



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DIVISION, GREAT LAKES AND OHIO RIVER
CORPS OF ENGINEERS
550 MAIN STREET
CINCINNATI, OH 45202-3222

CELRD-PD-O

28 Mar 13

MEMORANDUM FOR Commander, U.S. Army Engineer Huntington District, Attention, Amy Jo Riffe (CELRH-EC-Q), US Army Corps of Engineers, 502 Eighth Street, Huntington, WV 25701

SUBJECT: Review Plan for Island Creek Local Protection Project, Logan County, WV

1. The attached Review Plan (RP) for Island Creek Local Protection Project, Logan County, WV was presented to the Great Lakes and Ohio River Division for approval in accordance with EC 1165-2-214 "Civil Works Review" dated 15 December 2012.
2. The Island Creek Local Protection Project at Logan, West Virginia. The approved project includes widening the Island Creek channel to an 80-foot bottom width for a distance of 3,600 feet upstream of its confluence with the Guyandotte River. The project also includes removal of an existing sandbar and implementation of a flood warning system (FWS). The plan provides between 10-year and 20-year frequency flood protection and has a positive benefit-to-cost ratio. The Logan County Commission is the non-Federal sponsor for the channel modification component of the project and the West Virginia Division of Homeland Security and Emergency Management serves as the non-Federal sponsor for the FWS component of the project.
4. The RP defines the scope and level of peer review for the activities to be performed for the subject project. The USACE LRD Review Management Organization (RMO) has reviewed the attached RP and concurs that it describes the scope of review for work phases and addresses all appropriate levels of review consistent with the requirements described in EC 1165-2-214.
5. I concur with the recommendations of the RMO and approve the enclosed RP for the Island Creek Local Protection Project, Logan County, WV.
6. The District is requested to post the RP to its website. Prior to posting, the names of all individuals identified in the RP should be removed.
7. If you have any questions please contact Dr. Hank Jarboe, CELRD-PD-P, at (513) 684-6050.

Margaret W. Burcham
MARGARET W. BURCHAM
Brigadier General, USA
Commanding

Encls

1. Memo: CELRH-PM-P-PP, dated 8 Mar. 2013
2. Review Plan

IMPLEMENTATION PHASE REVIEW PLAN

*Island Creek at Logan, WV
Implementation Documents for Channel Modification and
Flood Warning System Components*

Huntington District

MSC Approval Date: *March 2013*



**US Army Corps
of Engineers** ®

IMPLEMENTATION PHASE REVIEW PLAN

**Island Creek at Logan, WV
Implementation Documents for Channel Modification and
Flood Warning System Components**

TABLE OF CONTENTS

1. PURPOSE AND REQUIREMENTS	1
2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION	1
3. STUDY INFORMATION	1
4. DISTRICT QUALITY CONTROL (DQC) / QUALITY ASSURANCE	3
5. AGENCY TECHNICAL REVIEW (ATR)	4
6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR).....	7
7. POLICY AND LEGAL COMPLIANCE REVIEW	8
8. MODEL CERTIFICATION AND APPROVAL.....	8
9. REVIEW SCHEDULES AND COSTS	9
10. PUBLIC PARTICIPATION	9
11. REVIEW PLAN APPROVAL AND UPDATES.....	10
12. REVIEW PLAN POINTS OF CONTACT	10
ATTACHMENT 1: TEAM ROSTERS	
ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS	
ATTACHMENT 3: ATR AND ITR CERTIFICATIONS	
ATTACHMENT 4: REVIEW PLAN REVISIONS	
ATTACHMENT 5: ACRONYMS AND ABBREVIATIONS	

1. PURPOSE AND REQUIREMENTS

a. **Purpose.** This Review Plan defines the scope and level of peer review for the implementation phase documents and design and construction activities associated with the Island Creek Local Protection Project (LPP) located in Logan, West Virginia.

b. References

- (1) Engineering Circular (EC) 1165-2-214, Water Resources Policies and Authorities - Civil Works Review, 15 Dec 212
- (2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 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) ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 August 1999
- (6) ER 1165-2-208, In-Kind Contribution Credit Provisions of Section 221 of the Flood Control Act of 1970, as Amended, 17 February 2012
- (7) Island Creek LPP Project #112512 Electronic Project Management Plan (e-PMP) document on <https://pmbp.usace.army.mil/portal>
- (8) LRD Regional ISO 9001 Manual in Qualtrax

c. **Requirements.** This review plan was developed in accordance with EC 1165-2-214, 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 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 other work products is generally the Major Subordinate Command (MSC). The RMO for the peer review effort described in this Review Plan is the MSC, which in this case is the Great Lakes and Ohio River Division (LRD).

3. STUDY INFORMATION

a. **Implementation Documents.** Implementation Documents covered within this Review Plan include the Design Documentation Reports (DDR) and Plans and Specifications (P&S) for both the channel modification and flood warning system (FWS) components of the plan recommended in the General Reevaluation Report (GRR), which was approved in October 2007. This review plan also covers the P&S for the American Electric Power (AEP) bridge – a feature added subsequent to the completion

of the GRR. A DDR provides the technical basis for P&S and serves as a summary of the final design. According to ER 1110-2-1150, the approval level for a DDR is at the District Command.

This Review Plan (RP) also addresses peer review requirements associated with the Integral Determination Report (IDR). The goal of the IDR is to describe the proposed work to be performed by the non-Federal sponsor, enable the Assistant Secretary of the Army for Civil Works (ASA(CW)) to determine if such work is integral to the project, and attain approval to afford credit for in-kind contributions performed by the non-Federal sponsor deemed integral to the project.

Implementation documents being prepared do not require any additional NEPA compliance documentation as features being implemented fall under the purview of the Environmental Assessment (EA) prepared in conjunction with the GRR. Due to the shelf life of this documentation, the original EA was supplemented in January 2008.

- b. Study/Project Description.** The Island Creek Local Protection Project at Logan, West Virginia, was authorized for construction by the Water Resources Development Act (WRDA) of 1986, Section 401 (P.L. 99-662). While the General Reevaluation Report (GRR) and Environmental Assessment (EA) was initiated in 1993, the project was then put on hold due to lack of non-Federal sponsorship until 1998 when local interest was renewed and additional funding was appropriated. The GRR was later completed and approved by HQUSACE on October 1, 2007.

The approved project includes widening the Island Creek channel to an 80-foot bottom width for a distance of 3,600 feet upstream of its confluence with the Guyandotte River. Along the channel reach, post and panel retaining walls, mechanically stabilized earth wall, and sloped bank lined with stone slope protection and concrete revetment will be constructed to stabilize the creek bank behind adjacent commercial structures. The project also includes removal of an existing sandbar and implementation of a FWS. The plan provides between 10-year and 20-year frequency flood protection and has a positive benefit-to-cost ratio.

The Logan County Commission is the non-Federal sponsor for the channel modification component of the project and receives financial assistance from the West Virginia Conservation Agency (WVCA). The West Virginia Division of Homeland Security and Emergency Management (WVDHSEM) has agreed to serve as the non-Federal sponsor for the FWS component of the project. Sponsors are responsible for providing all lands, easements, rights-of-way, relocations, and disposal sites (LERRD) for the project and required to pay at least 5 percent of the structural portion – the channel modification component – in cash. The total project cost for Island Creek Local Protection Project is \$39.2 million (FY 12 Price Levels). The current working estimate for the FWS component is \$290,850 (FY 12 Price Levels).

The Project Partnership Agreement (PPA) for the channel modification component was executed on January 25, 2008. A PPA for the FWS is currently under development and is anticipated to be forwarded for review in the first quarter of FY 2013. The PPA includes provisions to afford credit for in-kind contributions, which are performed by the non-Federal sponsor and deemed integral to the project.

- c. Factors Affecting the Scope and Level of Review.** Provided below are factors affecting the appropriate scope and level of review for the implementation documents associated with the Island Creek flood risk management project in Logan, West Virginia.

- Additional congressional authorization is not necessary to the plan approved in the GRR.
 - Planning, engineering, and design of the approved plan in the GRR will use models and methods common to USACE practices and will not require influential scientific information.
 - The project is considered to have a low level of complexity regarding design and construction methods.
 - Implementation of FWS will significantly increase warning time and thereby potentially reduce economic and loss of life consequences. Failure of the FWS following implementation of this feature is not likely although it is a possibility. While implementation of a FWS could create a false sense of security, residents and business owners within the project area are accustomed to frequent flash flooding and are familiar with taking evasive actions including emergency evacuation. As a result, should failure occur economic and loss of life consequences should be similar to those under the existing condition. Overall, the FWS is intended to be a tool for heightening awareness and increasing response times – ultimately, reducing risk associated with life safety. The FWS will provide benefits beyond the Island Creek basin, which includes a population over 5,000.
 - While the project is a flood risk management (FRM) project, the reduction of property damage was a primary objective in justification of the project.
 - Implementation of the project creates a perception of being protected from all future flood events. Failure of the project to perform could give a false sense of security. Open and frequent communication to community leaders and the public regarding the levels of protection has occurred throughout the planning and implementation of the project. The project will only reduce damages up to the 20-year event.
 - Implementation of the project has not resulted in any significant public dispute.
 - A peer review by independent experts will not likely be requested by the Governor of West Virginia or the head of a Federal or State agency.
- d. **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 are limited to the implementation FWS component of the project and include: procurement and installation of a new computer for the 911 Call Center; procurement and installation of equipment for the repeater station; procurement and installation of equipment needed to upgrade two existing gages on the Guyandotte River near Man and Logan, West Virginia; procurement and installation of a new combination rain and stream gage on Island Creek near Switzer, West Virginia; procurement and installation of a new combination rain and stream gage on Copperas Fork near Whitman, West Virginia; and procurement of select equipment for the new combination rain and stream gage on the Guyandotte River downstream of the confluence with Island Creek. The total cost of the proposed work to be performed by the non-Federal sponsor as in-kind contributions is estimated as \$60,400.

4. DISTRICT QUALITY CONTROL (DQC) / QUALITY ASSURANCE

All work products (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC or quality assurance review as appropriate. 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.** Historically, DQC has been accomplished through a series of “red-dot” reviews during which engineering counterparts perform design checks. According to local ISO procedures, a design check is a detailed evaluation of the engineering analysis and contract documents prepared by each engineering discipline as an extension of the design process. All checked drawings, computations, quantity estimates, and analyses were annotated to show the initials of the designer and the checker and the date of action.

In addition to initials annotating the completion of a “red-dot” review, DQC of the IDR and DDR for the FWS was documented with a certification sheet signed by the members outside the PDT responsible for reviewing products for quality control.

- b. **Products to Undergo DQC.** A quality assurance review was performed on the P&S and DDR related to the channel modification component of the project prepared by an A-E contractor. In addition, a DQC review has been completed on the DDR related to the FWS component of the project. DQC has also been accomplished for the IDR documenting in-kind contributions. Overall, all quality assurance DQC efforts related to implementation products have been completed.
- c. **Required DQC Expertise.** All design team members were expected to perform a comprehensive review of the implementation documents prior to ATR. In addition, design team counterparts with journeyman or senior level of experience were asked to review their counterparts’ respective sections of the products undergoing review. Counterparts were selected from outside the PDT unless the products were prepared by a contractor (such as the plans and specification prepared by Bergmann & Associates). The disciplines represented on the DQC team reflected the significant disciplines involved in the engineering and design effort. These disciplines were tailored to each product, but mostly included structures, hydrology and hydraulics, cost engineering, civil design, geotechnical, and environmental.

5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all decision and implementation 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 journeyman to senior level USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC.

- a. **Products to Undergo ATR.** The original DDR and P&S for the channel modification component underwent an Independent Technical Review (ITR) in 2004 by the A-E, Bergmann & Associates and a Quality Assurance Review by the District. The project was “put on the shelf” due to lack of funding until January 2008. After the project was revived, a new feature – the AEP bridge – was added. An ATR team was assembled and has reviewed the P&S for the new scope (AEP bridge). The DDR for

the FWS component of the project has also undergone ATR. The only remaining product requiring ATR is the IDR documenting the proposed in-kind contributions associated with the FWS.

- b. **Required ATR Team Expertise.** The ITR teams responsible for reviewing the DDR and plans and specifications for the channel modification component have completed all reviews. The ATR team responsible for reviewing the revision to include the bridge feature included a geotechnical and structural disciplines. To assure independence, the leader of the ATR team was selected from outside the MSC. The ATR of the DDR for the FWS component has also been completed. A list of ATR team members and disciplines is provided in ATTACHMENT 1.

The ATR team for the IDR will be comprised of journeyman to senior level USACE personnel (Regional Technical Specialists (RTS), etc.), and may be supplemented by outside experts as appropriate. The disciplines represented on the ATR team will reflect the significant disciplines involved in the planning and engineering and design effort. These disciplines include plan formulation and cost engineering. A list of the ATR members, disciplines, and required expertise will be provided once identified. The chief criterion for being a member of the ATR team is knowledge of the technical discipline and relevant experience.

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 should also serve as a reviewer for a specific discipline such as planning or cost engineering.
Plan Formulation	The Plan Formulation reviewer should be a journeyman level to senior water resource planner with extensive experience implementing planning guidance. In addition to having a strong understanding of the planning process, the reviewer should be familiar with the development of Integral Determination Reports and application of ER 1165-2-208. The reviewer should be able to assess the overall scope of a project, determine whether or not work proposed as in-kind contributions is integral to the project, and confirm the overall recommendation of the IDR. The Plan Formulation reviewer should have a minimum of five years of experience.
Cost Engineering	The Cost Engineering reviewer should have experience preparing cost estimates for flood risk management projects and should be familiar with equipment needed to install components of a FWS. The Cost reviewer should have a working knowledge of all applicable Corps of Engineers design criteria. The Cost reviewer should be a professionally registered engineer with a minimum of 10 years of experience.

- 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 on all work reviewed. 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.
- a. **Decision on Type II IEPR.** In accordance with EC 1165-2-214, a Type II IEPR (SAR) is not recommended by the District Chief, Engineering and Construction Division for this project. Although all FRM projects inherently have risk associated with loss of life, the project will not likely increase consequences compared to the existing condition. Channel improvements will lessen the concerns over life safety and reduce damages at low level events and the implementation of a FWS will increase warning time.

There are no structural features such as floodwalls, I-walls or levees. Project features include increasing the width of the existing channel, constructing a 900 foot post and panel retaining wall, replacing a bridge, demolishing a structure, removing a sand bar, and implementing a FWS. These features are not high risk construction features. These features do not use innovative materials or techniques, unique construction sequencing, or a reduced or overlapping design construction schedule.

Due to the nature of the project, catastrophic failure has a low probability of occurring. In recent past, there has only been one documented loss of life upstream of the project area. There have not been any reported lives lost in the immediate project area. In the event of a failure, the capacity of

the channel would be restricted. However, given the increased width of the channel, conditions would be improved compared to the channel prior to the implementation of the project.

As noted above, failure of the FWS following implementation of this feature is not likely although it is a possibility. While implementation of a FWS could create a false sense of security, residents and business owners within the project area are accustomed to frequent flash flooding and are familiar with taking evasive actions including emergency evacuation. As a result, should failure occur economic and loss of life consequences should be similar to those under the existing condition.

- b. Products to Undergo Type II IEPR.** A Type II IEPR is not warranted for the implementation documents based on the risk informed decision within this Review Plan.
- c. Required Type II IEPR Panel Expertise.** Not-Applicable.
- d. Documentation of Type II IEPR.** Not-Applicable.

7. POLICY AND LEGAL COMPLIANCE REVIEW

Decision and implementation documents will be reviewed throughout the development of the project 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 and implementation documents.

8. 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.** No planning models were used during the development of DDR, P&S and IDR for both the channel modification and FWS components associated with Island Creek LPP. As a result, model certification or approval is not warranted.
- b. **Engineering Models.** The P&S and DDR for the channel modification component of the project were prepared by an A-E contractor. Models and tools used to prepare these documents were coordinated with the PDT. The DDR and IDR associated with the FWS component were prepared in-house. As part of the FWS design, a radio path analysis was completed by Distinctive AFWS Designs, Inc. in June 2003. This analysis included field assessments and the development of computer generated models used to test radio paths between the gauging locations and repeater site. The only other model used during the development of the DDR or IDR associated with the FWS component was MCACES. This model is briefly described in the table below:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
MCACES 2nd Generation (MII) Version 3.01	Developed by Project Time and Cost, Inc. (PT&C), MII is a detailed cost estimating application used by the USACE and its A-E contractors for military, civil works and hazardous, toxic and radioactive waste (HTRW) projects. MII was first released in June 2003 and replaced the MCACES and MCACES for Windows programs.	Cost Engineering Directory of Expertise (DX) Preferred Model

9. REVIEW SCHEDULES AND COSTS

- a. **ATR Schedule and Cost.** The only remaining product requiring ATR is the IDR documenting in-kind contributions associated with the FWS component of the project. Based on the current schedule, the ATR of the IDR will be completed in April 2013. The ATR is anticipated to require four weeks – two weeks for the ATR panel to provide comments, one week for the team to develop comment responses, and one week for all comments to be closed out in DrChecks. All ATR efforts associated with the review of the IDR are anticipated to cost no more than \$10,000.
- b. **Type II IEPR Schedule and Cost.** Not-Applicable.
- c. **Model Certification/Approval Schedule and Cost.** Not applicable as no planning models were used during the development of the implementation documents for the Island Creek LPP. As a result, model certification or approval is not warranted.

10. PUBLIC PARTICIPATION

The District has been proactive in keeping the public and stakeholders informed and involved. Monthly project cooperation team meetings have been held since the execution of the Project Cooperation Agreement with the non-Federal sponsor for the channel modification component of the project in January 2008. In general, project updates have been distributed through press releases and briefings to financial partners have been held on a regular basis. In addition to working closely with Logan County Commission – the non-Federal sponsor for the channel modification component, the District has actively worked alongside United States Geological Survey (USGS) and WVDHSEM regarding the scope of the

FWS. As previously noted, WVDHSEM has agreed to serve as the non-Federal sponsor for the FWS component of the project.

11. REVIEW PLAN APPROVAL AND UPDATES

The Great Lakes and Ohio River 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 project. 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 4. 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.

12. REVIEW PLAN POINTS OF CONTACT

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

- Sherry Adams, Huntington District, Project Manager, 304-399-5844
- Natalie McKinley, Huntington District, Lead Planner, 304-399-5842
- Darin White, PE, Huntington District, Lead Engineer, 304-399-5654
- Robert Iseli, PE, Great Lakes and Ohio River Division, District Liaison, 513-684-5067
- Roger Zemba, PE, Great Lakes and Ohio River Division, Senior Regional Engineer, RMO Representative, 513-684-3018

ATTACHMENT 1: TEAM ROSTERS

TABLE 1: Product Delivery Team		
Functional Area	Name	Office
Project Manager	Sherry Adams	CELRH
Lead Engineer	Darin White	CELRH
Formulation and Economics	Natalie McKinley	CELRH
Formulation	Rebecca Albert	CELRH
Real Estate	Charlie Rhodes	CELRH
Contracting	Ginny Morgan	CELRH
Operations	Toby Wood	CELRH
Public Affairs	Chuck Minsker	CELRH
Cost Engineering	Stephen Wallington	CELRH
Hydrology and Hydraulics	Nick Koutsunis	CELRH
Structural	Pedro Luciano	CELRH
Mechanical Engineer	Anthony Cremeans	CELRH
Archeology	Aaron Smith	CELRH
Geotechnical	Greg Hensley	CELRH
Construction	Shane Hall	CELRH
Environmental	Michael McComas	CELRH
HTRW	Dan Stark	CELRH
A/E	Pat Sullivan / David Brittin	Bergmann & Associates
Sponsor	Rocky Adkins	Logan County

TABLE 2: Agency Technical Review Team – DDR and Plans and Specifications for the Channel Modification Component Revision		
NAME	DISCIPLINE	OFFICE
Mark S. Peterson	Structural /Team Leader	CESWG
Brad N. Jones	Geotechnical	CENWO

TABLE 3: Agency Technical Review Team – DDR for the FWS Component		
NAME	DISCIPLINE	OFFICE
James A. Lowe	Hydraulic Engineer	CELRH

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 1165-2-214. 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 DrCheckssm.

SIGNATURE

Name

ATR Team Leader

Office Symbol/Company

Date

SIGNATURE

Name

Project Manager

Office Symbol

Date

SIGNATURE

Name

Architect Engineer Project Manager¹

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

¹ Only needed if some portion of the ATR was contracted

ATTACHMENT 3: ATR AND ITR CERTIFICATIONS

STATEMENT OF TECHNICAL REVIEW (ATR)

Island Creek, LPP

Flood Warning System DDR

04 February 2010

COMPLETION OF AGENCY TECHNICAL REVIEW

The District has completed the Flood Warning System Detailed Design Report (DDR) for the Island Creek Local Protection Project. Notice is hereby given that an agency technical review has been conducted as defined in the Review Plan that is appropriate to the level of risk and complexity inherent in the project. During the agency technical review, compliance with established policy principals and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions; methods, procedures, and material used in analysis; alternatives evaluated; the appropriateness of data used and level obtained; and reasonableness of the result, including whether the product meets the customer's needs consistent with law and existing Corps policy. The agency technical review team members were from outside the home district. The ATR team leader was from outside the home MSC.

Design Team


Sherry Adams, CELRH-PP-PM
Project Manager

ATR


James A. Lowe, CELRL-ED-T-H
Hydraulic Engineer / ATR Leader

**STATEMENT OF TECHNICAL REVIEW FOR CONTRACTOR PRODUCTS
AND SERVICES**

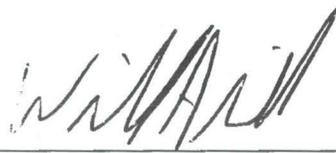
Island Creek LPP
Design Documentation Report
24 January 2003

**COMPLETION OF INDEPENDENT TECHNICAL REVIEW
And QUALITY ASSURANCE REVIEW**

The A-E firm of Bergmann Associates has completed the Design Documentation Report (DDR) of the Island Creek LPP, Logan, Ohio. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control Plan. During the independent technical review, 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 of data obtained; and reasonableness of the results, including whether the product meets the customer's requirements as described in the Customer Service Agreement (CSA) and is consistent with law and existing Corps policy. The design was accomplished by Bergmann Associates and the independent technical review was accomplished by Bergmann Associates. Their certification is attached. The District has completed a quality assurance audit and a contract compliance review. The subject project is in compliance with the A-E's contract requirements.



William R. Weekley, CELRH-ED-DC
QA Leader / Lead Engineer



William A. Miller, CELRH-EC-MQ
Engineering Quality Manager

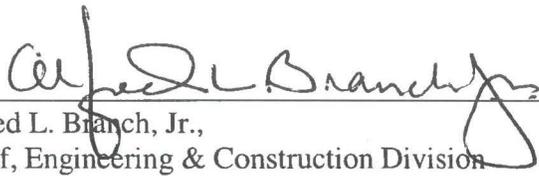
Island Creek LPP
Design Documentation Report
24 January 2003

**CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW
And QUALITY ASSURANCE REVIEW**

Significant concerns and the explanation of the resolution are as follows:

N/A

As noted above, all concerns resulting from independent technical review of the project have been considered.



Alfred L. Branch, Jr.,
Chief, Engineering & Construction Division

34 JAN 03

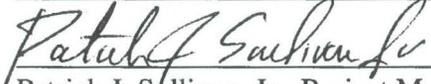
CONTRACTOR STATEMENT OF TECHNICAL REVIEW

Island Creek LPP
Design Documentation Report
30 December 2002

COMPLETION OF INDEPENDENT TECHNICAL REVIEW

The A-E firm of Bergmann Associates (BA) has completed the Design Documentation Report (DDR) for the Island Creek LPP in Logan, West Virginia. Notice is hereby given that an Independent Technical Review (ITR) has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control Plan. During the ITR, 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 of data obtained; and reasonableness of the results, including whether the product meets the requirements of the Scope of Work and is consistent with law and existing United States Army Corps of Engineer (USACE) policy.

Bergmann Associates Design Team

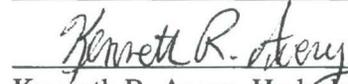

Patrick J. Sullivan, Jr., Project Manager

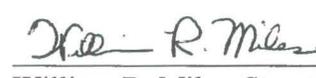

Robert Burstynowicz, Civil Site


Michael McManus, Estimating


James A. Kaniecki, Structural

Bergmann Associates ITR Team


Kenneth R. Avery, Hydrology/Hydraulics

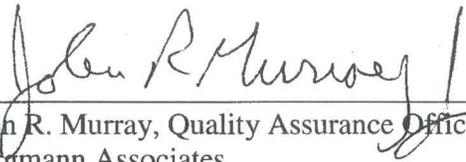
 12/31/02
William R. Miles, Structural

Island Creek LPP
Design Documentation Report
30 December 2002

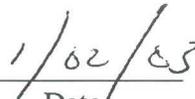
CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW

Significant concerns were documented in the USACE Designers' Module, 'DrChecks' (<http://65.204.17.188>). Forty-four comments were generated by the BA ITR Team. The comments and the responses by the BA Design Team are presented in the section entitled 'QC Review of DDR-Bergmann' under Project ID Number 1417-ISLANDCK within DrChecks. All of the responses were accepted by the BA ITR Team.

As noted above, all concerns resulting from independent technical review of the project have been considered and appropriately addressed.



John R. Murray, Quality Assurance Officer
Bergmann Associates



Date

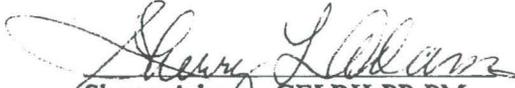
STATEMENT OF TECHNICAL REVIEW (ATR)

Island Creek, LPP
Plans and Specifications
24 September 2010

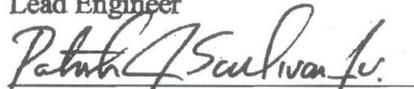
COMPLETION OF AGENCY TECHNICAL REVIEW

The District has completed the Plans and Specifications for the Island Creek Local Protection Project. Notice is hereby given that an agency technical review has been conducted as defined in the Review Plan that is appropriate to the level of risk and complexity inherent in the project. During the agency technical review, compliance with established policy principals and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions; methods, procedures, and material used in analysis; alternatives evaluated; the appropriateness of data used and level obtained; and reasonableness of the result, including whether the product meets the customer's needs consistent with law and existing Corps policy. The agency technical review team members were from outside the home district. The ATR team leader was from outside the home MSC.

Design Team


Sherry Adams, CELRH-PP-PM
Project Manager


Darin H. White, CELRH-EC-DC
Lead Engineer


Patrick J. Sullivan, Jr., P.E.
Bergmann Associates

ATR

See Page 20 for Signature
Mark S. Peterson, CESWG-EC-ES
Structural / ATR Leader

See Page 21 for Signature
Brad N. Jones, CENWO-ED-GA,
Geotechnical

NOTE: This Statement of Technical Review "Completion of Agency Technical Review" is for the AEP Bridge. ITR of the P&S for the channel modification was completed prior to 2010 and this documentation is not available. The ITR of the P&S for the channel modification was performed by the AE, Bergmann & Associates.

STATEMENT OF TECHNICAL REVIEW (ATR)

Island Creek, LPP
Plans and Specifications
24 September 2010

COMPLETION OF AGENCY TECHNICAL REVIEW

The District has completed the Plans and Specifications for the Island Creek Local Protection Project. Notice is hereby given that an agency technical review has been conducted as defined in the Review Plan that is appropriate to the level of risk and complexity inherent in the project. During the agency technical review, compliance with established policy principals and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions; methods, procedures, and material used in analysis; alternatives evaluated; the appropriateness of data used and level obtained; and reasonableness of the result, including whether the product meets the customer's needs consistent with law and existing Corps policy. The agency technical review team members were from outside the home district. The ATR team leader was from outside the home MSC.

Design Team

See Page 19 for Signature
Sherry Adams, CELRH-PP-PM
Project Manager

See Page 19 for Signature
Darin H. White, CELRH-EC-DC
Lead Engineer

See Page 19 for Signature
Patrick J. Sullivan, Jr., P.E.
Bergmann Associates

ATR


Mark Steven Peterson, CESWG-EC-ES
Structural / ATR Leader

See Page 21 for Signature
Brad N. Jones, CENWO-ED-GA,
Geotechnical

NOTE: This Statement of Technical Review "Completion of Agency Technical Review" is for the AEP Bridge. ITR of the P&S for the channel modification was completed prior to 2010 and this documentation is not available. The ITR of the P&S for the channel modification was performed by the AE, Bergmann & Associates.

STATEMENT OF TECHNICAL REVIEW (ATR)

Island Creek, LPP
Plans and Specifications
24 September 2010

COMPLETION OF AGENCY TECHNICAL REVIEW

The District has completed the Plans and Specifications for the Island Creek Local Protection Project. Notice is hereby given that an agency technical review has been conducted as defined in the Review Plan that is appropriate to the level of risk and complexity inherent in the project. During the agency technical review, compliance with established policy principals and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions; methods, procedures, and material used in analysis; alternatives evaluated; the appropriateness of data used and level obtained; and reasonableness of the result, including whether the product meets the customer's needs consistent with law and existing Corps policy. The agency technical review team members were from outside the home district. The ATR team leader was from outside the home MSC.

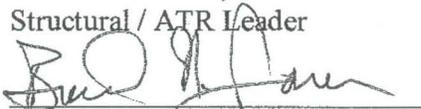
Design Team

ATR

See Page 19 for Signature
Sherry Adams, CELRH-PP-PM
Project Manager

See Page 20 for Signature
Mark S. Peterson, CESWG-EC-ES
Structural / ATR Leader

See Page 19 for Signature
Darin H. White, CELRH-EC-DC
Lead Engineer


Brad N. Jones, CENWO-ED-GA,
Geotechnical

See Page 19 for Signature
Patrick J. Sullivan, Jr., P.E.
Bergmann Associates

NOTE: This Statement of Technical Review "Completion of Agency Technical Review" is for the AEP Bridge. ITR of the P&S for the channel modification was completed prior to 2010 and this documentation is not available. The ITR of the P&S for the channel modification was performed by the AE, Bergmann & Associates.

Island Creek, LPP
Plans and Specifications
24 September 2010

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows:

(Describe the major technical concerns, possible impact, and resolution)

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

for Margaret Wilson

John J. Jaeger, P.E., PhD
Chief, Engineering & Construction Division

9/27/10
Date

ATTACHMENT 4: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number
October 2012	Rearranged format and expanded content in accordance with the latest version of the Review Plan template; Added reviews associated with the Integral Determination Report	Throughout entire Review Plan

ATTACHMENT 5: ACRONYMS AND ABBREVIATIONS

<u>Term</u>	<u>Definition</u>	<u>Term</u>	<u>Definition</u>
A-E	Architect and Engineering	MSC	Major Subordinate Command
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
FWS	Flood Warning System	RED	Regional Economic Development
GRR	General Reevaluation Report	RMC	Risk Management Center
Home District/MSD	The District or MSC responsible for the preparation of the decision document	RMO	Review Management Organization
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RTS	Regional Technical Specialist
IDR	Integral Determination Report	SAR	Safety Assurance Review
IEPR	Independent External Peer Review	USACE	U.S. Army Corps of Engineers
ITR	Independent Technical Review	USGS	United States Geological Survey
LRD	Great Lakes and Ohio River Division	WRDA	Water Resources Development Act
LRR	Limited Reevaluation Report	WVDHSEM	West Virginia Division of Homeland Security and Emergency Management
LPP	Local Protection Project		

IMPLEMENTATION PHASE REVIEW PLAN

*Island Creek at Logan, WV
Implementation Documents for Channel Modification and
Flood Warning System Components*

Huntington District

MSC Approval Date: *February 2011*

Last Revision Date: *March 2013*



**US Army Corps
of Engineers** ®

IMPLEMENTATION PHASE REVIEW PLAN

**Island Creek at Logan, WV
Implementation Documents for Channel Modification and
Flood Warning System Components**

TABLE OF CONTENTS

1. PURPOSE AND REQUIREMENTS..... 1

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION 1

3. STUDY INFORMATION..... 1

4. DISTRICT QUALITY CONTROL (DQC) / QUALITY ASSURANCE 3

5. AGENCY TECHNICAL REVIEW (ATR) 4

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)..... 7

7. POLICY AND LEGAL COMPLIANCE REVIEW 8

8. MODEL CERTIFICATION AND APPROVAL..... 8

9. REVIEW SCHEDULES AND COSTS 9

10. PUBLIC PARTICIPATION 9

11. REVIEW PLAN APPROVAL AND UPDATES..... 10

12. REVIEW PLAN POINTS OF CONTACT 10

ATTACHMENT 1: TEAM ROSTERS

ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS

ATTACHMENT 3: ATR AND ITR CERTIFICATIONS

ATTACHMENT 4: REVIEW PLAN REVISIONS

ATTACHMENT 5: ACRONYMS AND ABBREVIATIONS

1. PURPOSE AND REQUIREMENTS

a. **Purpose.** This Review Plan defines the scope and level of peer review for the implementation phase documents and design and construction activities associated with the Island Creek Local Protection Project (LPP) located in Logan, West Virginia.

b. References

- (1) Engineering Circular (EC) 1165-2-214, Water Resources Policies and Authorities - Civil Works Review, 15 Dec 212
- (2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 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) ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 August 1999
- (6) ER 1165-2-208, In-Kind Contribution Credit Provisions of Section 221 of the Flood Control Act of 1970, as Amended, 17 February 2012
- (7) Island Creek LPP Project #112512 Electronic Project Management Plan (e-PMP) document on <https://pmbp.usace.army.mil/portal>
- (8) LRD Regional ISO 9001 Manual in Qualtrax

c. **Requirements.** This review plan was developed in accordance with EC 1165-2-214, 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 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 other work products is generally the Major Subordinate Command (MSC). The RMO for the peer review effort described in this Review Plan is the MSC, which in this case is the Great Lakes and Ohio River Division (LRD).

3. STUDY INFORMATION

a. **Implementation Documents.** Implementation Documents covered within this Review Plan include the Design Documentation Reports (DDR) and Plans and Specifications (P&S) for both the channel modification and flood warning system (FWS) components of the plan recommended in the General Reevaluation Report (GRR), which was approved in October 2007. This review plan also covers the P&S for the American Electric Power (AEP) bridge – a feature added subsequent to the completion

of the GRR. A DDR provides the technical basis for P&S and serves as a summary of the final design. According to ER 1110-2-1150, the approval level for a DDR is at the District Command.

This Review Plan (RP) also addresses peer review requirements associated with the Integral Determination Report (IDR). The goal of the IDR is to describe the proposed work to be performed by the non-Federal sponsor, enable the Assistant Secretary of the Army for Civil Works (ASA(CW)) to determine if such work is integral to the project, and attain approval to afford credit for in-kind contributions performed by the non-Federal sponsor deemed integral to the project.

Implementation documents being prepared do not require any additional NEPA compliance documentation as features being implemented fall under the purview of the Environmental Assessment (EA) prepared in conjunction with the GRR. Due to the shelf life of this documentation, the original EA was supplemented in January 2008.

- b. Study/Project Description.** The Island Creek Local Protection Project at Logan, West Virginia, was authorized for construction by the Water Resources Development Act (WRDA) of 1986, Section 401 (P.L. 99-662). While the General Reevaluation Report (GRR) and Environmental Assessment (EA) was initiated in 1993, the project was then put on hold due to lack of non-Federal sponsorship until 1998 when local interest was renewed and additional funding was appropriated. The GRR was later completed and approved by HQUSACE on October 1, 2007.

The approved project includes widening the Island Creek channel to an 80-foot bottom width for a distance of 3,600 feet upstream of its confluence with the Guyandotte River. Along the channel reach, post and panel retaining walls, mechanically stabilized earth wall, and sloped bank lined with stone slope protection and concrete revetment will be constructed to stabilize the creek bank behind adjacent commercial structures. The project also includes removal of an existing sandbar and implementation of a FWS. The plan provides between 10-year and 20-year frequency flood protection and has a positive benefit-to-cost ratio.

The Logan County Commission is the non-Federal sponsor for the channel modification component of the project and receives financial assistance from the West Virginia Conservation Agency (WVCA). The West Virginia Division of Homeland Security and Emergency Management (WVDHSEM) has agreed to serve as the non-Federal sponsor for the FWS component of the project. Sponsors are responsible for providing all lands, easements, rights-of-way, relocations, and disposal sites (LERRD) for the project and required to pay at least 5 percent of the structural portion – the channel modification component – in cash. The total project cost for Island Creek Local Protection Project is \$39.2 million (FY 12 Price Levels). The current working estimate for the FWS component is \$290,850 (FY 12 Price Levels).

The Project Partnership Agreement (PPA) for the channel modification component was executed on January 25, 2008. A PPA for the FWS is currently under development and is anticipated to be forwarded for review in the first quarter of FY 2013. The PPA includes provisions to afford credit for in-kind contributions, which are performed by the non-Federal sponsor and deemed integral to the project.

- c. Factors Affecting the Scope and Level of Review.** Provided below are factors affecting the appropriate scope and level of review for the implementation documents associated with the Island Creek flood risk management project in Logan, West Virginia.

- Additional congressional authorization is not necessary to the plan approved in the GRR.
 - Planning, engineering, and design of the approved plan in the GRR will use models and methods common to USACE practices and will not require influential scientific information.
 - The project is considered to have a low level of complexity regarding design and construction methods.
 - Implementation of FWS will significantly increase warning time and thereby potentially reduce economic and loss of life consequences. Failure of the FWS following implementation of this feature is not likely although it is a possibility. While implementation of a FWS could create a false sense of security, residents and business owners within the project area are accustomed to frequent flash flooding and are familiar with taking evasive actions including emergency evacuation. As a result, should failure occur economic and loss of life consequences should be similar to those under the existing condition. Overall, the FWS is intended to be a tool for heightening awareness and increasing response times – ultimately, reducing risk associated with life safety. The FWS will provide benefits beyond the Island Creek basin, which includes a population over 5,000.
 - While the project is a flood risk management (FRM) project, the reduction of property damage was a primary objective in justification of the project.
 - Implementation of the project creates a perception of being protected from all future flood events. Failure of the project to perform could give a false sense of security. Open and frequent communication to community leaders and the public regarding the levels of protection has occurred throughout the planning and implementation of the project. The project will only reduce damages up to the 20-year event.
 - Implementation of the project has not resulted in any significant public dispute.
 - A peer review by independent experts will not likely be requested by the Governor of West Virginia or the head of a Federal or State agency.
- d. 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 are limited to the implementation FWS component of the project and include: procurement and installation of a new computer for the 911 Call Center; procurement and installation of equipment for the repeater station; procurement and installation of equipment needed to upgrade two existing gages on the Guyandotte River near Man and Logan, West Virginia; procurement and installation of a new combination rain and stream gage on Island Creek near Switzer, West Virginia; procurement and installation of a new combination rain and stream gage on Copperas Fork near Whitman, West Virginia; and procurement of select equipment for the new combination rain and stream gage on the Guyandotte River downstream of the confluence with Island Creek. The total cost of the proposed work to be performed by the non-Federal sponsor as in-kind contributions is estimated as \$60,400.

4. DISTRICT QUALITY CONTROL (DQC) / QUALITY ASSURANCE

All work products (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC or quality assurance review as appropriate. 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.** Historically, DQC has been accomplished through a series of “red-dot” reviews during which engineering counterparts perform design checks. According to local ISO procedures, a design check is a detailed evaluation of the engineering analysis and contract documents prepared by each engineering discipline as an extension of the design process. All checked drawings, computations, quantity estimates, and analyses were annotated to show the initials of the designer and the checker and the date of action.

In addition to initials annotating the completion of a “red-dot” review, DQC of the IDR and DDR for the FWS was documented with a certification sheet signed by the members outside the PDT responsible for reviewing products for quality control.

- b. **Products to Undergo DQC.** A quality assurance review was performed on the P&S and DDR related to the channel modification component of the project prepared by an A-E contractor. In addition, a DQC review has been completed on the DDR related to the FWS component of the project. DQC has also been accomplished for the IDR documenting in-kind contributions. Overall, all quality assurance DQC efforts related to implementation products have been completed.
- c. **Required DQC Expertise.** All design team members were expected to perform a comprehensive review of the implementation documents prior to ATR. In addition, design team counterparts with journeyman or senior level of experience were asked to review their counterparts’ respective sections of the products undergoing review. Counterparts were selected from outside the PDT unless the products were prepared by a contractor (such as the plans and specification prepared by Bergmann & Associates). The disciplines represented on the DQC team reflected the significant disciplines involved in the engineering and design effort. These disciplines were tailored to each product, but mostly included structures, hydrology and hydraulics, cost engineering, civil design, geotechnical, and environmental.

5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all decision and implementation 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 journeyman to senior level USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC.

- a. **Products to Undergo ATR.** The original DDR and P&S for the channel modification component underwent an Independent Technical Review (ITR) in 2004 by the A-E, Bergmann & Associates and a Quality Assurance Review by the District. The project was “put on the shelf” due to lack of funding until January 2008. After the project was revived, a new feature – the AEP bridge – was added. An ATR team was assembled and has reviewed the P&S for the new scope (AEP bridge). The DDR for

the FWS component of the project has also undergone ATR. The only remaining product requiring ATR is the IDR documenting the proposed in-kind contributions associated with the FWS.

- b. Required ATR Team Expertise.** The ITR teams responsible for reviewing the DDR and plans and specifications for the channel modification component have completed all reviews. The ATR team responsible for reviewing the revision to include the bridge feature included a geotechnical and structural disciplines. To assure independence, the leader of the ATR team was selected from outside the MSC. The ATR of the DDR for the FWS component has also been completed. A list of ATR team members and disciplines is provided in ATTACHMENT 1.

The ATR team for the IDR will be comprised of journeyman to senior level USACE personnel (Regional Technical Specialists (RTS), etc.), and may be supplemented by outside experts as appropriate. The disciplines represented on the ATR team will reflect the significant disciplines involved in the planning and engineering and design effort. These disciplines include plan formulation and cost engineering. A list of the ATR members, disciplines, and required expertise will be provided once identified. The chief criterion for being a member of the ATR team is knowledge of the technical discipline and relevant experience.

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 should also serve as a reviewer for a specific discipline such as planning or cost engineering.
Plan Formulation	The Plan Formulation reviewer should be a journeyman level to senior water resource planner with extensive experience implementing planning guidance. In addition to having a strong understanding of the planning process, the reviewer should be familiar with the development of Integral Determination Reports and application of ER 1165-2-208. The review should be able to assess the overall scope of a project, determine whether or not work proposed as in-kind contributions is integral to the project, and confirm the overall recommendation of the IDR. The Plan Formulation reviewer should have a minimum of five years of experience.
Cost Engineering	The Cost Engineering reviewer should have experience preparing cost estimates for flood risk management projects and should be familiar with equipment needed to install components of a FWS. The Cost reviewer should have a working knowledge of all applicable Corps of Engineers design criteria. The Cost reviewer should be a professionally registered engineer with a minimum of 10 years of experience.

- 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 been 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 on all work reviewed. 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.
- a. Decision on Type II IEPR.** In accordance with EC 1165-2-214, a Type II IEPR (SAR) is not recommended by the District Chief, Engineering and Construction Division for this project. Although all FRM projects inherently have risk associated with loss of life, the project will not likely increase consequences compared to the existing condition. Channel improvements will lessen the concerns over life safety and reduce damages at low level events and the implementation of a FWS will increase warning time.

There are no structural features such as floodwalls, I-walls or levees. Project features include increasing the width of the existing channel, constructing a 900 foot post and panel retaining wall, replacing a bridge, demolishing a structure, removing a sand bar, and implementing a FWS. These features are not high risk construction features. These features do not use innovative materials or techniques, unique construction sequencing, or a reduced or overlapping design construction schedule.

Due to the nature of the project, catastrophic failure has a low probability of occurring. In recent past, there has only been one documented loss of life upstream of the project area. There have not been any reported lives lost in the immediate project area. In the event of a failure, the capacity of

the channel would be restricted. However, given the increased width of the channel, conditions would be improved compared to the channel prior to the implementation of the project.

As noted above, failure of the FWS following implementation of this feature is not likely although it is a possibility. While implementation of a FWS could create a false sense of security, residents and business owners within the project area are accustomed to frequent flash flooding and are familiar with taking evasive actions including emergency evacuation. As a result, should failure occur economic and loss of life consequences should be similar to those under the existing condition.

- b. Products to Undergo Type II IEPR.** A Type II IEPR is not warranted for the implementation documents based on the risk informed decision within this Review Plan.
- c. Required Type II IEPR Panel Expertise.** Not-Applicable.
- d. Documentation of Type II IEPR.** Not-Applicable.

7. POLICY AND LEGAL COMPLIANCE REVIEW

Decision and implementation documents will be reviewed throughout the development of the project 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 and implementation documents.

8. 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.** No planning models were used during the development of DDR, P&S and IDR for both the channel modification and FWS components associated with Island Creek LPP. As a result, model certification or approval is not warranted.
- b. **Engineering Models.** The P&S and DDR for the channel modification component of the project were prepared by an A-E contractor. Models and tools used to prepare these documents were coordinated with the PDT. The DDR and IDR associated with the FWS component were prepared in-house. As part of the FWS design, a radio path analysis was completed by Distinctive AFWS Designs, Inc. in June 2003. This analysis included field assessments and the development of computer generated models used to test radio paths between the gauging locations and repeater site. The only other model used during the development of the DDR or IDR associated with the FWS component was MCACES. This model is briefly described in the table below:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
MCACES 2nd Generation (MII) Version 3.01	Developed by Project Time and Cost, Inc. (PT&C), MII is a detailed cost estimating application used by the USACE and its A-E contractors for military, civil works and hazardous, toxic and radioactive waste (HTRW) projects. MII was first released in June 2003 and replaced the MCACES and MCACES for Windows programs.	Cost Engineering Directory of Expertise (DX) Preferred Model

9. REVIEW SCHEDULES AND COSTS

- a. **ATR Schedule and Cost.** The only remaining product requiring ATR is the IDR documenting in-kind contributions associated with the FWS component of the project. Based on the current schedule, the ATR of the IDR will be completed in April 2013. The ATR is anticipated to require four weeks – two weeks for the ATR panel to provide comments, one week for the team to develop comment responses, and one week for all comments to be closed out in DrChecks. All ATR efforts associated with the review of the IDR are anticipated to cost no more than \$10,000.
- b. **Type II IEPR Schedule and Cost.** Not-Applicable.
- c. **Model Certification/Approval Schedule and Cost.** Not applicable as no planning models were used during the development of the implementation documents for the Island Creek LPP. As a result, model certification or approval is not warranted.

10. PUBLIC PARTICIPATION

The District has been proactive in keeping the public and stakeholders informed and involved. Monthly project cooperation team meetings have been held since the execution of the Project Cooperation Agreement with the non-Federal sponsor for the channel modification component of the project in January 2008. In general, project updates have been distributed through press releases and briefings to financial partners have been held on a regular basis. In addition to working closely with Logan County Commission – the non-Federal sponsor for the channel modification component, the District has actively worked alongside United States Geological Survey (USGS) and WVDHSEM regarding the scope of the

FWS. As previously noted, WVDHSEM has agreed to serve as the non-Federal sponsor for the FWS component of the project.

11. REVIEW PLAN APPROVAL AND UPDATES

The Great Lakes and Ohio River 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 project. 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 4. 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.

12. REVIEW PLAN POINTS OF CONTACT

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

- [REDACTED], Huntington District, Project Manager, 304-399-5844
- [REDACTED], Huntington District, Lead Planner, 304-399-5842
- [REDACTED], Huntington District, Lead Engineer, 304-399-5654
- [REDACTED], Great Lakes and Ohio River Division, District Liaison, 513-684-5067
- [REDACTED], Great Lakes and Ohio River Division, Senior Regional Engineer, RMO Representative, 513-684-3018

ATTACHMENT 1: TEAM ROSTERS

TABLE 1: Product Delivery Team		
Functional Area	Name	Office
Project Manager	[REDACTED]	CELRH
Lead Engineer	[REDACTED]	CELRH
Formulation and Economics	[REDACTED]	CELRH
Formulation	[REDACTED]	CELRH
Real Estate	[REDACTED]	CELRH
Contracting	[REDACTED]	CELRH
Operations	[REDACTED]	CELRH
Public Affairs	[REDACTED]	CELRH
Cost Engineering	[REDACTED]	CELRH
Hydrology and Hydraulics	[REDACTED]	CELRH
Structural	[REDACTED]	CELRH
Mechanical Engineer	[REDACTED]	CELRH
Archeology	[REDACTED]	CELRH
Geotechnical	[REDACTED]	CELRH
Construction	[REDACTED]	CELRH
Environmental	[REDACTED]	CELRH
HTRW	[REDACTED]	CELRH
A/E	[REDACTED]	Bergmann & Associates
Sponsor	[REDACTED]	Logan County

TABLE 2: Agency Technical Review Team – DDR and Plans and Specifications for the Channel Modification Component Revision		
NAME	DISCIPLINE	OFFICE
[REDACTED]	Structural /Team Leader	CESWG
[REDACTED]	Geotechnical	CENWO

TABLE 3: Agency Technical Review Team – DDR for the FWS Component		
NAME	DISCIPLINE	OFFICE
[REDACTED]	Hydraulic Engineer	CELRL

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 1165-2-214. 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 DrCheckssm.

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

SIGNATURE _____ Date _____
Name
Project Manager
Office Symbol

SIGNATURE _____ Date _____
Name
Architect Engineer Project Manager¹
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: ATR AND ITR CERTIFICATIONS

STATEMENT OF TECHNICAL REVIEW (ATR)

Island Creek, LPP

Flood Warning System DDR

04 February 2010

COMPLETION OF AGENCY TECHNICAL REVIEW

The District has completed the Flood Warning System Detailed Design Report (DDR) for the Island Creek Local Protection Project. Notice is hereby given that an agency technical review has been conducted as defined in the Review Plan that is appropriate to the level of risk and complexity inherent in the project. During the agency technical review, compliance with established policy principals and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions; methods, procedures, and material used in analysis; alternatives evaluated; the appropriateness of data used and level obtained; and reasonableness of the result, including whether the product meets the customer's needs consistent with law and existing Corps policy. The agency technical review team members were from outside the home district. The ATR team leader was from outside the home MSC.

Design Team

ATR

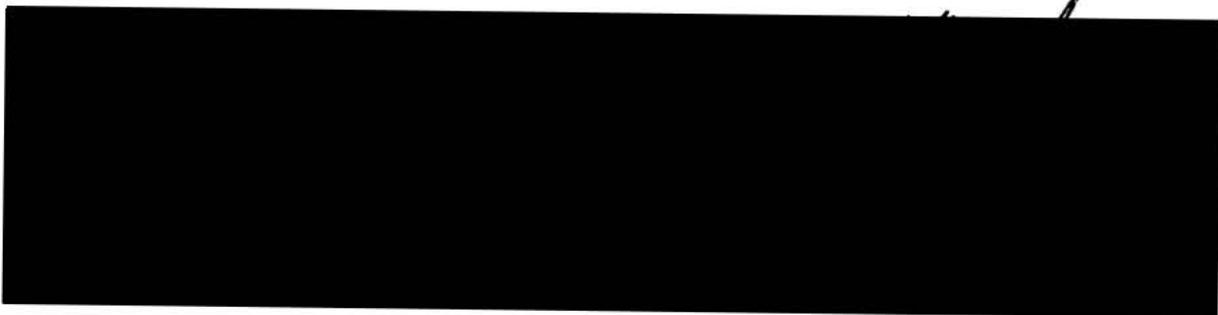


**STATEMENT OF TECHNICAL REVIEW FOR CONTRACTOR PRODUCTS
AND SERVICES**

Island Creek LPP
Design Documentation Report
24 January 2003

**COMPLETION OF INDEPENDENT TECHNICAL REVIEW
And QUALITY ASSURANCE REVIEW**

The A-E firm of Bergmann Associates has completed the Design Documentation Report (DDR) of the Island Creek LPP, Logan, Ohio. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control Plan. During the independent technical review, 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 of data obtained; and reasonableness of the results, including whether the product meets the customer's requirements as described in the Customer Service Agreement (CSA) and is consistent with law and existing Corps policy. The design was accomplished by Bergmann Associates and the independent technical review was accomplished by Bergmann Associates. Their certification is attached. The District has completed a quality assurance audit and a contract compliance review. The subject project is in compliance with the A-E's contract requirements.



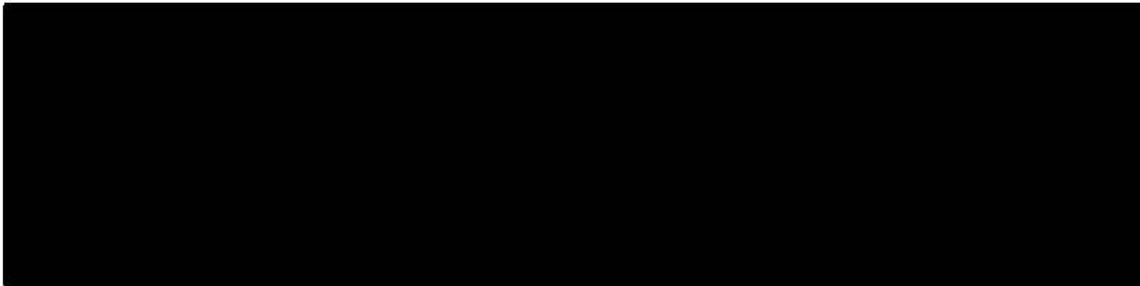
Island Creek LPP
Design Documentation Report
24 January 2003

**CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW
And QUALITY ASSURANCE REVIEW**

Significant concerns and the explanation of the resolution are as follows:

N/A

As noted above, all concerns resulting from independent technical review of the project have been considered.



CONTRACTOR STATEMENT OF TECHNICAL REVIEW

Island Creek LPP
Design Documentation Report
30 December 2002

COMPLETION OF INDEPENDENT TECHNICAL REVIEW

The A-E firm of Bergmann Associates (BA) has completed the Design Documentation Report (DDR) for the Island Creek LPP in Logan, West Virginia. Notice is hereby given that an Independent Technical Review (ITR) has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control Plan. During the ITR, 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 of data obtained; and reasonableness of the results, including whether the product meets the requirements of the Scope of Work and is consistent with law and existing United States Army Corps of Engineer (USACE) policy.

Bergmann Associates Design Team

Bergmann Associates ITR Team



Island Creek LPP
Design Documentation Report
30 December 2002

CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW

Significant concerns were documented in the USACE Designers' Module, 'DrChecks' (<http://65.204.17.188>). Forty-four comments were generated by the BA ITR Team. The comments and the responses by the BA Design Team are presented in the section entitled 'QC Review of DDR-Bergmann' under Project ID Number 1417-ISLANDCK within DrChecks. All of the responses were accepted by the BA ITR Team.

As noted above, all concerns resulting from independent technical review of the project have been considered and appropriately addressed.



STATEMENT OF TECHNICAL REVIEW (ATR)

Island Creek, LPP
Plans and Specifications
24 September 2010

COMPLETION OF AGENCY TECHNICAL REVIEW

The District has completed the Plans and Specifications for the Island Creek Local Protection Project. Notice is hereby given that an agency technical review has been conducted as defined in the Review Plan that is appropriate to the level of risk and complexity inherent in the project. During the agency technical review, compliance with established policy principals and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions; methods, procedures, and material used in analysis; alternatives evaluated; the appropriateness of data used and level obtained; and reasonableness of the result, including whether the product meets the customer's needs consistent with law and existing Corps policy. The agency technical review team members were from outside the home district. The ATR team leader was from outside the home MSC.

Design Team

ATR



STATEMENT OF TECHNICAL REVIEW (ATR)

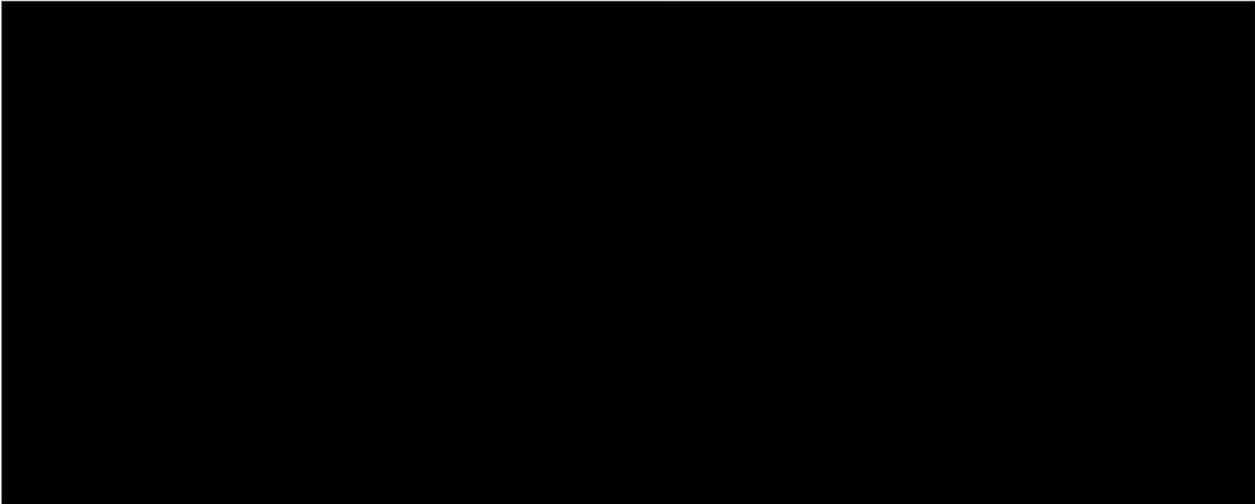
Island Creek, LPP
Plans and Specifications
24 September 2010

COMPLETION OF AGENCY TECHNICAL REVIEW

The District has completed the Plans and Specifications for the Island Creek Local Protection Project. Notice is hereby given that an agency technical review has been conducted as defined in the Review Plan that is appropriate to the level of risk and complexity inherent in the project. During the agency technical review, compliance with established policy principals and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions; methods, procedures, and material used in analysis; alternatives evaluated; the appropriateness of data used and level obtained; and reasonableness of the result, including whether the product meets the customer's needs consistent with law and existing Corps policy. The agency technical review team members were from outside the home district. The ATR team leader was from outside the home MSC.

Design Team

ATR



STATEMENT OF TECHNICAL REVIEW (ATR)

Island Creek, LPP
Plans and Specifications
24 September 2010

COMPLETION OF AGENCY TECHNICAL REVIEW

The District has completed the Plans and Specifications for the Island Creek Local Protection Project. Notice is hereby given that an agency technical review has been conducted as defined in the Review Plan that is appropriate to the level of risk and complexity inherent in the project. During the agency technical review, compliance with established policy principals and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions; methods, procedures, and material used in analysis; alternatives evaluated; the appropriateness of data used and level obtained; and reasonableness of the result, including whether the product meets the customer's needs consistent with law and existing Corps policy. The agency technical review team members were from outside the home district. The ATR team leader was from outside the home MSC.

Design Team

ATR



Island Creek, LPP
Plans and Specifications
24 September 2010

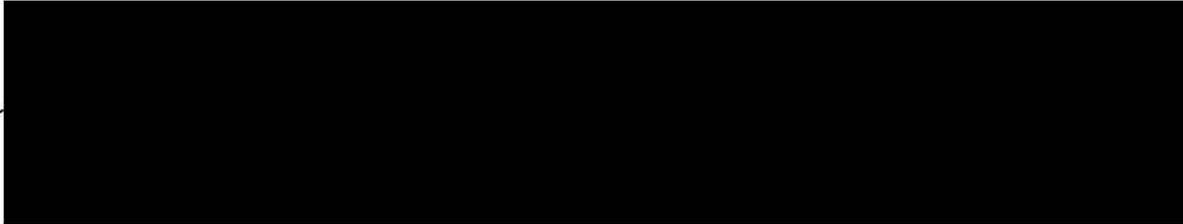
CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows:

(Describe the major technical concerns, possible impact, and resolution)

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

fu



ATTACHMENT 4: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number
October 2012	Rearranged format and expanded content in accordance with the latest version of the Review Plan template; Added reviews associated with the Integral Determination Report	Throughout entire Review Plan

ATTACHMENT 5: ACRONYMS AND ABBREVIATIONS

Term	Definition	Term	Definition
A-E	Architect and Engineering	MSC	Major Subordinate Command
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
FWS	Flood Warning System	RED	Regional Economic Development
GRR	General Reevaluation Report	RMC	Risk Management Center
Home District/MS	The District or MSC responsible for the preparation of the decision document	RMO	Review Management Organization
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RTS	Regional Technical Specialist
IDR	Integral Determination Report	SAR	Safety Assurance Review
IEPR	Independent External Peer Review	USACE	U.S. Army Corps of Engineers
ITR	Independent Technical Review	USGS	United States Geological Survey
LRD	Great Lakes and Ohio River Division	WRDA	Water Resources Development Act
LRR	Limited Reevaluation Report	WVDHSEM	West Virginia Division of Homeland Security and Emergency Management
LPP	Local Protection Project		