



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-G

24 January 2013

MEMORANDUM FOR Commander, U.S. Army Engineer District, Chicago, Attention, Susanne Davis (CELRD-PM-PL), Chicago District, Corps of Engineers, 111 N. Canal Suite 600, Chicago, IL, 60606-7206

SUBJECT: Review Plan for Indiana Shoreline Erosion Protection Project

1. The attached Review Plan (RP) for Indiana Shoreline Erosion Protection Project was presented to the Great Lakes and Ohio River Division for approval in accordance with EC 1165-2-214 "Civil Works Review" dated 15 Dec 2012.
2. The authorized project provides for mitigation of erosion damages caused by the Federal harbor structures at Michigan City and restoration of natural littoral processes at the eastern end of the Indiana Dunes National Lakeshore. The authorized project consists of the placement of approximately 264,500 cubic yards of sand at five year intervals over 50 years and monitoring of subsequent sand movement. Actual quantities placed are dependent on funding availability. The project includes physical monitoring every five years and biological monitoring for the first six years and periodically afterwards.
3. 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.
4. I concur with the recommendations of the RMO and approve the enclosed RP for the Indiana Shoreline Erosion Protection Project.
5. 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.
6. If you have any questions please contact Dr. Hank Jarboe, CELRD-PDP, at (513) 684-6050.

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

Encl

1. Review Plan

IMPLEMENTATION PHASE REVIEW PLAN

INDIANA SHORELINE EROSION PROTECTION
Chicago District

MSC Approval Date: *Pending*
Last Revision Date: *None*



US Army Corps
of Engineers ®

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1. PURPOSE AND REQUIREMENTS

a. **Purpose.** This Implementation Review Plan defines the scope and level of peer review for the design, construction, operation, and maintenance procedures of the Indiana Shoreline Erosion Protection.

b. References

- (1) EC 1165-2-214, Civil Works Review, 15 December 2012
- (2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011
- (3) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
- (4) ER 1110-1-12, Quality Management, 30 Sep 2006
- (5) Indiana Shoreline Erosion Protection Project Management Plan, 1 March 2011
- (6) Indiana Shoreline Erosion Protection Project FY11 Quality Control Plan, 15 March 2011

c. **Requirements.** This Implementation 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).

- (1) District Quality Control (DQC). DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). Basic quality control tools include a Quality Control Plan (QCP) and Quality Assurance Plan (QAP) providing for seamless review, quality checks and reviews, supervisory reviews, Project Delivery Team (PDT) reviews, etc. It is managed in the home district. Quality checks may be performed by staff responsible for the work, such as supervisors, work leaders, team leaders, designated individuals from the senior staff, or other qualified personnel. However, they should not be performed by the same people who performed the original work, including managing/reviewing the work in the case of contracted efforts. Additionally, the PDT is responsible for a complete reading of any reports and accompanying appendices prepared by or for the PDT to assure the overall coherence and integrity of the report, technical appendices, and the recommendations before approval by the District Commander. The Major Subordinate Command (MSC) Regional Business Process and District Quality Quality Control Process address the conduct and documentation of this fundamental level of review.
- (2) Agency Technical Review (ATR). EC 1165-2-214 requires that USACE Risk Management Center (RMC) shall serve as the RMO for Dam Safety Modifications projects and Levee Safety Modification projects. For all other projects, the MSC shall serve as the RMO. ATR is an in-depth review, managed within USACE, and conducted by a qualified team outside of the home district that is not involved in the day-to-day production of the project/product.

The purpose of this review is to ensure the proper application of clearly established criteria, regulations, laws, codes, principles and professional practices. The ATR team reviews the various work products and assure that all the parts fit together in a coherent whole. ATR teams will be comprised of senior USACE personnel, preferably recognized subject matter experts with the appropriate technical expertise such as regional technical specialists (RTS), and may be supplemented by outside experts as appropriate. To assure independence, the leader of the ATR team shall be from outside the home MSC.

- (3) Independent External Peer Review (IEPR). 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. For clarity, IEPR is divided into two types, Type 1 is generally for decision documents and Type II is generally for implementation documents.

A Type II IEPR (SAR) shall be conducted on design and construction activities for hurricane and storm risk management and flood risk management projects, as well as other projects where potential hazards pose a significant threat to human life. This applies to new projects and to the major repair, rehabilitation, replacement, or modification of existing facilities. External panels will review the design and construction activities prior to initiation of physical construction and periodically thereafter until construction activities are completed. The review shall be on a regular schedule sufficient to inform the Chief of Engineers on the adequacy, appropriateness, and acceptability of the design and construction activities for the purpose of assuring that good science, sound engineering, and public health, safety, and welfare are the most important factors that determine a project's fate.

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Implementation Review Plan. The RMO for decision documents is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The RMO for the peer review effort described in this Implementation Review Plan is the MSC, CELRD. The RMO for ATR reviews shall be the MSC. The RMO for the IEPR shall be USACE Risk Management Center (RMC).

The RMO will coordinate with the Cost Engineering Directory of Expertise (DX) for the decision documents to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies.

3. PROJECT INFORMATION

Indiana Shoreline Erosion, authorized in Section 501(a) of the Water Resources Development Act of 1986, provides for mitigation of erosion damages caused by the Federal harbor structures at Michigan City and restoration of natural littoral processes at the eastern end of the Indiana Dunes National Lakeshore. The authorized project consists of the placement of approximately 264,500 cubic yards of sand at five year intervals over 50 years and monitoring of subsequent sand movement. Actual quantities placed are dependent on funding availability. The project includes physical monitoring every five years and biological monitoring for the first six years and periodically afterwards.

The monitoring program will assist in determining the effects of the sand nourishment spanning from 1979 to present. The program consists of obtaining aerial photographs, beach profiles of before and after nourishment activities, and sediment samples as appropriate.

- a. **Product Description.** The Indiana Shoreline General Design Memorandum (Apr 90) called for mitigation of loss of sand caused by Federal harbor structures at Michigan City and the restoration of shore processes at the eastern end of the national lakeshore. The beach nourishment project consists of rebuilding approximately 1,500 feet along beach. Construction of approximately 700 feet of permanent service road will be included in the next construction contract.
- b. **Factors Affecting the Scope and Level of Review.**
 - Funding availability affects the quantity of sand that can be placed which may be less than the authorized quantity of 264,500 cubic yards.
 - The project does not involve a significant threat to human life/safety assurance. The main task for the project is to place clean sand on the beach to prevent erosion. This is a routine process that occurs every 2-5 years.
- c. **In-Kind Contributions.** This project is 100% Federal Funds.

4. DISTRICT QUALITY CONTROL (DQC)

- a. All design documents shall undergo DQC. The home district shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Process of the District and the home MSC. All products shall undergo appropriate Chief's review. Chief's review will involve the Chief's of all sections with a PDT member reviewing the completed document and submitting edits. All design calculations are checked and signed-off by an independent peer reviewer. Edits will be incorporated into the document and rerouted for final approval requiring sign-off from the reviewers and Branch Chief. This review, in conjunction with the PDT review is completed to ensure consistency of the document prior to ATR. Review comments are coordinated by the lead engineer and project manager.

All designs will be checked and initialed by the reviewer. Comments and responses from reviewers and Chiefs for the design products shall be documented and maintained in shared electronic folders. The design product PDT member checklist will be completed and signed by the Chiefs. Upon completion of DQC and BCOE reviews, DQC and BCOE certification shall be completed by the District's functional Chiefs. A copy of the DQC and BCOE certification template is provided in Attachment 2.

- b. **Documentation of DQC.** Comments and responses from peer and Chief's reviews for the design products shall be documented and maintained in shared electronic folders. The product PDT member checklist will be completed and signed by the Section Chiefs.
- c. **Products to Undergo DQC.** Monitoring reports and design package developed will undergo District DQC.

5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all design products and will be in accordance with EC 1165-2-214. The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. ATR is managed within USACE by the designated RMO and is conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC. The ATR is intended to be on going throughout product development, using a team concept, not a cumulative process performed at the end.

The project does not include any technical design or structural features. The project is a routine sand placement process that occurs every 2-5 years per funding availability. DQC, including BCOE reviews, will be conducted during the product development. There will be no added benefits to perform ATR on this project. Therefore, ATR is not recommended for this project.

- a. **Products to Undergo ATR.** Not Applicable
- b. **Required ATR Team Expertise.** Not Applicable
- c. **Documentation of ATR.** Not Applicable

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 I IEPR.** Type I IEPR will not be performed for the project, as the project decision document was approved prior to the IEPR requirements of WRDA 2007.
- b. **Products to Undergo Type I IEPR.** Not Applicable
- c. **Documentation of Type I IEPR.** Not Applicable
- d. **Decision on Type II IEPR.** The project does not involve a significant threat to human life. The main task for the project is to place clean sand on the beach to prevent from erosion. This is a routine process that occurs every 2-5 years. Therefore a Type II IEPR will not be applicable.
- e. **Products to Undergo Type II IEPR.** Not Applicable
- f. **Documentation of Type II IEPR.** Not Applicable

7. POLICY AND LEGAL COMPLIANCE REIVEW

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

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

All decision documents shall be coordinated with the Cost Engineering DX, located in the Walla Walla District. The DX will assist in determining the expertise needed on the ATR team and Type I IEPR team (if required) and in the development of the review charge(s). The DX will also provide the Cost Engineering DX certification. The RMO is responsible for coordination with the Cost Engineering DX.

9. MODEL CERTIFICATION AND APPROVAL

EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. Planning models, for the purposes of the EC, are defined as any models and analytical tools that planners use to define water resources management problems and opportunities, to formulate potential alternatives to address the problems and take advantage of the

opportunities, to evaluate potential effects of alternatives and to support decision making. The use of a certified/approved planning model does not constitute technical review of the planning product. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

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

There will be no planning or engineering models to be used for this project.

10. REVIEW SCHEDULES AND COSTS

- a. DQC Schedule and Cost.** The cost for DQC is included in the costs for PDT activities and is not broken out separately. DQC will occur seamless during throughout the development of P&S and Monitoring report. Quality checks and reviews occur during the development process and are carried out as a routine management practice. The schedule of the PDT review of the plans and specifications for each product will be determined during the development of the product Quality Control Plans.
- b. ATR Schedule and Cost.** Not Applicable
- c. Type II IEPR Schedule and Cost.** Not Applicable

11. PUBLIC PARTICIPATION

Agencies with regulatory review responsibilities will be contacted for coordination as required by applicable laws and procedures. Project does not require public meetings to be conducted. Close coordination with the Indiana Department of Natural Resources, and local municipalities regarding the project construction schedule is ongoing.

12. REVIEW PLAN APPROVAL AND UPDATES

The LRD Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving district, MSC, RMO, and HQUSACE members) as to the appropriate scope and level of review for the decision document. Like the PMP, the Review Plan is a living document and may change as the study progresses. The home district is responsible for keeping the Review Plan up to date. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

13. REVIEW PLAN POINTS OF CONTACT

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

- , Chief, Design Branch, Chicago District, 312-846-5410
- , Project Manager, Chicago District, 312-846-5554
- , Senior Regional Engineer, Great lakes and Ohio River Division, 513-684-3018

ATTACHMENT 1: TEAM ROSTERS

TABLE 1: Project Delivery Team		
Functional Area	Name	Office
Project Manager		CELRC-PM-PM
Real Estate		CELRC-RE
Real Estate		CELRC-RE
Planning Manager		CELRC-PM-PL
Civil Design		CELRC-TS-D-C
Civil Design, Cost Engineering		CELRC-TS-D-C
Environmental Engineering		CELRC-TS-D-HE
Hydrology and Hydraulic Engineering		CELRC-TS-D-HH
Geotechnical Engineering		CELRC-TS-D-G
Geotechnical Engineering		CELRC-TS-D-G
GIS		CELRC-TS-D-C
Contracting		CELRC-PM-CT
Safety Office		CELRC-SO
Construction		CELRC-TS-C-C
Construction, ACO		CELRC-TS-C-S
Construction, COR		CELRC-TS-C-S

Vertical Team

The Vertical Team consists of members of the HQUSACE and Great Lakes & Ohio River Division Offices. The Vertical Team plays a key role in facilitating execution of the project in accordance with the PMP. The Vertical Team is responsible for providing the PDT with Issue Resolution support and guidance as required. The Vertical Team will remain engaged seamlessly throughout the project via monthly telecons as required and will attend In Progress Reviews and other key decision briefings as required. The District Liaison Pauline Thorndike, CELRD-PD-R, is the District PM’s primary Point of Contact on the Vertical Team.

ATTACHMENT 2: DQC AND BCOE CERTIFICATION

**BCOES CERTIFICATION for Chicago District
INDIANA SHORELINE EROSION PROTECTION
PLANS AND SPECIFICATIONS**

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I. CHIEFS' DQC AUTHENTICATION

We, as the functional chiefs with responsibility for respective portions of the subject document, authenticate by our signature below that: (1) quality control procedures have been followed, (2) the ATR and BCOES is complete, and (3) there are no outstanding issues. Further, we concur in the recommendation that the subject set of Plans and Specifications (P&S) are ready to be advertised.

Chief, Civil Design, Cost Engineering, and Specification _____
Date

Chief, Geotechnical and Survey Section _____
Date

Chief, Technical Section _____
Date

Chief, Environmental and Hydraulics Section _____
Date

II. STATEMENT OF ESTIMATED CONSTRUCTION COSTS AND DURATION

The estimated construction cost for the subject contract (including contingencies) is \$_____

The estimated construction duration for the subject contract is _____ days

Chief, Civil Design, Cost Engineering, and Specification _____
Date

**BCOES CERTIFICATION for Chicago District
INDIANA SHORELINE EROSION PROTECTION
PLANS AND SPECIFICATIONS**

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III. BCOES CERTIFICATION

I, (*the PM*), certify that the Value Engineering process as required by ER 11-1-321, Army Programs Value Engineering has been completed for this procurement action. I certify compliance with Public Law 99-662 (33 USC 2288) and OMB Circular A-131. A VE study was (completed/waived) on (*date*) by the appropriate authority. All VE proposals indicating potential savings of over \$1,000,000 have been resolved with approval of the MSC Commander.

<u>[NAME]</u> Project Manager	Date	<u>[NAME]</u> Value Engineering Office	Date
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The Bid or RFP Package has been reviewed for Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) requirements in accord with ER 415-1-11. The undersigned certify that all appropriate BCOES review comments have either been incorporated into the Bid or RFP Package or otherwise satisfactorily resolved. Comments, evaluations, and back checks are documented in DrChecks.

<hr/> District Safety Officer	<hr/> Date
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<hr/> Chief, Design Branch	<hr/> Date
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<hr/> Chief, Construction-Operations Branch	<hr/> Date
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IV. TECHNICAL SERVICES CERTIFICATION

I certify that the Agency Technical Review and the BCOES Compliance Review for the subject set of P&S are complete and that there are no outstanding issues. I concur that the subject set of P&S is ready to be advertised.

<hr/> Chief, Technical Services Division	<hr/> Date
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ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number