tidal flood and river discharge of 700,000 cubic feet per second (cfs), with one foot of freeboard (height of the physical top of levee above the expected water surface elevation), or a coincident tidal flood and river discharge of 575,000 cfs, with three and one half feet of freeboard. With the exception of the 17th Street closure, the existing project provides flood protection for the 1% recurrence interval (100-year) flood, but cannot contain the 700,000 cfs discharge as authorized due to the insufficient elevation of the Potomac Park Levee.

The NPS, as the Potomac Park Levee landowner, is responsible for installation of the temporary closures at 17th Street and at 23rd Street during a flood emergency, as well as ongoing operation and maintenance of the levee. The D.C. Office of Emergency Management is responsible for constructing the temporary closure at Fort McNair.

Between 1946 and 1972, no federal funds were received to implement the authorized project, and the only activity on the project was the preparation of cost updates to current price levels.

In May 1992, a General Design Memorandum (GDM) prepared by the Baltimore District presented feasibility-level plans for all components of the Project to meet the fully authorized level of protection and included all appropriate NEPA documentation including a Finding of No Significant Impact (FONSI). This GDM included three supplements dated May 1994, August 1994, and June 1996. Section 301 of WRDA 1996 authorized the recommended GDM design modifications; however, appropriations are needed to complete the project design and construction.

In 2008, the District of Columbia started the planning and design of a 17th Street closure structure to protect against the authorized event with the intent of constructing the closure using local funds.

In May 2010, the Baltimore District prepared an Engineering Documentation Report (EDR) specifying the acceptable alternative for the 17th Street closure: A removable Post and Panel (PAP) system to be installed across the street, tying into concrete floodwalls on both sides of the street. This closure was in lieu of the two-phase closure scheme adopted in an earlier supplemental document. The EDR also provided updated cost data, a cost-benefit analysis, and an engineering analysis of the design changes to the 17th Street closure.

Using American Reinvestment and Recovery Act funds (ARRA), the Baltimore District awarded a construction contract for the 17th Street PAP closure and floodwalls in September 2010. Construction was completed in December 2015.

In 2011-2012, the Baltimore District conducted field observations, surveys, and investigations (geotechnical and utilities) to complete preliminary designs on the other project components (i.e., 65% design for the 23rd Street closure, Potomac Park levee and drainage control structures, and 35% design for the Ft McNair closure). These investigations, designs, and costs are included in the April 2013 Design Report prepared by Tetra Tech (Architect-Engineering firm). Additional analyses for storm surge, mean sea-level rise, and risk and uncertainty are still required to get to the 100% design.

The 17th Street closure component was constructed under the 902 limit, however the remaining components of the project could not be completed without further authorization. In order to determine how best to present to Congress the need and justification for an increase in the project cost

authorization, a document in the format of ER 1105-2-100, Appendix G-16 "Processing Changes" was completed and submitted to North Atlantic Division in August 2011. The conclusion has been that a LRR would be the appropriate document to request reauthorization.

In 2013, a LRR documenting changes in design and costs that have occurred since the authorization of the project was prepared by Baltimore District. This 2013 LRR went through ATR and was submitted to NAD for review. Completion of the LRR was not possible until additional project funds were received to complete NEPA compliance for the project.

The NPS produced an EA for the Project in January of 2009, and signed a FONSI on June 8, 2009. This EA covered all components of the project except for the Fort McNair closure structure. USACE reviewed this EA and all previous NEPA documentation to ensure that all natural and social environmental factors relevant to the proposed actions were addressed. USACE documented its concurrence with the findings of the NPS EA in an adoption memorandum dated March 25, 2010, and USACE signed a FONSI on May 24, 2010. The 2013 USACE LRR did not include any updated NEPA. The decision was made not to complete the full NEPA assessment for this 2013 LRR due to project schedule and funding constraints. Additionally, regardless of NEPA, authorization for a cost increase on the entire project would still be required.

Funds were received in FY16 to complete necessary NEPA and project updates. An updated NEPA assessment will be conducted for this FY16 effort because of the lapse in time (last update was 2009), possible cultural/historic effects and changes to design since 2009. Additionally, the previous NPS EA did not cover all project components (specifically the Fort McNair component).

This current LRR document will be an update to the 2013 LRR to include necessary PCX and NAD coordination and updates for the components of the project that have not been fully designed and constructed:

1. A levee between the Lincoln Memorial and the Washington Monument, known as the "Potomac Park Levee" or "Reflecting Pool Levee" (Potomac Park site)
2. Two remaining closures located at:
  - a. 23rd Street and Constitution Avenue, NW (Potomac Park site)
  - b. 2nd and P Streets, SW (Fort McNair site)

The 2013 LRR will be updated for this 2016 effort. The 2013 LRR went through ATR thus the ATR effort for this 2016 effort will be based on changes that have occurred with the project since 2013 to support a decision to increase the authorized project costs.

Updates are as follows:

- H&H (modeling, risk and uncertainty, interior flooding, sea-level rise analyses);
- Economics (updated structure values);
- Environmental sections (EA);
- Cost Estimate (only due to lapse in time since 2013);

The following remains unchanged since 2013:

- Project design and quantities

- c. **Authority.** The current project authority is WRDA 1996, as amended, which authorized modifications to the existing DC Project constructed in 1939. As stated in Section 301, “the project for flood protection, Potomac River, Washington, District of Columbia, authorized by section 5 of [the Flood Control Act of June 22, 1936 (49 Stat. 1574)], is modified to authorize the Secretary to construct the project substantially in accordance with the GDM dated May 1992 at a Federal cost of \$1,800,000; except that a temporary closure may be used instead of a permanent structure at 17th Street. Operation and maintenance of the project shall be a Federal responsibility.” Section 309 of WRDA 1999 increased the project cost to \$5,965,000 (October 1997 price level).
- d. **Factors Affecting the Scope and Level of Review.** The project is critically important since it protects nationally significant landmarks and buildings. The 2016 LRR/EA will document increases in project costs that were documented in the 2013 LRR and will allow for completion of the project, which includes raising low spots along the length of the levee, and improved closures at 23<sup>rd</sup> Street and at 2<sup>nd</sup> and P Street. Further, the LRR will include an updated economic analysis, an EA, and a summary of updated H&H. As discussed previously, the 2013 LRR went through ATR for cost, design and economics. Since the project improvements that are covered in this report are already authorized, the ATR effort will be limited to ensuring that the EA produced is sufficient, that the economics, H&H, risk and uncertainty interior flooding, sea-level rise analyses are adequate, and that the document adequately serves its purpose.
- The EA will include the impacts of all of the proposed work, as well as Section 106 coordination. The EA will include intensive coordination with interested groups and agencies, as would be expected for any project constructed in such an important and visible area.
  - All necessary H&H (modeling, risk and uncertainty, interior flooding, sea-level rise analyses) will be included in the report.
  - The proposed work is considered low risk considering the nature of the construction. The remaining portions of the project are not novel or complex and will require little new ground disturbance<sup>1</sup>.
  - This area has been disturbed in the past as it is part of a built up urban area. The highest risk aspect is the location of the project and the need to keep the area accessible for events of national interest. These issues are accounted for in the EA as well as the cooperation agreements.
  - There will be no further project formulation conducted for this analysis.
  - There has been no interest expressed by local officials for a peer review by independent experts;
  - The project has been well vetted in public insofar as the size, shape and ultimate appearance of the project. The project has a very robust benefit cost ratio (BCR) and there is no dispute as to the need for the project. This project will protect numerous national treasures including the National Archives.

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<sup>1</sup>The closure/floodwall along 2<sup>nd</sup> and P streets (Fort McNair) is outside the footprint of the original project. The original project as constructed in 1930's did not have any features in the vicinity of Ft McNair. The 1992 GDM shows a sandbag closure across 2nd St just south of P St and at the gate into Ft McNair just west of 2nd St. The project as currently designed now (and as described in the 2013 LRR) extends 600 feet south along 2nd St below the 1992 sandbag closure and about 650 feet west of the gate into Ft McNair.

- This project does not include any novel design or construction method or involve the use of innovative materials or techniques.

e. **In-Kind Contributions.** Products and analyses provided by sponsors as in-kind services are subject to DQC, ATR, and IEPR. There are no in-kind products and analyses expected to be 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.** DQC comments shall be documented using DrChecks and summarized in a quality control review report (QCRR), which summarizes the reviewed product, review process, and major issues and their resolution. The DrChecks comments as well as the QCRR, signed by the project delivery team (PDT) and the DQC team, will be provided to the ATR team. The DQC process is outlined in the "District Quality Control Standard Operating Procedures" from Baltimore District dated 25 September 2015.

#### b. Products to Undergo DQC.

- (1) Draft Limited Reevaluation Report, including technical appendices.
- (2) Draft Environmental Assessment and FONSI.
- (3) Final Limited Reevaluation Report, including technical appendices.
- (4) Final Environmental Assessment and FONSI.

c. **Required DQC Team Expertise.** The DQC team should mirror the PDT. The DQC team will be assigned by senior management within the Baltimore District from each of the technical offices. Team members will be assigned who represent study management/report writing, Planning policy, economics, geotechnical, structural, civil and cost engineering. All should be well acquainted with issues surrounding structural flood risk management projects.

#### 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 selected from the approved Communities of Practice rosters. The ATR team lead will be from outside the home MSC.

**a. Products to Undergo ATR.**

- (1) Draft Limited Reevaluation Report, including technical appendices
- (2) Draft Environmental Assessment and FONSI
- (3) Final Limited Reevaluation Report, including technical appendices
- (4) Final Environmental Assessment and FONSI

**b. Required ATR Team Expertise.** The expertise represented on the ATR team should reflect the significant expertise involved in the work effort and will generally mirror the expertise on the PDT. Given the scope and nature of this single purpose flood risk management study, reviews with expertise across more than one discipline will be engaged where possible to limit the size and cost of the ATR effort.

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 Flood Risk Management projects.
Economics	The economic reviewer must have experience with Flood Risk Management projects and Section 902 limits. Although a full economic update was done previously for the EDR and 2013 LRR report, the reviewer must certify that any updates to current fiscal year levels are correct and appropriate.
Biologist	The biologist reviewer must be familiar NEPA policy and flood risk management projects in urban settings
Cultural Resources	The cultural resources reviewer must have experience with Flood Risk Management projects, NEPA, Sect 106 consultation and experience in identifying cultural and historic resource impacts.
Hydrology and Hydraulic (H&H) Engineer	This reviewer must have experience with Flood Risk Management Projects, including drainage structures, flood walls, earthen levees, and sea-level rise.
Cost Engineering	The cost engineer must have experience with the construction methods of Flood Risk Management Projects, especially given the intricacies of working in such a culturally-rich site with various disturbance restrictions.
Risk Analysis	The risk reviewer should be experienced with performing and presenting risk analyses in accordance with ER 105-2-101 and other related guidance. This review may be combined with the economics or hydrology and hydraulics review.

Real Estate	The real estate reviewer will be approved by the Real Estate COP as a Flood Risk Management reviewer and have experience with preparing real estate plans for structural and non-structural flood risk management projects.
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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 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 1165-2-214, 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 1165-2-214.
- **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.

**Decision on IEPR.** NAD has determined the Type I IEPR is not applicable. In the NAD Review Plan approval memo dated 14 December 2012, it was determined that IEPR is not applicable for this project due to no new formulation in the updated LRR.

- a. **Products to Undergo Type I IEPR.** Not-Applicable
- b. **Required Type I IEPR Panel Expertise.** Not-Applicable
- c. **Documentation of Type I IEPR.** Not-Applicable

## **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 AGENCY TECHNICAL REVIEW AND MANDATORY CENTER EXPERTISE (MCX) REVIEW AND CERTIFICATION**

All decision documents shall be coordinated with the Cost Engineering MCX, located in the Walla Walla District. The Cost MCX 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 MCX will also provide the Cost Engineering MCX certification. The RMO is responsible for coordination with the Cost Engineering MCX.

## **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 (Flood Damage Reduction Analysis), version 1.2.4 (certified). The economist will re-run HEC-FDA model using updated structure values and recalculate interest during construction (IDC) using new benefit results, new costs and new IDC and will calculate Benefit Cost Ratio (BCR) at the current interest rate.

**Engineering Models.** The following engineering models are anticipated to be used in the development of the decision document: MII for cost estimate of updated construction costs to be utilized for the economic update. Additionally the following H&H models were used: HEC-SSP

(Hydrologic Engineering Center Statistical Software Package), HEC-RAS (River Analysis System), HEC-FDA, and HEC-HMS (Hydrologic Modeling System).

## 10. REVIEW SCHEDULES AND COSTS

- a. **ATR Schedule and Cost.** ATR will be completed prior to submission of the draft LRR to the MSC. ATR of the final LRR and SEA will occur after MSC and public review. ATR costs and approximate schedule for the LRR and SEA are displayed in the table below. These costs are cost-shared with the study's sponsor.

ATR Team (Disciplines)	Product/Documentation to Undergo ATR	Proposed Review Start Schedule*	Estimated Duration**	Estimated Budget
Planning, Economics, Biologist, Cultural Resources, H&H, Cost Engineering MCX	Draft LRR, EA/FONSI, economic, H&H and cost update.	April 2017	20 days	\$25,000 to \$30,000
Planning, Economics, Biologist, Cultural Resources, H&H, Cost Engineering MCX	Final LRR, EA/FONSI, economic, H&H and cost update.	July 2017	10 days	\$6,000
			Total	~\$38,000

- b. **Type I IEPR Schedule and Cost.** Not-Applicable

- c. **Model Certification/Approval Schedule and Cost.** Not-Applicable

## 11. PUBLIC PARTICIPATION

It is envisioned that the public will be given the opportunity to review the EA following review by the MSC. Since the project is in such a high-visibility and important location, public involvement is very important to the successful completion of the project.

## 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:

- Study Manager, Baltimore District  
410-962-4633
  
- Chief, Planning and Policy Division, North Atlantic Division  
347-370-4570
  
- Deputy Director, Flood Risk Management Planning Center of Expertise  
415-503-6852

**ATTACHMENT 1: TEAM ROSTERS**

**PDT**

Discipline	Name	Email	Phone Number
Project Manager	Rolando Sanidad	<a href="mailto:Rolando.Sanidad@usace.army.mil">Rolando.Sanidad@usace.army.mil</a>	410-962-2668
Study Manager	Anna Compton	<a href="mailto:Anna.M.Compton@usace.army.mil">Anna.M.Compton@usace.army.mil</a>	410-962-4633
Economics	Ed O'Leary	<a href="mailto:Edmund.j.o'leary@usace.army.mil">Edmund.j.o'leary@usace.army.mil</a>	978-318-8235
Biologist	Chris Spaur	<a href="mailto:Christopher.C.Spaur@usace.army.mil">Christopher.C.Spaur@usace.army.mil</a>	410-962-6134
Cultural Resources	Scott Watson	<a href="mailto:Scott.C.Watson@usace.army.mil">Scott.C.Watson@usace.army.mil</a>	410-962-9500
Civil Engr	Jim Ludlum	<a href="mailto:James.c.ludlam@usace.army.mil">James.c.ludlam@usace.army.mil</a>	410-962-4284
Cost Engr	Luan Ngo	<a href="mailto:Luan.t.ngo@usace.army.mil">Luan.t.ngo@usace.army.mil</a>	410-962-3322
Structural Engr	Yohannes Assefa	<a href="mailto:Yohannes.Assefa@usace.army.mil">Yohannes.Assefa@usace.army.mil</a>	410-962-6718
Geotech Engr	Jim Snyder	<a href="mailto:James.R.Snyder@usace.army.mil">James.R.Snyder@usace.army.mil</a>	410-962-6817
H&H Engr	Lori Bank	<a href="mailto:Lori.K.Bank@usace.army.mil">Lori.K.Bank@usace.army.mil</a>	410-962-4842
Design Manager	Carol Ohl	<a href="mailto:Carol.Ohl@usace.army.mil">Carol.Ohl@usace.army.mil</a>	410-962-4339
Real Estate	Adam Oestreich	<a href="mailto:Adam.L.Oestreich@usace.army.mil">Adam.L.Oestreich@usace.army.mil</a>	410-962-2209

**ATR**

Discipline	Name	Email	Phone Number	Credentials	Years of Exp.
ATR Lead	Not Assigned	TBD	TBD	TBD	TBD
Planning	Not Assigned	TBD	TBD	TBD	TBD
Economics	Not Assigned	TBD	TBD	TBD	TBD
H&H	Not Assigned	TBD	TBD	TBD	TBD
Biologist	Not Assigned	TBD	TBD	TBD	TBD
Cultural Resources	Not Assigned	TBD	TBD	TBD	TBD
Cost Engineering	Not Assigned	TBD	TBD	TBD	TBD
Risk Analysis	Not Assigned	TBD	TBD	TBD	TBD
Real Estate	Not Assigned	TBD	TBD	TBD	TBD

Vertical Team

Title	Name	Email	Phone Number
NAB Civil Planning Branch Chief	Dave Robbins	David.W.Robbins@usace.army.mil	410-962-0685
Deputy Director, FRM- PCX	Eric Thaut	Eric.w.thaut@usace.army.mil	415-503-6852
RIT Lead	Cathy Shuman	Catherine.M.Shuman@usace.army.mil	202-761-1379
NAD Division Planning Chief	Joe Vietri	Joseph.R.Vietri@usace.army.mil	347-370-4570

**ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION 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<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

Chief, Planning Division

Office Symbol

Date

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

**ATTACHMENT 3: REVIEW PLAN REVISIONS**

<b>Revision Date</b>	<b>Description of Change</b>	<b>Page / Paragraph Number</b>
October 2016	Review plan updated for resubmittal of LRR including new EA.	Throughout

**ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS**

<u>Term</u>	<u>Definition</u>	<u>Term</u>	<u>Definition</u>
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