



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
US ARMY ENGINEER DIVISION, SOUTHWESTERN
1100 COMMERCE STREET, SUITE 831
DALLAS TX 75242-1317

CESWD-PDP

07 DEC 2012

MEMORANDUM FOR Commander, Galveston District

SUBJECT: Bayport Flare, Houston Ship Channel, Texas Letter Report of Bend Easing (PWI #088910) - Review Plan Approval

1. References:

- a. EC 1165-2-209, Civil Works Review Policy, 31 January 2010; and Change 1, 31 January 2012.
- b. Memorandum, CESWG-PE-P, 3 July 2012, subject: Request for Exclusion from Type I Independent External Peer Review (IEPR) for Bayport Flare, Houston Ship Channel, Texas Letter Report of Bend Easing (PWI #088910).
- c. Memorandum, CESWD-PDP, 31 October 2012, subject: Bayport Flare, Houston Ship Channel, Texas Letter Report of Bend Easing (PWI #088910) - Request for Exclusion from Type I Independent External Peer Review (Encl 1).
- d. Email, CESWD-RIT, Sandy gore, 4 December 2012, subject: Approved Review Plans (Encl 2).

2. In accordance with reference 1.a., I hereby approve the enclosed Review Plan (RP) with exclusion from Type I IEPR.

3. Reference 1.d approves the IEPR exclusion request.

4. District is required to do a reassessment of the RP and IEPR requirements prior to submittal of the draft report.

5. Please post the final approved RP with a copy of this memorandum to the District's public internet website and provide the internet address to the Deep Draft Navigation Planning Center of Expertise and Southwestern Division. Before posting to the District website, the names of USACE employees should be removed.

07 DEC 2012

CESWD-PDP

SUBJECT: Bayport Flare, Houston Ship Channel, Texas Letter Report of Bend Easing (PWI #088910) - Review Plan Approval

6. The SWD point of contact for this action is Mr. Saji Varghese, CESWD-PDP, at 469-487-7069.

2 Encls
as


THOMAS W. KULA
Brigadier General, USA
Commanding

CF:
SWG-PE-P/ Heinly (w/encls)

REVIEW PLAN

**BAYPORT FLARE
HOUSTON SHIP CHANNEL, TEXAS
LETTER REPORT OF BEND EASING AT BAYPORT**

**U.S. Army Corps of Engineers
Galveston District**

November 2012

**MSC Approval Date: 7 December 2012
Last Revision Date: none**



**US Army Corps
of Engineers®**

REVIEW PLAN
BAYPORT FLARE
HOUSTON SHIP CHANNEL, TEXAS
LETTER REPORT OF BEND EASING AT BAYPORT

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1. PURPOSE AND REQUIREMENTS

a. **Purpose.** This Review Plan defines the scope and level of peer review for the Bayport Flare Houston Ship Channel, Texas Letter Report of Bend Easing at Bayport.

b. References

- Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, Change #1, 31 Jan 2010
- EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011
- Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
- ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007

c. **Requirements.** This review plan was developed in accordance with EC 1165-2-209, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-209) and planning model certification/approval (per EC 1105-2-412).

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for decision documents is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The RMO for the peer review effort described in this Review Plan is the Deep Draft Navigation Center of Expertise (DDN-PCX) located in the Mobile District, South Atlantic Division.

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

3. STUDY INFORMATION

a. **Decision Document.** The Bayport Flare O&M Discretionary Authority study will result in a decision document that will not require Congressional authorization. The proposed study will address the feasibility of making channel improvements to the existing Houston Ship Channel system in the Bayport Flare. The study will also include an EA. The Approval level for the report is the Chief, Operations, Directorate of Civil Works, HQUSACE.

b. **Study/Project Description.** The Bayport Flare Letter Report of Bend Easing Project is an existing project located on the upper Texas coast along the Houston Ship Channel at the intersection of the Bayport Channel. The existing project provides for a 42-foot by 300-foot channel from the Houston Ship Channel to the Bayport Terminals. The project area is at the Bayport Flare and the Houston Ship Channel, encompassing the existing channels and proposed bend easing routings to the Bayport

Ship Channel. The existing Flare has a radius of 3,000 feet. The project is a fully Federally-funded deep-draft navigation project, and as such, there are no products or work-in-kind provided by the non-Federal sponsor, the Port of Houston Authority (Port).

c. **Factors Affecting the Scope and Level of Review.** The peer review will focus on:

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

The following paragraphs discuss specific factors will help determine the appropriate scope and level of review.

An Environmental Assessment (EA) will be developed for NEPA due to the long history of environmental analyses that have been performed in the area.

Project risks are believed to be relatively low since the potential for project failure is small, there is no new science involved in the project, and all predictions of outcomes have a low level of uncertainty.

Other factors considered affecting the scope and level of review:

- The project involves no new science follows an established institutional process. Consequently, the project is not expected to encounter any technical, institutional, or social challenges.
- The Governor of Texas is not requesting a peer review by independent experts.
- The project is not expected to cause significant public dispute with regard to its size, nature, or effects.
- The project is not expected to cause significant public dispute with regard to its economic or environmental costs and benefits.
- The project design will not involve precedent-setting methods, use innovative materials, or change prevailing practices.

d. **In-Kind Contributions.** Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. No in-kind services are anticipated.

4. DISTRICT QUALITY CONTROL (DQC)

All decision documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). The home district shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC.

Documentation of DQC. DQC is the review of basic science and engineering work products focused on fulfilling the project quality requirements. It is managed by the Galveston District and may be

conducted by staff in the home district as long as they are not doing the work involved in the study. Basic quality control tools will include quality checks and reviews and supervisory reviews. The Galveston District will be responsible for a complete reading of the report to assure the overall integrity of the report, technical appendices and the recommendations before approval by the District Commander.

Two DQC reviews are planned for this project. One DQC of the draft report will be conducted once the draft report is submitted in its entirety. This review will be completed within 8 days. The DQC of the draft report is scheduled to commence in November 2012. A second DQC will be conducted for the final report once it is submitted in its entirety. This review will also be completed within 3 weeks. The second DQC is scheduled to commence in April 2013.

- a. **Products to Undergo DQC.** Products to undergo DQC include: 1) Letter Report of Bend Easing, 2) Engineering Appendix, 3) Real Estate Plan, 4) Economic Benefits Analysis, and 5) Environmental Assessment.
- b. **Required DQC Expertise.** Expertise required to conduct DQC includes: 1) Coastal Deep Draft Planning, 2) Coastal Deep Draft Economics, 3) Environmental Resources, 4) Real Estate, 5) Engineering Design, and 6) Cost Estimating.

5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.). The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. ATR is managed within USACE by the designated RMO and is conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC.

- a. **Products to Undergo ATR.** The following products will be reviewed:

- Discretionary Authority Report – Letter Report of Bend Easing
- NEPA Document
- Engineering Appendix
- Cost Analysis

- b. **Required ATR Team Expertise.** It is anticipated that the review team will consist of nine reviewers, one from each of the following disciplines: engineering design, hydraulics and hydrology, economics, environmental, real estate, plan formulation, operations and cost engineering. A brief description of the disciplines required for the ATR team are identified below:

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. The ATR lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc).
Planning	The Planning reviewer should be a senior water resources planner with experience in current planning policies and guidance related to feasibility studies.
Economics	The Economics reviewer should have a strong understanding of economic models or studies relative to deep draft navigation analyses.
Environmental Resources	The Environmental Resources reviewer(s) should have strong background in coastal ecosystems and Texas environmental laws and regulations.
Cultural Resources	The Environmental Resources reviewer(s) should have strong background in Cultural Resources.
Hydrology & Hydraulics Engineering (H&H)	The H&H reviewer(s) should have extensive knowledge of hydrology and hydraulics, and deep draft navigation models/studies.
Geotechnical Engineering	The Geotechnical reviewer(s) should have a strong knowledge of geotechnical and navigation channels issues.
Cost Engineering	The Costs reviewer should have a strong knowledge of the cost estimating practices for deep draft navigation projects.
Construction/Operations	
Real Estate	The Real Estate reviewer should have knowledge in reviewing Real Estate Plans for feasibility studies.
Hazardous, Toxic and Radioactive Waste (HTRW)	Not Applicable

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:

- The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
- The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not be properly followed;
- 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
- The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist.

The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the district, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;
- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue (if any); and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Technical Review should be completed, based on work reviewed to date, for the AFB, draft report, and final report. A sample Statement of Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

IEPR may be required for decision documents under certain circumstances. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-209, is made as to whether IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

- Type I IEPR. Type I IEPR reviews are managed outside the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire

decision document or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-209.

- **Type II IEPR.** Type II IEPR, or Safety Assurance Review (SAR), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels will conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.

Decision on IEPR. Due consideration was given to Paragraph 15 of EC 1165-2-209 as well as Appendix D of the same EC. The total project costs for this project are estimated to be under \$20 million. Further, we do not anticipate that other criteria, such as public safety concerns, significant controversy, a high level of complexity, and significant economic, environmental and social effects to the nation, innovative solutions, or life safety issues will trigger the requirement for IEPR. Lastly, the project does not include an Environmental Impact Statement (EIS) and falls within the footprint of the currently maintained federal channel. By HQ Email notification dated 4 December 2012, the study has received approval for an exclusion from the requirement for IEPR.

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

6. POLICY AND LEGAL COMPLIANCE REVIEW

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

7. 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.

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.** The following planning models are anticipated to be used in the development of the decision document: economic benefit models (e.g., Study specific spreadsheet), environmental models for habitat evaluation or mitigation planning (e.g., IWRPlan, HEP HSI models, HGM), transportation or navigation models, and homegrown or spreadsheet models (e.g., excel spreadsheets, @Risk, etc; see EC 1105-2-412 for more information about what constitutes a planning model). Below are some examples of the type of information that might be included in this section (Note: Lesser known models, including local/regional models, will need a more complete description than widely used, nationally recognized models).

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
Study Specific Spreadsheet Model (if needed)	Transportation Benefits Analysis	To be supplied to PCX
HarborSym Widening Model	A planning-level simulation model designed to assist in economic analyses of coastal harbors, calculating vessel interactions within the harbor, and capturing delays. The model output can be used to calculate the cost of these delays and any changes in overall transportation costs resulting from proposed modifications to the channel's physical dimensions or restrictions.	Certified
HEP/HSI Models (Habitat Evaluation Procedure / Habitat Suitability Indices)	USFWS HEP evaluates the quality and quantity of available habitat for selected wildlife species. The HEP delivers Habitat Suitability Indices (HSI), which measure habitat suitability of a sample plot relative to optimum habitat suitability for a species in a defined region. The proposed project would incur	Certified

	impacts to oyster reef (<i>Crassostrea virginica</i>) along the Houston Ship Channel (HSC) and Bayport Flare. These impacts would require mitigation in the form of creating oyster reef in areas determined suitable through coordination with the State and Federal environmental resource agencies. We plan on utilizing the American Oyster HSI model to assess impacts and mitigation for the Bayport Flare modifications project. This model has been approved for use (see http://cw-environment.usace.army.mil/model-library.cfm?CoP=Restore&Option=View&Id=99).	
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b. Engineering Models. The following engineering models are anticipated to be used in the development of the decision document: hydrologic, hydraulic, geotechnical, civil, structural, cost engineering and similar models. Below is an example of the type of information that might be included in this section.

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
TABS-MD Hydrodynamic Model	Model is designed to provide accurate and representative current velocity fields for use in ship simulator for navigation study	Certified
Ship Simulator	Engineer Research and Design Center Simulator used to simulate channel alternatives	Certified

10. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost.

Review Schedule	
<u>TASK</u>	<u>Proposed Date</u>
ATR review of draft documents (before ATR)	Dec 2012
ATR Certification Draft Report	Dec 2012
Public Review of Draft Report	Mar 2013

The cost for ATR for the Letter Report of Bend Easing is approximately \$40,000.

b. Type I IEPR Schedule and Cost. NA

c. Model Certification/Approval Schedule and Cost. All models anticipated to be used are already certified or approved as of 31 July 2012

11. PUBLIC PARTICIPATION

Stakeholder and public comments are continually solicited. Public involvement section will be part of Report and EA and provided to ATR and IEPR reviewers.

An Environmental Assessment specifically addressing the proposed plan for the Letter Report of Bend Easing at Bayport Project for the 50-year period of analysis must be prepared. This Environmental Assessment must address all impacts not addressed in previous NEPA coordination (listed under 1b(6) and 1b(8) References) and update all required agency coordination.

A public notice describing the recommended plan of the bend easing will be issued by the Galveston District Commander in March 2013.

12. REVIEW PLAN APPROVAL AND UPDATES

The Southwestern Division Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving district, MSC, RMO, and HQUSACE members) as to the appropriate scope and level of review for the decision document. Like the PMP, the Review Plan is a living document and may change as the study progresses. The home district is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC Commander approval are documented in Attachment 3. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

13. REVIEW PLAN POINTS OF CONTACT

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

- Ms. Sheri Willey, Galveston District PDT Planning contact at (409) 766-3917 or sheridan.s.willey@usace.army.mil;
- Mr. Sam Arrowood, Southwestern Division at (409) 766-3970 or sam.a.arrowood@usace.army.mil
- Mr. Bernard Moseby, DDN-PCX Manager at (251) 694-3884 or bernard.e.moseby@usace.army.mil.

ATTACHMENT 1: TEAM ROSTERS (Removed prior to posting on webpage)

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 Letter Report for Bend Easing for Bayport Flare, Houston Ship Channel, Texas. The ATR was conducted as defined in the project’s Review Plan to comply with the requirements of EC 1165-2-209. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer’s needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in 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: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

Term	Definition	Term	Definition
AFB	Alternative Formulation Briefing	NED	National Economic Development
ASA(CW)	Assistant Secretary of the Army for Civil Works	NER	National Ecosystem Restoration
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
CSDR	Coastal Storm Damage Reduction	O&M	Operation and maintenance
DPR	Detailed Project Report	OMB	Office and Management and Budget
DQC	District Quality Control/Quality Assurance	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DX	Directory of Expertise	OEO	Outside Eligible Organization
EA	Environmental Assessment	OSE	Other Social Effects
EC	Engineer Circular	PCX	Planning Center of Expertise
EIS	Environmental Impact Statement	PDT	Project Delivery Team
EO	Executive Order	PAC	Post Authorization Change
ER	Ecosystem Restoration	PMP	Project Management Plan
FDR	Flood Damage Reduction	PL	Public Law
FEMA	Federal Emergency Management Agency	QMP	Quality Management Plan
FRM	Flood Risk Management	QA	Quality Assurance
FSM	Feasibility Scoping Meeting	QC	Quality Control
GRR	General Reevaluation Report	RED	Regional Economic Development
Home District/MSD	The District or MSD responsible for the preparation of the decision document	RMC	Risk Management Center
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMO	Review Management Organization
IEPR	Independent External Peer Review	RTS	Regional Technical Specialist
ITR	Independent Technical Review	SAR	Safety Assurance Review
LRR	Limited Reevaluation Report	USACE	U.S. Army Corps of Engineers
MSD	Major Subordinate Command	WRDA	Water Resources Development Act