Review Plan Engineering and Design Products
Upper Des Plaines River and Tributaries
Phase II – AER
Chicago District

Current Version Date: 11 Dec 2023
Mandatory Update: 11 Dec 2026

1. PURPOSE AND REFERENCES

a. Purpose. This review plan defines levels and scopes of review required for the engineering and design (E&D) products for the Upper Des Plaines River and Tributaries Phase II AER Project.

b. References.

(1) Engineering Regulation (ER) 415-1-11, Biddability, Constructability, Operability, Environmental and Sustainability (BCOES) Reviews, 1 January 2013
(2) Engineering Regulation (ER) 1165-2-217, Civil Works Review Policy, 01 May 2021
(3) Qualtrax 08504 LRD, Supplemental Quality Procedures for Civil Works (CW) Engineering and Design (E&D) Products
(4) ER 1110-1-8159, Engineering and Design, DrChecks^{sm}, 10 May 2011
(5) ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 August 1999
(6) Project Management Plan (PMP)

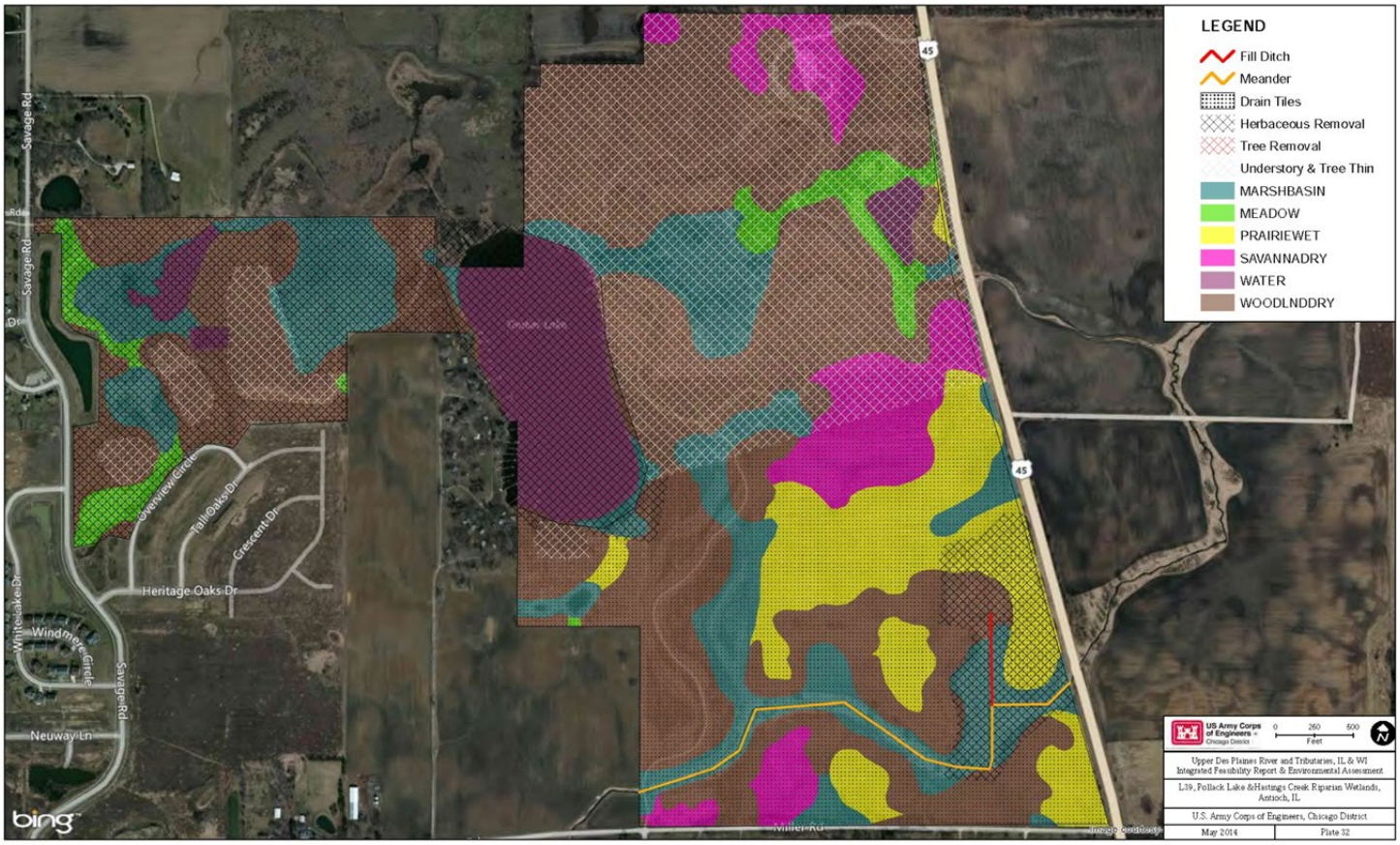
2. REVIEW MANAGEMENT ORGANIZATION (RMO)

The RMO for this project is the MSC (Great Lakes and Ohio River Division).

3. PROJECT SCOPE AND PRODUCTS

Project Description and Scope of Work: The Upper Des Plaines and Tributaries Phase II AER project is an aquatic ecosystem restoration project located in Antioch Township, Lake County, IL. This portion of the project will focus on drain tile disablement and aquatic habitat restoration at the Pollack Lake and Hastings Creek (Raven Glen) forest preserve area. Specifically, 429 acres of marsh, meadow, wet prairie, savanna, woodland, and open water habitat would be restored. Further, a drainage ditch will be filled, we will re-meander the channelized stream in the southern portion of the project area, and non-native and invasive species will be removed to ensure native species establishment. The plans and specifications will be developed by an A-E and include 30%, 60%, and 90% design. Standard review practices (i.e., DQC, ATR, BCOES) will occur at each design stage.

Table 1. Project Summary	
Project Type:	Ecosystem Restoration
Locations:	Antioch Township, Lake County, IL
Purpose/Function:	AER
Key Physical Components:	Drain tile disablement, restoration of aquatic habitats
Estimated Construction Cost:	$6.26M (FS Estimate)
E&D Product Method Delivery:	A-E Design
Construction Delivery Method:	Invitation for Bid (IFB)



a. Products. The E&D products to be reviewed include the following:
(1) A-E Contract Scope of work
(2) A-E Quality Control Plan
(3) A-E Design Documentation Report (DDR)
(4) A-E Plans and Specifications (P&S)
(5) A-E Engineering Considerations and Instructions for Field Personnel (ECIFP)
(6) Engineering during Construction Products

4. DOCUMENTATION OF RISKS AND ISSUES

a. Life Safety Assessment: The District Chief of Engineering has reviewed the project requirements and determined there is not a significant threat to human life if the project were to fail.

b. Technical Complexities and Risks. The project delivery team (PDT) has completed a risk assessment for the project, including technical, construction and operations activities and identified the following key technical complexities and risks. Quality reviews will be focused to manage these risks:

(1) Native Plant Establishment: Native plants will be re-established on the project site. There is a risk that native plantings may not initially establish due to unpredictable events, such as extreme weather and predation from herbivorous animals and insects. The execution of the native plant establishment design and installation would mitigate potential adverse conditions. In addition, warranties required by the contract and adaptive management options placed in the contract will provide the means of replanting over the 5-year construction period, should the need arise.

(2) Hydraulic modeling will be required to ensure the changes to the creek will not cause water to back up and cause impacts to neighboring properties.

5. REVIEW EXECUTION

a. Project Delivery Team (PDT): USACE PDT members are listed in Attachment 1. PDT members will work collaboratively with the A-E and review team members to ensure effective execution of quality reviews. The Ecologist/Botanist from the USACE PDT will be an integral part of the AE's design team, providing all technical requirements and specifications for Prescription Burning, Chemical Vegetation Control, Native Plans, Establishment of Plants, Tree Clearing and Removal, and specifications for Stream restoration, along with native plant lists and quantities.

b. A-E Quality Reviews: Per Section 9.2 of ER 1165-2-217 the A-E shall perform appropriate quality reviews and submit records of completion to the District. Quality reviews shall include those for quality control (QC) and independent technical review (ITR). For QC reviews, the A-E shall follow procedures described for DQC in Chapter 4 of ER 1165-2-217. The A-E shall also perform ITR for its products in accordance with the District's quality management plan (QMP). The ITR team shall consist of senior qualified experts not involved directly in the development of scope of work deliverables. The A-E shall submit a quality control plan (QCP) covering its QC and ITR procedures. The QCP shall identify the ITR team members by name, discipline, and qualifications in the QCP. The A-E quality review procedures shall also comply with associated contract requirements. The A-E shall submit the QCP to the District for review and approval.

c. District Quality Assurance (DQA): Per Section 8.2.1 of ER 1165-2-217, DQA will be performed by the District QA team listed in Attachment 1.

d. Biddability, Constructability, Operability, Environmental, Sustainability (BCOES): BCOES reviews are required for all products. Follow BCOES review procedures in ER 415-1-11 and District local work instructions. The Engineering Technical Lead and DQA Lead will collaborate to oversee and ensure effective BCOES execution.

e. Agency Technical Review (ATR): ATR is required for all products and will follow ATR procedures in Chapter 5 of ER 1165-2-217. ATR will address the technical risks described in sub-section 4.b. Required senior technical disciplines and expertise needed for ATR are shown in Table 2. Assigned ATR team members are listed in Attachment 1. ATR members in engineering disciplines are verified as certified in the Corps of Engineers Review and Certification Access Program (CERCAP) [Command Training Plan & CERCAP Tool (CTP) - PROD v2.5.2 - Home (army.mil)]. PDT and review team leaders will collaborate to oversee and ensure effective execution.

Table 2. ATR Technical Discipline(s) and Required Expertise

Technical Discipline	Expertise Required
Hydraulic Engineer / ATR Leader	H&H ATR team member shall be a senior level, registered professional engineer, with experience in hydraulic design for ecosystem restoration projects. CERCAP Certified Level 1. The ATR lead shall be a senior level engineer, with experience in review management processes and project coordination.
Biologist	Biologist ATR team member shall be a senior level, registered professional engineer with experience in aquatic ecological restoration design and analysis.

f. Safety Assurance Review (SAR): By signature on this document the District Chief of Engineering confirms she has determined that the project does not have life safety concerns and performance of a Safety Assurance Review (SAR) is will not benefit the project.

g. Review Charge. Reviewers will refer to and perform ATR per Section 5.7 of ER 1165-2-217, Objectives, Scope, and Review Criteria. Reviews shall check to confirm the design addresses the technical complexities and risks described in paragraph 4.b.

6. REVIEW SCHEDULE AND BUDGETS. The schedule and budgets for reviews are shown in Table 3. BCOES reviews will be performed concurrently with ATR review periods.

Table 3. Review Schedule and Budgets

Review	Start Date	Finish Date	Tentative Budget ($)
30% DQA Review	March 4, 2024	March 26, 2024	$5,000
30% BCOES Review	March 27, 2024	April 18, 2024	$5,000
60% DQA Review	June 12, 2024	July 8, 2024	$5,000
60% BCOES/ATR Review	July 9, 2024	July 31, 2024	$10,000
90% DQA Review	September 16, 2024	October 8, 2024	$5,000
90% BCOES/ATR Review	October 9, 2024	November 1, 2024	$12,000
100% Backcheck	November 4, 2024	November 12, 2024	$5,000

7. REVIEW DOCUMENTATION. The ATR leader will prepare an ATR report per Section 5.10 of ER 1165-2-217. The ATR report with certification form will be provided to the approval signatories, including the RMO representative. Review documents will be stored with the official project records.

8. REVIEW PLAN POINTS OF CONTACT. Questions and comments relating to this review plan can be directed to the following points of contact:

a. District Project Leaders

a. Project Manager:

b. Technical Lead:

c. Management Organization (RMO) Representative:

9. APPROVAL SIGNATURE:

RECOMMEND FOR APPROVAL:	[redacted] Chief, Design Branch

DISTRICT APPROVAL:	[redacted] Chief, Engineering and Construction Division

ATTACHMENT 1 – TEAM MEMBERS

PROJECT DELIVERY TEAM		
Function/Discipline	Name (Last, First)	Office
Project Manager	[redacted]	[redacted]
Lead Planner/Botanist	[redacted]	[redacted]
Civil/Lead Engineer/COR	[redacted]	[redacted]
Biologist	[redacted]	[redacted]
Biologist	[redacted]	[redacted]
Dist. Value Officer	[redacted]	[redacted]
Realty Specialist	[redacted]	[redacted]
DQA REVIEWERS		
Function/Discipline	Name (Last, First)	Office
Environmental Engineering	[redacted]	[redacted]
Hydraulics	[redacted]	[redacted]
Civil *DQA Lead	[redacted]	[redacted]
Biologist	[redacted]	[redacted]
Fish Biologist	[redacted]	[redacted]
Real Estate	[redacted]	[redacted]
Geospatial	[redacted]	[redacted]
BCOES REVIEWERS		
Function/Discipline	Name (Last, First)	Office
Biddability	[redacted]	[redacted]
Constructability	[redacted]	[redacted]
Environmental	[redacted]	[redacted]
Safety	[redacted]	[redacted]
Legal	[redacted]	[redacted]
Real Estate	[redacted]	[redacted]
ATR REVIEWERS		
Function/Discipline	Name	Office
Hydraulic Engineer / ATR Leader	[redacted]	[redacted]
Biologist	[redacted]	[redacted]