

# **U.S. Army Corps of Engineers South Atlantic Division Savannah District (SAS)**

**Hurricanes Harvey, Irma and Maria Emergency Supplemental**

## **Tybee Island Shore Protection Project City of Tybee Island, Chatham County, Georgia (P2#: 113002)**

**Implementation Documents**

### **Review Plan**

*MSC Approval Date: Pending*

*Last Revision Date: 15 Jan 2019*

THE INFORMATION CONTAINED IN THIS REVIEW PLAN IS DISTRIBUTED SOLELY FOR THE PURPOSE OF PREDISSEMINATION PEER REVIEW UNDER APPLICABLE INFORMATION QUALITY GUIDELINES. IT HAS NOT BEEN FORMALLY DISSEMINATED BY THE U.S. ARMY CORPS OF ENGINEERS. IT DOES NOT REPRESENT AND SHOULD NOT BE CONSTRUED TO REPRESENT ANY AGENCY DETERMINATION OR POLICY.



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# SECTION 1

## Introduction

### 1.1 Purpose

This Review Plan (RP) defines the scope and level of review activities for preparing implementation documents for the Tybee Island Shore Protection Project and will help ensure a quality engineering project is developed by the Corps of Engineers in accordance with EC 1165-2-217, "Review Policy for Civil Works." As described in more detail below, the review activities consist of a District Quality Control (DQC) review, an Agency Technical Review (ATR), and a Biddability, Constructability, Operability, Environmental and Sustainability (BCOES) Review. Also, as described in more detail later in the plan, an Independent External Peer Review (IEPR) is not recommended. The implementation documents to be addressed under this Review Plan are as follows:

- Engineering Documentation Report (EDR)
- Plans and Specifications (P&S)
- Update to the Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R) Manual

The technical review efforts addressed in this RP, DQC and ATR are to augment and compliment the policy review processes. Upon approval, this Review Plan will be included in an Appendix to the Project Management Plan (PMP) and posted to the District website. The plan will be provided to Project Delivery Team (PDT), DQC, and ATR teams and posted to the District website and included as an Appendix to the Project Management Plan (PMP).

### 1.2 References

- EC 1165-2-217, Review Policy For Civil Works, 20 February 2018
- ER 1110-1-12, Quality Management, 31 Mar 2011
- ER 415-1-11, Biddability, Constructability, Operability, Environmental and Sustainability (BCOES) Reviews, 1 January, 2013
- Tybee Island Shore Protection Project, Supplemental Work, PMP DATE 12-Dec-2018

### 1.3 Requirements

This review plan was developed in accordance with EC 1165-2-217, 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. The EC provides the procedures for ensuring the quality and credibility of U.S. Army Corps of Engineers (USACE) decision, implementation, and operations and maintenance documents and other work products. The EC outlines five levels of review: District Quality Control (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), Policy and Legal Review, and Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) Review. The Review Plan identifies the most important skill sets needed in the reviews, the objective of the reviews, and the specific advice sought; thus, setting the appropriate scale and scope of review for the individual project.

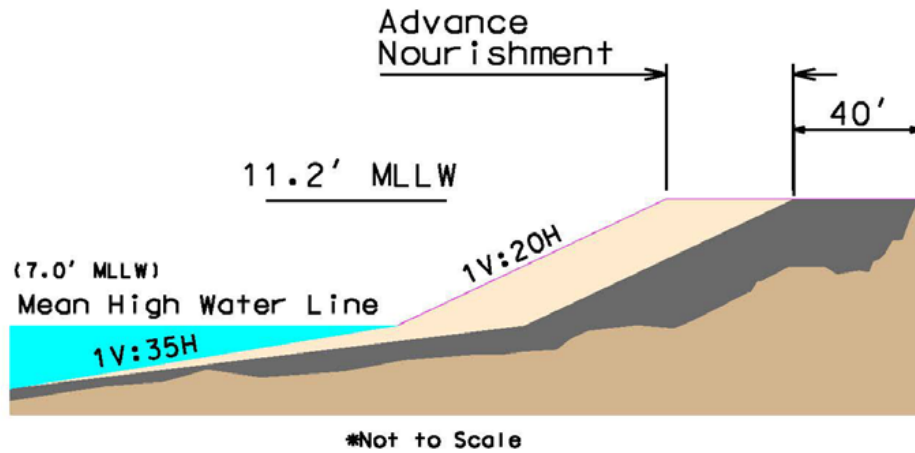
## **1.4 Review Management Organization**

The South Atlantic Division (SAD), the Major Subordinate Command (MSC) is designated as the Review Management Organization (RMO) for this project. Contents of this review plan have been coordinated with SAD. In Progress Review (IPR) team meetings with SAD and SAS will be scheduled on an “as needed” basis to discuss programmatic, policy, and technical matters. Savannah District is the Designer of Record (DOR) for this project and will assist the RMO with assembling the ATR team, managing the ATR review, and developing the charge to reviewers.



Figure 1. Map of the Tybee Island Shore Protection Project Area

### Initial Nourishment



### Periodic Renourishment (2008 & 2015)

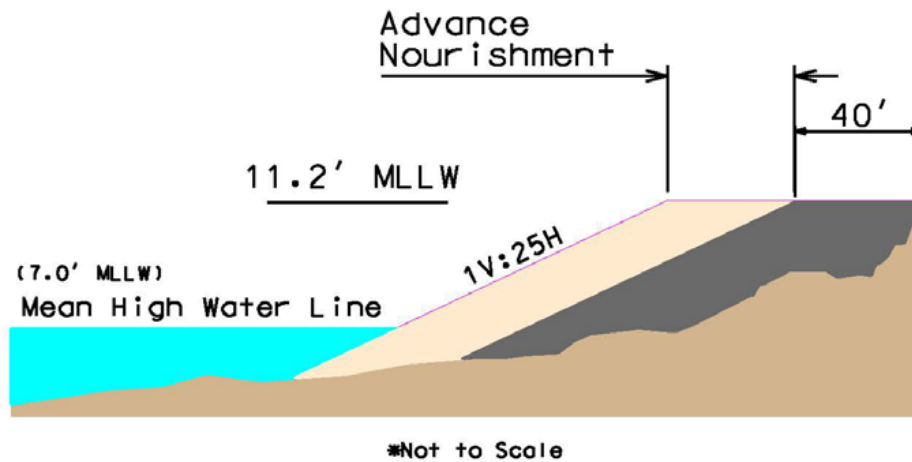


Figure 2. 2015 Renourishment Template for Advance Nourishment

## SECTION 2

# Project Description

### 2.1 Project Description

Tybee Island is located 18 miles east of Savannah at the mouth of the Savannah River on the Atlantic Ocean. The highly developed island is bordered on the north by the South Channel of the Savannah River, on the east by the Atlantic Ocean, and on the south and west by the Back River and other tidal creeks. Tybee Island has an average width of 0.5 miles and the ground elevation varies from 10 to 18 feet above Mean Lower Low Water (MLLW) and slopes westward to the salt marshes.

This authorized 3.5 mile long project was initially constructed in 1974 with a 50-year project life with periodic renourishments to occur every seven (7) years. The authorized project consists of nourishment of 13,200 linear feet of beach (referred to as Front Beach) located between two terminal groins, the North End Groin and the South End Groin; construction of a groin field along 1,100 linear feet of shoreline from the South End Groin around the southern tip of the island to the mouth of Tybee Creek (also known as Back River), including periodic nourishment for what is referred to as South Tip Beach; and construction of a groin field and nourishment of 1,800 linear feet of the eastern bank of Tybee Creek to the city fishing pier (referred to as Back River Beach).

### 2.2 Proposed Work Descriptions

An Engineering Documentation Report will be developed to document a modification to incorporate resiliency features into the template of the federal project. Incorporation of existing dune resiliency features within the federal project would include approximately 9,500 linear feet of existing dunes meeting the requirements of the modified template along the Front Beach renourishment area. Anticipated dune construction within the federal project may include 3,700 linear feet of the Front Beach renourishment area addressing hot spots identified in the Project Information Report (PIR). In addition, approximately 1,100 linear feet along the South Tip renourishment area would be considered for dune construction in order to rebuild dunes to meet the requirements of the recommended template.

### 2.3 Factors Affecting the Scope and Level of Review

- 1) The project does not have any significant technical, institutional, or social challenges
- 2) The project is not highly controversial as it consists of continuing federal participation in periodic renourishments of the projects. It is not anticipated that there will be a significant public dispute as to the size, nature, or effects of the project.
- 3) No life safety issues are anticipated from the extension of Federal participation in periodic renourishments as the project will only continue construction to the previously authorized and constructed design limits.
- 4) A reduction in flood control benefits is not anticipated as reformulation of the authorized project design is not being considered in the Tybee Island SPP EDR, Plans and Specifications, or the update to the OMRR&R Manual.
- 5) The project is not publicly controversial.
- 6) A determination will be made by USACE, Savannah District (CESAS), whether construction of dunes through the remaining life of the project is consistent with the current authorization.
- 7) The project is a typical beach renourishment project involving traditional methods of dredging and traditional methods of placement of dredged material. There is ample experience within USACE executing this type of dredging and material placement.
- 8) All technical areas have methods to identify and mitigate inherit risks.

- 9) Preliminary analysis indicates that impacts to fish and wildlife, including threatened and endangered species, are expected not to be significant. To the extent practicable, environmental concerns can be addressed through mitigation measures of avoidance, minimization, or compensation, and through public education and outreach efforts. If impacts are not significant, an Environmental Assessment (EA) will be completed to document the environmental effects of the proposed design.
- 10) The project is not justified by life safety requirements and does not involve significant threat to human life/safety assurance.
- 11) The Governor of Georgia has not requested a peer review by independent experts.
- 12) The final EDR and supporting documentation will contain standard engineering and environmental analyses and information.

## 2.4 Project Sponsor

The City of Tybee Island is the non-Federal sponsor. The Tybee Island Shore Protection Project is 100% federally funded for the activities needed to provide a full template renourishment with resiliency features; therefore, there will not be in-kind contributions for this effort.

## SECTION 3

# District Quality Control

### 3.1 Requirements

All implementation documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo a seamless 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) and ER 1110-1-12, Engineering & Design Quality Management. The subject project EDR, P&S, and OMRR&R will be prepared by Savannah District. Savannah District will manage the DQC process.

### 3.2 Documentation

DQC includes documenting and maintaining records for internal audits of proper DQC implementation. DQC will be performed on the P&S, EDR, and the OMRR&R Manual in accordance with the CESAS Engineering Division Quality Management Plan. DrChecks<sup>sm</sup> review software will be used to document all DQC comments, responses and associated resolutions accomplished throughout the review process; the respective team member will respond to comments noting concurrence or non-concurrence and provide an explanation of revised work and its location in the reviewed document. The review leader will compile all the comments and responses, note if the review and responses are comprehensive, and note significant issues and responses and unresolved issues before signing the DQC statement of technical review. The project manager will also sign and date the statement. Subsequently, the Chief Engineering will describe the significant concerns and resolutions, and will sign a certification of Quality Control Review.

### 3.3 DQC Schedule and Estimated Cost

The below table identifies milestone reviews. The estimated cost for the DQC and ATR reviews is \$10,000 for both reviews.

Description of Product	Review Start Date	Review End Date
EDR	17 Jan 2019	22 Jan 2019
35% P&S	28 Jan 2019	11 Feb 2019
95% P&S	26 Apr 2019	16 May 2019



## SECTION 4

# Agency Technical Review

### 4.1 Requirements

ATR is mandatory for all implementation documents (including supporting data, analyses, environmental compliance documents, etc.). An ATR will be performed on the EDR and the P&S contract drawings and technical specifications in accordance with CESAS Engineering Division Quality Management Plan. The objective of the 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 the document explains the analyses and results in a reasonably clear manner. 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. The ATR team 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.

### 4.2 Documentation of ATR

DrChecks<sup>sm</sup> 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<sup>sm</sup> 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<sup>sm</sup> with a notation that the concern has been elevated to the vertical team for resolution.

## 4.3 Products to Undergo ATR

An ATR will be performed on the EDR and the P&S contract drawings and technical specifications in accordance CESAS Engineering Division Quality Management Plan.

## 4.4 Required Team Members and Requirements

ATR Team Member Discipline	Expertise Required
ATR Lead	The ATR lead will be a senior professional with extensive experience in preparing Civil Works 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 engineering, planning, economics, or environmental resources).
Coastal (Hydraulic) Engineering	The reviewer will have a minimum of 5 years of Coastal Engineering experience. The engineer must be familiar with dune construction.

## 4.5 Statement of Technical Review Report

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.

The ATR Report 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.

## 4.6 ATR Schedule and Estimated Cost

The preliminary ATR milestone schedule is listed in the below Table. The estimated cost for the DQC and ATR reviews is \$10,000 for both reviews.

Description of Product	Review Start Date	Review End Date
EDR	17 Jan 2019	22 Jan 2019
35% P&S	28 Jan 2019	11 Feb 2019
95% P&S	26 Apr 2019	16 May 2019

## SECTION 5

# Independent External Peer Review / Safety Assurance Review

## 5.1 Requirements

An IEPR may be required for implementation 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 1165-2-217, 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.

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.

## 5.2 Decision / Determination

- **Type I IEPR Determination**

Type I IEPR is generally for decision documents. No decision documents or other applicable Section 2034 products are addressed by this Review Plan. Therefore, a Type 1 IEPR is not applicable to the implementation documents addressed by this Review Plan.

- **Type II IEPR / SAR Determination**

For any design and construction activities that are justified by life safety or for which the failure of the project would pose a significant threat to human life a SAR is required. A recommendation for an exclusion from this requirement must be documented in the RP with a thorough discussion of why there are no potential failure modes for the project that would pose a significant threat to human life. A project is determined to have a "significant threat to human life" if at any time during the construction or operation, failure could result in a substantial life safety concern. The consequences of failure and the population at risk are paramount for the SAR determination. Existing risk information, including risk assessments, should be used to facilitate and inform this determination.

A risk-informed decision was made as to whether conducting a Type II IEPR is appropriate based on the below consideration factors as outlined in EC 1165-2-217, Section 12 (h) thru (i).

- (1) The failure of the project would pose a significant threat to human life;

*This project will perform a periodic nourishment that will re-establish a beach. The beach is designed to protect structures through its sacrificial nature and is continually monitored and renourished in accordance with program requirements and constraints. Failure or loss of the beach fill will not pose a significant threat to human life.*

*In addition, the prevention of loss of life within the project area from hurricanes and severe storms is via public education about the risks, warning of potential threats and evacuations before hurricane landfall.*

- (2) The project involves the use of innovative materials or technique and the engineering is based on novel methods, presents complex challenges for interpretations, contains precedent-setting methods or models, or presents conclusions that are likely to change prevailing practices;

*This project will utilize methods and procedures used by the Corps of Engineers on other similar works.*

- (3) The project design requires redundancy, resiliency, and robustness;

*The beach fill design is in accordance with the USACE Coastal Engineering Manual. The manual does not employ the concept of redundancy for beach fill design.*

- (4) The project has unique construction sequencing or a reduced or overlapping design construction schedule; for example, significant project features accomplished using the Design-Build or Early Contractor Involvement delivery systems.

*This project's construction does not have unique sequencing or a reduced or overlapping design. The installation sequence and schedule has been used successfully by the Corps of Engineers on other similar works.*

Based on the discussion above, the District Chief of Engineering, as the Engineer-In-Responsible-Charge, does not recommend a Type II IEPR.

### **5.3 Products to Undergo SAR – not applicable**

### **5.4 Required Panel Expertise – not applicable**

### **5.5 Documentation – not applicable**

### **5.6 Scope, Schedule, and Estimated Cost – not applicable**

## SECTION 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.

## SECTION 7

# Biddability, Constructability, Operability, Environmental, and Sustainability Review

The value of a BCOES review is based on minimizing problems during the construction phase through effective checks performed by knowledgeable, experienced personnel prior to advertising for a contract. Biddability, constructability, operability, environmental, and sustainability requirements must be emphasized throughout the planning and design processes for all programs and projects, including during planning and design. This will help to ensure that the government's contract requirements are clear, executable, and readily understandable by private sector bidders or proposers. It will also help ensure that the construction may be done efficiently and in an environmentally sound manner, and that the construction activities and projects are sufficiently sustainable. Effective BCOES reviews of design and contract documents will reduce risks of cost and time growth, unnecessary changes and claims, as well as support safe, efficient, sustainable operations and maintenance by the facility users and maintenance organization after construction is complete. A BCOES Review will be conducted for the contract documents at the Final Design Phase. BCOES will be managed by the Savannah District with team members from Savannah District (SAS).

## SECTION 8

# Public Posting of Review Plan

As required by EC 1165-2-217, the approved Review Plan will be posted on the District public website <http://www.sas.usace.army.mil/About/Divisions-and-Offices/Planning-Division/Plans-and-Reports/>. The public will have 30 days to provide comments on the documents; after all comments have been submitted, the comments will be provided to the technical reviewers. This is not a formal comment period and there is no set timeframe for the opportunity for public comment. If and when comments are received, the PDT will consider them and decide if revisions to the review plan are necessary. This engagement will ensure that the peer review approach is responsive to the wide array of stakeholders and customers, both within and outside the federal government.

## SECTION 9

# Review Plan Approval and Updates

The South Atlantic Division is the MSC for this Review Plan. The SAD 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 implementation documents. Like the PMP, the Review Plan is a living document and may change as the design 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 Commander's approval memorandum, should be posted on the Home District's webpage. The latest Review Plan should be provided to the RMO and the home MSC as well as the PDT, DQC, and ATR Teams.

## SECTION 10

# Engineering Models

The use of certified or approved engineering models is required for all activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. 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. 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).

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).

No engineering models are required for the products referenced in this RP.

## SECTION 11

# Review Plan Points of Contact

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

- District Contact, Project Manager: Josh Nickel, (912) 652-5266
- Review Management Organization: SAD
- RMO Contact: Shannon L. Geoly, (404) 562-5121

## ATTACHMENT 3

# Review Plan Revisions

<b>Revision Date</b>	<b>Description of Change</b>	<b>Page / Paragraph Number</b>

## ATTACHMENT 4

# Acronyms and Abbreviations

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