



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

JAN 08 2016

MEMORANDUM FOR Buffalo District Commander, (CELRB-PM-PL, [REDACTED]), 1776 Niagara Street, Buffalo, NY 14207-3199

SUBJECT: Approval of Review Plan for CAP Section 206 Ecosystem Restoration Project, Arcola Creek, Madison, OH

1. Reference CELRB-DE Memorandum, District Transmittal Letter – Review Plan for Arcola Creek, Madison, OH, Section 206 Ecosystem Restoration, dated 29 October 2015 with attachment, enclosed.
2. The subject Review Plan has been prepared in accordance with EC 1165-2-214, Civil Works Review, and dated 15 December 2012. The review plan was reviewed for policy compliance and MSC comments and the district's resolution are posted in DrChecks. All comments have been satisfactorily resolved and are closed.
3. I approve the enclosed Review Plan. Subsequent revisions to this review plan or its execution will require new written approval from this office and is subject to change as circumstances require, consistent with the Project Management Business Process.
4. The District is requested to post the review plan to its website. Prior to posting, all dollar amounts and the names of all individuals identified in the review plan should be removed.
5. The point of contact for the MSC's approval is [REDACTED]; he can be reached at [REDACTED].

Encls

[REDACTED]  
Brigadier General, USA  
Commanding



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**

BUFFALO DISTRICT, CORPS OF ENGINEERS  
1776 NIAGARA STREET  
BUFFALO, NEW YORK 14207-3189

29 OCT 15

CELRB-DE

MEMORANDUM FOR Commander, Great Lakes and Ohio River Division, (ATTN: CELRD-CM, [REDACTED]), 550 Main Street, RM 10-524, Cincinnati, OH 45202-3222

SUBJECT: District Transmittal Letter – Review Plan for Arcola Creek, Madison, OH, Section 206 Ecosystem Restoration

1. The enclosed Review Plan (RP) is presented for approval.
2. The purpose of this project is to address ecological problems and needs associated with the Arcola Creek watershed which drains approximately 25.5 square miles in Lake and Ashtabula Counties, Ohio. A plan will be developed to carry out aquatic ecosystem restoration with the objective of restoring degraded ecosystem structure, function, and dynamic processes to a less degraded, more natural condition. The plan will focus on restoring water levels, providing riparian corridors, and improving in-stream habitat within the Arcola Creek watershed. Other improvements may include implementation of flood protection, drainage and infrastructure, native species restoration with invasive species control, water quantity and quality, wetland enhancement/creation, and coordinated watershed-level planning and management. The enclosed Review Plan defines the scope and level of peer review to ensure the selected alternative will be technically feasible, environmentally acceptable, policy compliant, and cost effective.
3. The review plan contained herein has undergone District Quality Control (DQC) review by CELRB-PM-PL/Mr. [REDACTED]. There were no substantive comments provided during the review. I recommend approval of the Review Plan.
4. The point of contact for this subject is [REDACTED] who may be contacted at [REDACTED] or via email at [REDACTED]

1 Encl  
1. Review Plan

[REDACTED]

ETC, EN  
Commanding

**CERTIFICATION OF DISTRICT QUALITY CONTROL REVIEW**

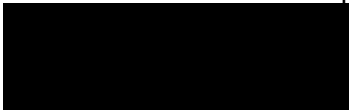
CAP Section 206, Arcola Creek  
Civil Works Review Plan  
P2# 113201  
November 2015

District Quality Control (DQC) review was completed for the Civil Works Review Plan and no major technical concerns were identified. All concerns resulting from the DQC review of the project have been fully resolved to the satisfaction of the reviewers. The study has been determined to be technically correct and policy compliant.

There were no substantive comments provided during the review.

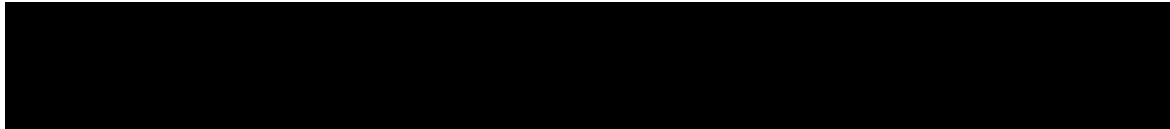
The DQC review was conducted as defined in the project’s Review Plan to comply with the requirements of EC 1165-2-214 (Civil Works Review, 15 December 2012). The DQC review, verified that the report used justified and valid assumptions and is in compliance with established policy principles and procedures. 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. All comments resulting from the DQC Review have been resolved and

closed.

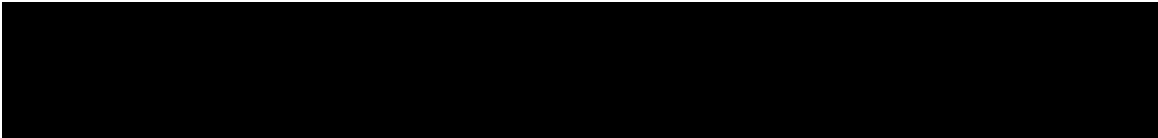


\_\_\_\_\_ Date

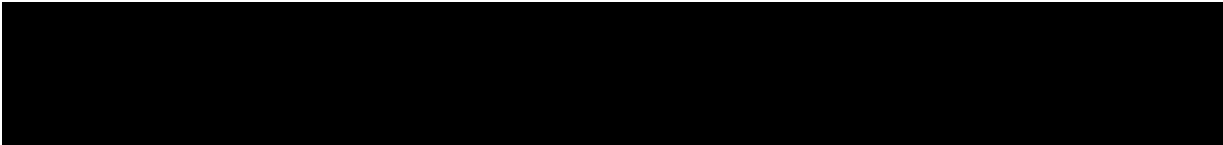
Project Manager CELRB-PM-PM



Planning Management Team CELRB-PM-PA  
District Quality Control Review Lead  
Programs and Project Management Division



Chief, Design Branch CELRB-TD-D  
Continuing Authorities Program Advocate  
Technical Services Division



Chief, Planning Branch CELRB-PM-PL  
Continuing Authorities Program Advocate  
Programs and Project Management Division

**DECISION DOCUMENT REVIEW PLAN  
USING THE PROGRAMMATIC REVIEW PLAN MODEL  
for  
Continuing Authorities Program  
Section 14, 107, 111, 204, 206, 208 and 1135 Projects**

Section 206 Arcola Creek, Madison, Ohio  
Feasibility Report

Buffalo District

**Last Revision Date: December 9, 2015**



**US Army Corps  
of Engineers®**

**DECISION DOCUMENT REVIEW PLAN  
USING THE PROGRAMMATIC REVIEW PLAN MODEL**

Section 206 Arcola Creek, Madison, Ohio  
Feasibility Report

**TABLE OF CONTENTS**

**Contents**

1. PURPOSE AND REQUIREMENTS .....	1
2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION .....	2
3. STUDY INFORMATION.....	3
4. DISTRICT QUALITY CONTROL (DQC) .....	6
5. AGENCY TECHNICAL REVIEW (ATR) .....	7
6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR) .....	9
7. POLICY AND LEGAL COMPLIANCE REVIEW .....	10
8. COST ENGINEERING DIRECTORY OF EXPERTISE (DX) REVIEW AND CERTIFICATION	10
9. MODEL CERTIFICATION AND APPROVAL.....	11
10. REVIEW SCHEDULES AND COSTS .....	12
11. PUBLIC PARTICIPATION .....	13
12. REVIEW PLAN APPROVAL AND UPDATES .....	13
13. REVIEW PLAN POINTS OF CONTACT .....	14
ATTACHMENT 1: TEAM ROSTERS.....	15
ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS.....	16
ATTACHMENT 3: REVIEW PLAN REVISIONS .....	17
ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS .....	18

## 1. PURPOSE AND REQUIREMENTS

### a. Purpose

This Review Plan defines the scope and level of peer review for the **Section 206 Arcola Creek** Feasibility Study. The project is located in the Arcola Creek watershed (HUC 0411000302) which drains approximately 25.5 square miles in Lake and Ashtabula Counties, Ohio. The main stem of Arcola Creek begins in the southwest corner of Lake County, flowing northeastward where it transitions to the east, before turning sharply northward and discharging into Lake Erie at the Arcola Creek Estuary. The estuary is located approximately 12 miles west of Ashtabula Harbor, Ohio and 16 miles east of Fairport Harbor, Ohio. A number of tributaries flow into the main stem of Arcola Creek. The majority of these tributaries are located in Lake County, in the vicinity of Madison, Ohio.

Section 206 of the Water Resources Development Act of 1996, Public Law 104-305, authorizes the Secretary of the Army to carry out a program of aquatic ecosystem restoration with the objective of restoring degraded ecosystem structure, function, and dynamic processes to a less degraded, more natural condition considering the ecosystem's natural integrity, productivity, stability and biological diversity. This authority is primarily used for manipulation of the hydrology in and along bodies of water, including wetlands and riparian areas. This authority also allows for dam removal. It is a Continuing Authorities Program (CAP) which focuses on water resource related projects of relatively smaller scope, cost and complexity. Traditional USACE civil works projects are of wider scope and complexity and are specifically authorized by Congress. The Continuing Authorities Program is a delegated authority to plan, design, and construct certain types of water resource and environmental restoration projects without specific Congressional authorization.

### b. Applicability

This review plan is based on the model Programmatic Review Plan for Section 14, 107, 111, 204, 206, 208 and 1135 project decision documents, which is applicable to projects that do not require Independent External Peer Review (IEPR), as defined in ER 1165-2-214 Civil Works Review Policy. A Section 14, 107, 111, 204, 206, 208 and 1135 project does not require IEPR if ALL of the following specific criteria are met:

- The project does not involve a significant threat to human life/safety assurance;
- The total project cost is less than \$45 million;
- There is no request by the Governor of an affected state for a peer review by independent experts;
- The project does not require an Environmental Impact Statement (EIS),
- The project/study is not likely to involve significant public dispute as to the size, nature, or effects of the project;
- The project/study is not likely to involve significant public dispute as to the economic or environmental cost or benefit of the project;
- The information in the decision document or anticipated project design is not likely to be based on novel methods, involve the use of innovative materials or techniques, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices;
- The project design is not anticipated to require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design construction schedule; and

- There are no other circumstances where the Chief of Engineers or Director of Civil Works determines Type I IEPR is warranted.

If any of the above criteria are not met, the model Programmatic Review Plan is not applicable and a study specific review plan must be prepared by the home district, coordinated with the appropriate Planning Center of Expertise (PCX) and approved by the home Major Subordinate Command (MSC) in accordance with EC 1165-2-214.

Applicability of the model Programmatic Review Plan for a specific project is determined by the home MSC. If the MSC determines that the model plan is applicable for a specific study, the MSC Commander may approve the plan (including exclusion from IEPR) without additional coordination with a PCX or Headquarters, USACE. The initial decision as to the applicability of the model plan should be made no later than the Federal Interest Determination (FID) milestone (as defined in Appendix F of ER 1105-2-100, F-10.e.1) during the feasibility phase of the project. A review plan for the project will subsequently be developed and approved prior to execution of the Feasibility Cost Sharing Agreement (FCSA) for the study. In addition, per EC 1165-2-214, the home district and MSC should assess at the Alternatives Formulation Briefing (AFB) whether the initial decision on Type I IEPR is still valid based on new information. If the decision on Type I IEPR has changed, the District and MSC should begin coordination with the appropriate PCX immediately.

This review plan does not cover implementation products. A review plan for the design and implementation phase of the project will be developed prior to approval of the final decision document in accordance with EC 1165-2-214.

#### **c. References**

- (1) Engineering Circular (EC) 1165-2-214, Civil Works Review, 31 Jan 2010
- (2) Director of Civil Works' Policy Memorandum #1, Continuing Authorities Program Planning Process Improvements, 19 Jan 2011
- (3) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011
- (4) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
- (5) ER 1105-2-100, Planning Guidance Notebook, Appendix F, Continuing Authorities Program, Amendment #2, 31 Jan 2007
- (6) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
- (7) LRD Regional Business Process Manual – QC/QA Procedures for Study/ Design Phase

#### **d. 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 the peer review effort described in this Review Plan is the Ecosystem Restoration Planning Center of Expertise ECO-PCX. The ECO-PCX point of contact is [REDACTED]

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 Section 206 Arcola Creek Feasibility Study, located in Lake County OH, is authorized by Section 206 of the Water Resources Development Act, as amended by Section 210 of the Water Resources Development Act of 1999 and Section 2020 of the Water Resources Development Act of 2007. The decision document will be a Detailed Project Report (DPR) and associated Environmental Assessment (EA). The purpose of the decision document is to identify the tasks, schedule, costs, and responsibility required to implement measures to restore aquatic habitat and restore water quality to the Arcola Creek watershed. Assuming a project can be developed that meets the Federal interest for National Ecosystem Restoration and a non-Federal sponsor is willing and capable of sponsoring the project. The Detailed Project Report along with accompanying documents will be ultimately approved by the Great Lakes and Ohio Rivers Division (LRD) Commander.

#### **b. Study/Project Description**

A Feasibility Cost Sharing Agreement (FCSA) is required for the Arcola Creek Section 206 Aquatic Ecosystem Restoration Project. Formal assurance of local cooperation must be furnished by a local sponsoring agency which will be Lake County for this project. Section 206 projects start with the Feasibility Phase which results in a feasibility report. Initially the feasibility phase is funded 100% with Federal funds up to a limit of \$100,000. Feasibility phase costs above \$100,000 are cost-shared 50% Federal and 50% non-Federal. A FCSA will be obtained with Lake County prior to the project entering the Feasibility Phase.

After approval of the feasibility report, the project enters the Design and Implementation Phase. Costs of the Design and Implementation Phase will be shared 65% Federal and 35% non-Federal with the non-Federal sponsor given credit for lands, easements, rights of way and relocations and other eligible costs. After completion of the project any costs associated with operation, maintenance, repair, rehabilitation, and replacement of the project in the future is at 100% non-Federal cost.

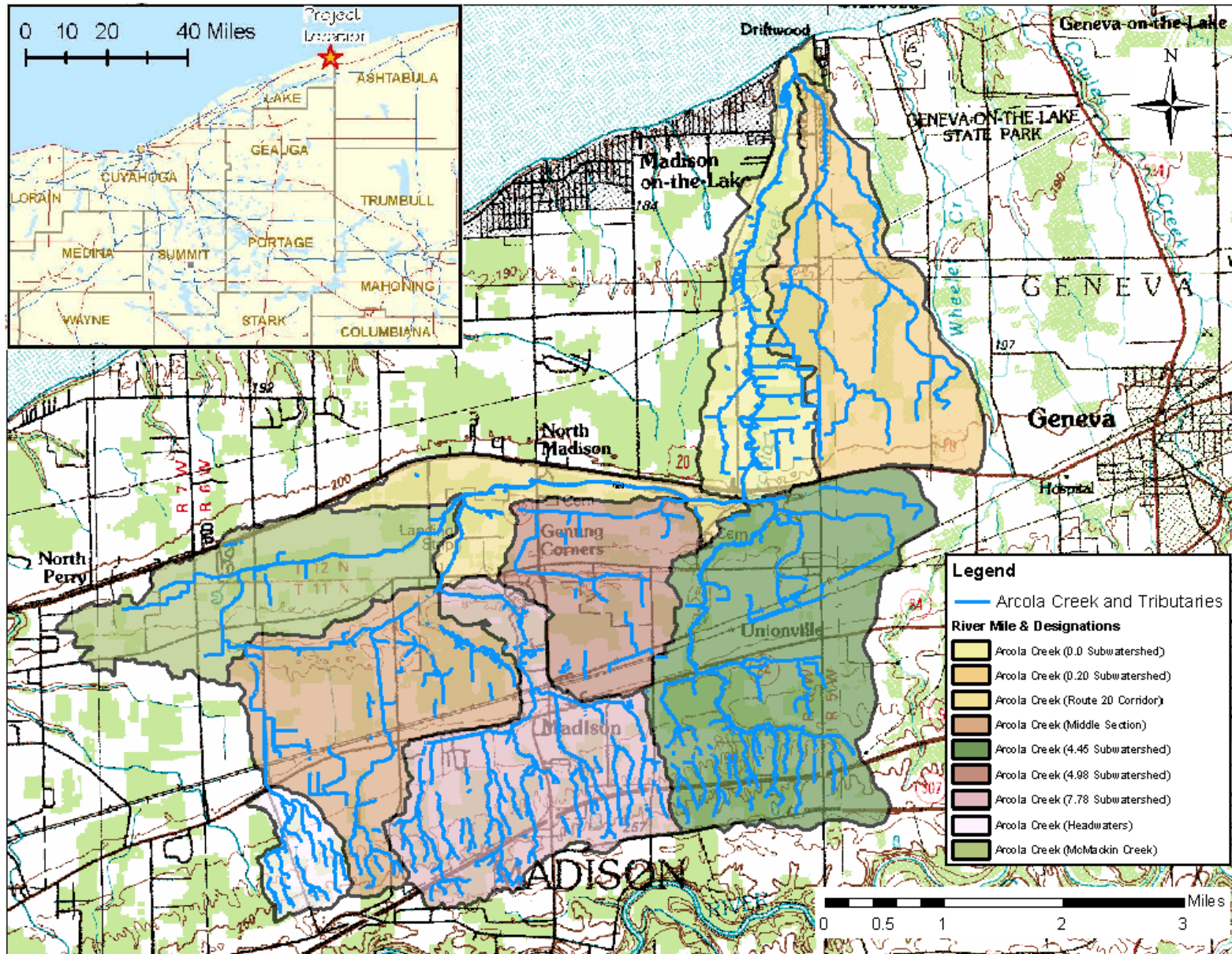
The objective of the project will be to facilitate restoration of the Arcola Creek Watershed in Lake County, Ohio. The project is expected to investigate and address one or more of the following ecological problems and needs in the Arcola Creek Watershed: 1) restore stream form and natural habitat, 2) restore the native emergent wetland ecosystem of the Arcola Creek Estuary, 3) increase water quantity and water quality within the Arcola Creek watershed, and 4) increase the habitat available to migrating fish for spawning. Arcola Creek is a major tributary of Lake Erie in Lake County, Ohio. The Arcola Creek estuary is one of two remaining undeveloped freshwater estuaries along the Lake Ontario shoreline.



Arcola Creek has numerous impairments to its natural characteristics. Stream habitat within Arcola Creek has become severely degraded through channelization, siltation, bank erosion and human modification. Stream channelization has effectively removed in-stream habitat and river morphology from significant reaches of the stream, and riparian habitat is minimal over large stretches of the stream. In addition, area nurseries draw water from Arcola Creek for irrigation during summer months or periods of low flow. This has resulted in sections of the stream running completely dry, causing most of the existing aquatic habitat to be destroyed in these areas. In addition, the combination of low stream flows and low Lake Erie water levels has caused a significant decrease in water levels in the Arcola Creek Estuary, resulting in a reduction of the available aquatic habitat. Spawning of fish from Lake Erie is also limited as a result of the creek flowing into round culverts which are present throughout the watershed. All these impairments mentioned above are aggravated by nutrient loadings, oxygen depletion, siltation, and bank erosion at various locations throughout the watershed.

This study will address restoring degraded riverine habitat within Arcola Creek and its tributaries located within the Arcola Creek watershed. Several alternative plans and measures will be considered to address these watershed impairments. The project may incorporate the installation of regional storm water retention facilities which would feed into Arcola Creek and augment flows in the stream during periods of low precipitation. A weir may be installed near the mouth of the creek to maintain water levels within the estuary. Other measures to restore native riparian corridors along the stream by planting trees and shrubs native to the area will be explored. Furthermore, a plan to replace existing round culverts with box culverts to enhance fish migration during spawning season will also be evaluated. The following figure presents the project area map for Arcola Creek and its tributaries which have been divided into 9 sub-watersheds.

# ARCOLA CREEK PROJECT AREA MAP



### **c. Factors Affecting the Scope and Level of Review**

**Challenges:** The measures involved in restoring and protecting the river are not expected to generate significant technical, institutional, or social challenges. The Buffalo District has in-house expertise in evaluating, designing and constructing measures which will be considered for this project.

**Project Risks:** The major risk is that environmental outputs may not be achieved to the extent desired. Following construction, areas disturbed by construction activities are at an elevated risk of invasive species establishment. In addition, unfavorable weather or physical conditions may cause plant mortality to be greater than expected, thus limiting the establishment of native cover types. An adaptive management plan will be developed and implemented as a method to mitigate invasive species establishment, plant mortality, and other unforeseen ecological challenges.

**Life Safety:** The project will neither be justified by life safety nor will involve significant threat to human life/safety assurance. There is no reason to believe that any measures involved in the project are associated with a significant threat to human life.

**Governor Request for Peer Review:** The Governor **has not** requested peer review by independent experts.

**Public Dispute:** The project/study is not anticipated to be controversial nor result in significant public dispute as to the size, nature, or effects of the project or to the economic or environmental costs or benefits of the project.

**Project Design/Construction:** The anticipated project design will take advantage of prevailing practices and methodologies. It is not expected to be based on novel methods or involve the use of innovative techniques, or present complex challenges for interpretation. It is also not anticipated that the project will require unique construction sequencing or redundancy.

### **d. In-Kind Contributions**

Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. Any such products and analyses will be outlined in the Feasibility Cost Share Agreement (FCSA).

## **4. DISTRICT QUALITY CONTROL (DQC)**

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

### **a. Documentation of DQC**

District Quality Control will be completed following the guidelines set forth in Section 7.2 District Quality Control (DQC) and Agency Technical Review (ATR) of the 14 February 2011 CELRD Quality Management System (QMS) Document ID: 4921: QC / QA Procedures for Civil Works.

Following the completion of the DQC review by the PDT members and their respective counterparts as necessary, the PDT will sign a certification sheet documenting DQC. The Chief of Planning will also sign a certification sheet documenting that District Quality Control has been completed.

**b. Products to Undergo DQC.**

- (1) Review Plan
- (2) Alternative Formulation Briefing Documentation
- (3) Draft Feasibility Study Report and Draft Environmental Assessment Documentation
- (4) Final Feasibility Study Report and Final Environmental Assessment Documentation

**c. Required DQC Expertise**

Additional DQC of all products will be accomplished by senior (GS-12 or above) staff not directly involved in preparation of the products from the following disciplines:

- (1) Planning
- (2) Programs and Project Management
- (3) Project Management
- (4) Economics
- (5) Hydraulics and Hydrology Engineering
- (6) Geotechnical/Design
- (7) Cost Engineering
- (8) Environmental
- (9) Office of Counsel
- (10) Real Estate

**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**

Supporting analysis and documents, including but not limited to the following will also be subject to Agency Technical Review:

- (1) Cost estimates
- (2) Geotechnical analysis
- (3) Environmental Outputs
- (4) Supporting environmental analysis (cultural resources, resource inventories, etc.)
- (5) Real estate plan

Supporting Analysis and Documents provided as work in-kind will also be subject to Agency Technical Review.

**b. Required ATR Team Expertise.**

The expertise/disciplines represented on the ATR team should reflect the significant disciplines involved in the planning effort. The PDT has determined that the expertise needed for review shall include Environmental Planning and Analysis, Inland Navigation & Economics, Coastal Engineering, Geotechnical Engineering, and Real Estate .The roster of the ATR and the expertise required is outlined in the table that follows.

<b>Name</b>	<b>Organization</b>	<b>Discipline</b>	<b>Expertise Required</b>
[REDACTED]	CENWS	ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR's. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process.
[REDACTED]	CENWS	Environmental Analysis	Team member will be experienced in the NEPA process and analysis, and have a biological or environmental background that is familiar with the project area and ecosystem restoration. Team member should be familiar lighthouse or other significant cultural/historic resource shoreline protection project. Should also be familiar with models used for assessing ecological outputs.
[REDACTED]	CELRC-PM-PL-E	Planning	The Planning reviewer should be a senior water resources planner with experience in the formulation of Ecosystem Restoration Projects, specifically in urban areas.
[REDACTED]	CELRH-EC-DC	Civil	Team member will be experienced in the design and construction of CAP ecosystem restoration projects.
[REDACTED] or alternate	CENWW	Cost Engineering DX	Team member will be experienced in design and construction Ecosystem Restoration projects. In addition the Team member will be familiar cost estimating for similar civil works projects using MCACES.
[REDACTED]	CENWS	Hydrology & Hydraulics	Urban stream restoration. HEC-RAS experience.
[REDACTED]	CELRN-RE	Real Estate	Team member will be experienced with lands, easements, rights-of-way, relocation, and disposal real estate processes.

**c. Documentation of ATR**

DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. The four key parts of a quality review comment will normally include:

- (1) The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
- (2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not be properly followed;
- (3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost),

- effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
- (4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

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

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

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

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

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Technical Review should be completed, based on work reviewed to date, for the 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 1165-2-214, 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), is managed outside the USACE and 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.** The Director of Civil Works' Policy Memorandum #1, SUBJECT: Continuing Authority Program Planning Process Improvements, states that "Section 206 project decision documents, implementation documents and other CAP products do NOT typically require Type I IEPR, as defined in EC 1165-2-214 Civil Works Review". In addition "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". Therefore the Arcola Creek proposed study will not require a Type I or Type II IEPR. The project study does not pose a significant threat to human life; the estimated total cost of the project is less than \$45 million; the governor of the State has not requested a peer review by independent experts; and the DCW or the Chief of Engineers has not determined the project study to be controversial in nature or to result in significant public dispute over either the size, nature, or effects of the project or the economic or environmental costs or benefits of the project.

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

## **7. POLICY AND LEGAL COMPLIANCE REVIEW**

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

## **8. COST ENGINEERING 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**

The approval of planning models under EC 1105-2-412 is not required for CAP projects. MSC Commanders are responsible for assuring 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. Therefore, the use of a certified/approved planning model is highly recommended and should be used whenever appropriate. Planning models 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 selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC and ATR.

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 and ATR.

**a. Planning Models**

The following planning models are anticipated to be used in the development of the decision document:

<b>Model Name and Version</b>	<b>Brief Description of the Model and How It Will Be Applied in the Study</b>	<b>Certification / Approval Status</b>
IWR-PLAN	The Institute for Water Resources Planning Suite (IWR-PLAN) is a decision support software package that is designed to assist with the formulation and comparison of alternative plans. While IWR-PLAN was initially developed to assist with environmental restoration and watershed planning studies, the program can be useful in planning studies addressing a wide variety of problems. IWRPLAN can assist with plan formulation by combining solutions to planning problems and calculating the additive effects of each combination, or "plan." IWR-PLAN can assist with plan comparison by conducting cost effectiveness and incremental cost analyses, identifying the plans which are the best financial investments and displaying the effects of each on a range of decision variables. The ecological habitat units calculated using the Habitat Evaluation Process will be used as inputs in IWR-PLAN to evaluate the effects alternatives.	<b>Certified</b>
HEC-RAS	The Hydrologic Engineering Center’s River Analysis System (HEC-RAS) program provides the capability to perform one-dimensional steady and unsteady flow river hydraulics calculations. It was used in this study to determine: 1) baseline and with project conditions for developing and evaluating restoration alternatives; 2) if the recommended plan would impact base flood elevations; and 3) ecosystem connectivity of existing and	<b>Certified</b>



	recommended plan during low flows.	
HEP	The Habitat Evaluation Process (HEP) is a habitat based approach for assessing environmental impacts of proposed water and land resource development projects. The method can be used to document the quality and quantity of available habitat for selected wildlife species. The procedure provides information for two general types of wildlife habitat comparisons: the relative value of different areas at the same point in time; and the relative value of the same areas at future points in time. By combining the two types of comparisons, the impact of proposed or anticipated land and water use changes on wildlife habitat can be quantified. Per the certified HEP models developed by the USFWS, specific cover types for each species as well as minimum habitat requirements are included in the model description. The Project Area was evaluated in order to determine if the minimum habitat requirements are present and if the specific cover types for each species are also present. The potential for achieving the desired cover type and minimum habitat area through restoration activities was also evaluated. Appendix E documents the results of the HEP analysis.	Certified
HSI	A Habitat Suitability Index is a numerical index that represents the capacity of a given habitat to support a selected species. These models are based on hypothesized species-habitat relationships rather than statements of proven cause and effect relationships. HSI model results represent the interactions of the habitat characteristics and how each habitat relates to a given species. Species Indices from USFWS blue book do not require a separate USACE approval. The following HSIs will be used for this study: yellow warbler, great blue heron, hairy woodpecker, beaver, marsh wren and muskrat.	Certified
QHEI	The Qualitative Habitat Evaluation Index gives an estimate of the suitability of a stream segment to meet warmwater habitat for aquatic organisms. Segment boundaries were established in the field by using bridges that traverse the river or if a change in the vegetative character of the riparian zone was observed.	Certified

**b. Engineering Models**

The following engineering models are anticipated to be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
MII	Microcomputer-Aided Cost Estimation System; Used to generate detailed cost estimates for each alternatives.	Approved

**10. REVIEW SCHEDULES AND COSTS**

**a. ATR Schedule and Cost**

The following contains the initial estimates for the ATR schedule and cost as determined by the ATR Team Lead and ATR Team.

ATR Schedule:

Task	Schedule	
Kickoff meeting	Day 1	02 FEB 17
ATR Comment period begins	Day 1	02 FEB 17
ATRT Comments due in DrChecks	Day 14	21 FEB 17

by		
PDT Evaluations due by	Day 28	13 MAR 17
ATRT Back check by	Day 42	31 MAR 17
ATR Review Report sent to LRB by	Day 64	20 APR 17

ATR Cost

- a) ATR Lead - [REDACTED]
- b) Plan Formulation/Environmental Specialist - [REDACTED]
- c) Real Estate Specialist - [REDACTED]
- d) Civil Engineer with Geotech and Design experience - [REDACTED]
- e) Hydraulic / Hydrologic Engineer - [REDACTED]
- f) Cost Estimator - [REDACTED]

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

**a. Model Certification/Approval Schedule and Cost**

For decision documents prepared under the model Programmatic Review Plan, use of existing certified or approved planning models is encouraged. Where uncertified or unapproved models are used, review of the model for use will be accomplished through the ATR process. The ATR team should apply the principles of EC 1105-2-412 during the ATR to ensure the model is theoretically and computationally sound, consistent with USACE policies, and adequately documented. If specific uncertified models are identified for repetitive use within a specific district or region, the appropriate PCX, MSC(s), and home District(s) will identify a unified approach to seek certification of these models.

**11. PUBLIC PARTICIPATION**

A stakeholders meeting with Lake County will take place where a briefing of USACE Section 206 authority, the planning process, and discuss requirements for the FCSA will be discussed. It is anticipated that as part of the completion of NEPA documentation, additional Public Involvement opportunities will be provided and will be documented in the Environmental Assessment (EA). Additional stakeholder meeting to present the recommended plan will occur after completion of the AFB.

**12. REVIEW PLAN APPROVAL AND UPDATES**

The home MSC Commander is responsible for approving this review plan and ensuring that use of the Model Programmatic Review Plan is appropriate for the specific project covered by the plan. 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. In the event that minor updates or changes to the review plan are required to the review plan, they will be 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. Significant changes may result in the MSC Commander determining that use of the Model Programmatic Review Plan is no longer appropriate. In these cases, a project specific review plan will be prepared and approved in accordance with EC 1165-2-214 and Director of Civil Works’ Policy Memorandum #1. The latest version of the review plan, along with the Commanders’ approval memorandum, will be posted on the home district’s webpage.

**13. REVIEW PLAN POINTS OF CONTACT**

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

**USACE Buffalo District (LRB) Points of Contact**

- [Redacted] Project Manager [Redacted]
- [Redacted], Project Planner [Redacted]

**Great Lakes and Ohio River Division Points of Contact**

- [Redacted]
- [Redacted]
- [Redacted]

**Review Management Organization Points of Contact**

- [Redacted]
- [Redacted]

**ATTACHMENT 1: TEAM ROSTERS**

**Project Development Team**

Name	Function	Organization	Phone	Email
[REDACTED]	Project Manager	USACE-Buffalo	[REDACTED]	[REDACTED]
[REDACTED]	Plan Formulator	USACE-Buffalo	[REDACTED]	[REDACTED]
[REDACTED]	Environmental Analysis	USACE-Buffalo	[REDACTED]	[REDACTED]
[REDACTED]	Civil Engineering	USACE-Buffalo	[REDACTED]	[REDACTED]
[REDACTED]	H&H	USACE-Buffalo	[REDACTED]	[REDACTED]
[REDACTED]	Real Estate	USACE-Buffalo	[REDACTED]	[REDACTED]
[REDACTED]	Safety/Occupational Health	USACE-Buffalo	[REDACTED]	[REDACTED]
[REDACTED]	Legal Counsel	USACE-Buffalo	[REDACTED]	[REDACTED]
[REDACTED]	Outreach Coordinator	USACE-Buffalo	[REDACTED]	[REDACTED]
[REDACTED]	Cost Engineering	USACE-Buffalo	[REDACTED]	[REDACTED]
[REDACTED]	Value Engineering Officer	USACE-Buffalo	[REDACTED]	[REDACTED]
[REDACTED]	Geotechnical Engineer	USACE-Buffalo	[REDACTED]	[REDACTED]

**ATR TEAM**

Name,	Organization	Contact Information	Discipline
[REDACTED]	CENWS-PM-ER	[REDACTED]	ATR Lead
[REDACTED]	CENWS-EN-HH-HE	[REDACTED]	Hydraulics/Hydrology
[REDACTED]	CELRC-PM-PL-E	[REDACTED]	Planning
[REDACTED]	CELRH-EC-DC	[REDACTED]	Civil
[REDACTED]	CENWS-PM-ER	[REDACTED]	Env. Analysis
[REDACTED]	CENWW-EC-X	[REDACTED]	Cost Engineering
[REDACTED]	CELRN-RE	[REDACTED]	Real Estate

**VERTICAL TEAM**

Name	Location	Phone	Email
[REDACTED]	ECO-PCX	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	LRDOR	[REDACTED]	[REDACTED]

**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 Feasibility study for Arcola Creek project located in Lake County, OH. 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 DrChecks<sup>sm</sup>.

\_\_\_\_\_  
[Redacted]  
ATR Team Leader  
CENWS-PM-ER

\_\_\_\_\_  
[Redacted]

\_\_\_\_\_  
[Redacted]  
Project Manager  
CELRB-PM-PM

\_\_\_\_\_  
Date

\_\_\_\_\_  
[Redacted]  
Review Management Organization Representative  
CELRD

\_\_\_\_\_  
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.

\_\_\_\_\_  
[Redacted]  
Chief, Engineering Division  
CELRB-TD-D

\_\_\_\_\_  
[Redacted]

\_\_\_\_\_  
[Redacted]  
Chief, Planning Division  
CELRB-PM-PO

\_\_\_\_\_  
[Redacted]

**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