

# DECISION DOCUMENT REVIEW PLAN

Ravine 10  
Great Lakes Fisheries and Ecosystem Restoration Section 506  
Chicago District

LRD Commander Approval Date: [12 March 2019](#)



US Army Corps  
of Engineers®

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# I. PURPOSE AND REQUIREMENTS

## A. Purpose

This Review Plan defines the scope and level of peer review for the Ravine 10, Section 506 of the Great Lakes Fishery and Ecosystem Restoration program project decision document.

Section 506 – Great Lakes Fishery and Ecosystem Restoration (GLFER) of the Water Resources Development Act of 2000, as amended, authorizes USACE to partner with non-Federal sponsors to plan, design, and construct projects to support the restoration of the fishery, ecosystem, and beneficial uses of the Great Lakes. It authorizes USACE to enter into a project specific cooperative agreement with the Great Lakes Commission or any other agency established to facilitate active State participation in management of the Great Lakes. Post-construction Monitoring and Adaptive Management Plans will be included in the recommended plan for each ecosystem restoration project (per Section 2039 of WRDA 2007). The GLFER is a delegated authority to plan, design, and construct certain types of aquatic ecosystem restoration projects without specific Congressional authorization.

## B. Applicability

This review plan is based on the LRD Continuing Authorities Program (CAP) Programmatic Review Plan Model, which includes the GLFER Section 506 and Lake Michigan Waterfront Section 125 programs. It also accounts for CAP Section 103 and Section 205 projects, which require case-by-case determination on the appropriateness of Type I Independent External Peer Review (IEPR). The LRD CAP Programmatic Review Plan Model **is not approved** for use on any CAP, GLFER or Lake Michigan Waterfront projects where:

- A significant threat to human life/safety assurance exists;
- Total Project Cost is likely to exceed the limits established for the applicable Section in law;
- The Governor of an affected state has requested a peer review by independent experts;
- An Environmental Impact Statement (EIS) is required;
- Significant public dispute is likely due to the size, nature, or effects of the project;
- Significant public dispute is likely due to the economic or environmental cost or benefit of the project;
- Complex challenges will likely require use of novel methods, innovative materials, new techniques, precedent-setting methods or models, or result in conclusions that are likely to change prevailing practices;
- Redundancy, resiliency, and/or robustness are required or unique construction sequencing, or a reduced or overlapping design construction schedule will likely be required; or
- The Chief of Engineers or Director of Civil Works is likely to determine Type I IEPR is warranted.

If any of the circumstances above exist on the subject project, the LRD CAP Programmatic Review Plan Model 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 LRD in accordance with EC 1165-2-217.

Applicability of the LRD CAP Programmatic Review Plan Model for a specific project is initially determined by the Chicago District and subsequently reviewed and approved by the LRD Commander. If

the LRD determines that the model plan is applicable for a specific study, the LRD 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 shall 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 1165-2-217, the home district and LRD shall assess at the MSC Decision Meeting (MDM) 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 LRD shall promptly begin coordination with the appropriate PCX.

After approval of the project decision document and prior to execution of a Project Partnership Agreement with the non-federal sponsor to implement the Section 506 Ravine 10 project, this review plan shall be updated and revised for the Implementation Phase by the Chicago District and subsequently reviewed by the LRD staff and approved by the LRD Commander. The revised and approved review plan shall specify the Design and Implementation phase products to be reviewed and the associated level of peer review of each, including the appropriateness of a Type II IEPR (Safety Assurance Review).

### **C. References**

- (1) Engineering Circular (EC) 1165-2-217, Civil Works Review, 15 Dec 2012
- (2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2010
- (3) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
- (4) ER 1105-2-100, Planning Guidance Notebook, Appendix F, Continuing Authorities Program, Amendment #2, 31 Jan 2007
- (5) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
- (6) LRD Continuing Authority Program Management Plan and Standard Operation Procedures, 1 Oct 2015
- (7) 06545 LRD – Continuing Authorities Program Management Plan and Standard Operating Procedures
- (8) 03504 LRC – Feasibility Phase Quality Control-Quality Assurance
- (9) 03504 LRD – Feasibility Phase – Civil Works Studies
- (10) 14610 LRD – Preparation and Approval of Civil Works Review Plans; and
- (11) MSC and District Quality Management System (QMS) Procedures

### **D. Requirements**

This review plan was developed from the LRD CAP Programmatic Review Plan Model. It was developed in accordance with Engineer Circular (EC) 1165-2-217 and 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 Major Subordinate Command (MSC) Policy and Legal Compliance Review. In addition to these levels of review, decision documents are subject to cost engineering review and certification

(per EC 1165-2-217). Additionally, it ensures that planning models and analysis are compliant with Corps policy, theoretically sound, computationally accurate, transparent, described to address any limitations of the model or its use, and documented in study reports (per EC 1105-2-412).

## II. REVIEW MANAGEMENT ORGANIZATION (RMO)

The Review Management Organization (RMO) is responsible for managing the overall peer review effort described in this review plan. The RMO for GLFER\_Section\_506 decision documents is typically LRD, because the LRD Commander is responsible for approving the Review Plan and the decision to implement projects under this authority. However, an appropriate National Planning Center of Expertise (PCX) may also serve as the RMO. Also, during the FID review and approval process, the home District may request LRD to delegate its RMO responsibility to the most appropriate PCX for any CAP project.

The information presented in Section 3 below provides the basis for the determination that LRD will serve as the RMO for the Feasibility Phase of the Section 506 Ravine 10 Project, but will delegate the selection and management of the ATR team to LRC.

## III. STUDY INFORMATION

### A. Decision Document

The Section 506 Ravine 10 study, Highland Park, IL decision document will be prepared in accordance with ER 1105-2-100, Appendix F. The preferred decision document format is contained in the Detailed Project Report (DPR) template in the LRD CAP Program Management Plan/Standard Operating Procedures, which integrates the environmental documentation required under NEPA and other relevant environmental statutes into the project decision document. The purpose of a DPR is to document the basis for a recommendation to invest Federal and non-Federal resources to address a local water resource problem or opportunity of significance to the Nation. The approval level of the decision document is the LRD Commander.

### B. Study/Project Description.

The study area is located in Highland Park, Lake County, Illinois, along the Lake Michigan coast. The study area core, Moraine Park, specifically resides west of Lake Michigan, east of Sheridan Road, south of Riparian Road and north of Maple Road. The study area also includes the stream channel upstream to Port Clinton Park and the riparian slopes within Port Clinton Park. Study area parcels are owned by the City of Highland Park, the Park District of Highland Park (PDHP), and the North Shore Water Reclamation District (NSWRD).

Specific water resource problems within the study area that suits Corps expertise and would require technical review include hydrology & hydraulics, cost estimating, plan formulation, NEPA and Real Estate. All other aspects of feasibility level analyses and restoration measures are straightforward earth moving and native plant cultivation.

Based on site qualitative and quantitative investigations and aside from the past hydrogeomorphic changes to the system, the main aquatic resource problems which the 506 Authority may take opportunity to address are:

- Absence of substrate sequestration, transport, and stream morphology development due to riprap degradation of the stream channel and floodplain
- Stream fragmentation by both structures and riprap paved stream channel
- Native ravine and bluff plant community suppression via shade, non-native species and lack of fire
- Low diversity of highly conservative plant species due to extirpation by previous bullet
- Lack of migratory bird forage plant species, and cover for shelter

Various alternatives would be assessed. They include but are not limited to removal of defunct structures and riprap-ruined substrates from stream channel and banks, bank grading, invasive plant species removal and native plant community establishment. USACE anticipates that total project costs including DPR, P&S, Construction, Monitoring, and LERRDs would be approximately \$3M.

No policy waiver requests are anticipated.

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

No significant project risks have been identified at this point. All aspects of the project have been completed for other projects in the past with minimal to no issues. The need for an EIS is not warranted at this time.

### **D. In-Kind Contributions.**

Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC and ATR, similar to any products developed by USACE.

There are no in-kind services anticipated at this time.

## **IV. 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 District and LRD QMS procedures. Attachment 1 lists the DQC team members according to each significant area of expertise needed to accomplish the feasibility study objectives.

### **A. Products to Undergo DQC.**

The entire Agency Technical Review package would be under review for District Quality Control. This includes: 1) Main Report (DPR), 2) NEPA & 404/401 Documentation, and 3) All Technical Appendices.

## **B. Required DQC Expertise.**

Required expertise for Ravine 10 should at minimum consist of one (1) Planning and (1) Engineering reviewer to ensure that the ATR package is consistent throughout, and overarching technical and policy aspects are sufficient to proceed to a more rigorous ATR review. DQC would also ensure reviews by Office of Council and Real Estate. DQC review members should be well versed in USACE requirements and policies for developing a Civil Works Feasibility Study under the Environmental Business Line (National Ecosystem Restoration (NER)).

## **C. Documentation of DQC.**

The DQC aspects will be documented electronically and filed at the following location: S:\LRC-Project\PRJ-506 Ravine 10\Administrative\Submittals\03\_DQC Review. Reviewers' comments, editorials, and suggestions will be documented within the feasibility documents themselves via saving tracked-changes versions and retaining emails or memos requiring or suggesting change. A DQC Tab will be added to the ATR Package and submitted.

## **V. 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 comprise senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside LRD. At a minimum, the name of the ATR lead will be provided at the time of initial decision document review plan submission. Remaining ATR team members will be selected and identified in a revised review plan (Attachment 1) once the study funds are obtained.

### **A. Products to Undergo ATR.**

ATR will be performed throughout the study in accordance with the regional QMS as found in Qualtrax. The ATR shall be documented and discussed at the MDM milestone. Certification of the ATR will be provided prior to the District Commander signing the final report. Products to undergo ATR include:

- Detailed Project Report & Integrated Environmental Assessment
- Appendix A – Civil Design Sheets
- Appendix B – Cost Engineering
- Appendix C – Real Estate Plan
- Appendix D – Geotechnical Analysis
- Appendix E – Hazardous, Toxic, and Radioactive Waste (HTRW) Report
- Appendix F – Monitoring & Adaptive Management Plan
- Appendix G – Planning Information
- Appendix H – 404(b)(1) Analysis
- Appendix I – H&H Analysis

All other supporting documentation will be provided to the ATR team to ensure their review includes all aspects of the project.

## B. Required ATR Team Expertise.

The Table below lists the technical disciplines and requisite expertise deemed appropriate to successful accomplishment of the subject feasibility study objectives. Geotech involvement will be minimal in this project and thus no geotech ATR team member is needed. No known HTRW issues exist within this project area as was the case in Ravine 8. If HTRW issues are found, appropriate ATR staff will be added. The selected ATR members are listed according to discipline in Attachment 1.

ATR Team Members/Disciplines	Expertise Required
ATR Lead/Planning/Environmental Resources	The ATR lead should be a senior professional preferably with experience in preparing CAP decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. For this study, the ATR lead will also serve as a reviewer for a specific discipline (such as planning, ecosystem valuation via certified models, NEPA, and other environmental resources as applicable). The ATR Lead will be from Rock Island District of the Mississippi Valley Division.
Cost Engineering	Cost MCX Staff or Cost MCX Pre-Certified Professional as assigned by the Walla Walla Cost Engineering Mandatory Center of Expertise with experience preparing cost estimates. Cost engineers performing the review should be well versed in ecosystem features and methods generally including concepts of construction in a riverine environment, glacio-fluvial stone material sources, invasive plant species eradication and native planting and establishment.
Real Estate	This member should be familiar with USACE policies pertaining to LERRDs for NER purposes. This project will specifically require a member familiar with a mix of land owners.

## C. 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, LRD, 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 EC 1165-2-217 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks<sup>SM</sup> with a notation in the ATR Summary Report and the DrChecks comment evaluation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR team will prepare an ATR Summary Report, which will be 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 prior to the District Commander signing the final report. A sample Statement of Technical Review is included in Attachment 2.

## VI. Independent External Peer Review

While CAP projects are generally smaller and less technically complicated than specifically authorized feasibility studies, IEPR may be required for CAP 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 1165-2-217, is made as to whether IEPR is appropriate. Where designated, IEPR panels will consist of independent, recognized technical experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for planning, design and construction of a Civil Works project. There are two types of IEPR:

- **Type I IEPR.** Type I IEPR reviews are managed outside the USACE and are conducted on project feasibility studies, which upon approval, serve as a federal decision document. 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 covers the entire decision document, including key component actions taken to address the 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 1165-2-217.

Section 506, 125, and CAP project decision documents are generally excluded from Type I Independent External Peer Review (IEPR) except those under Section 103 and Section 205. The exceptions are any project that requires an EIS or any project that meets the mandatory triggers stated in Appendix D of EC 1165-2-217. Due to the nature of flood risks, Section 103 and Section 205 decision documents require a case-by-case risk informed decision to conduct a Type I IEPR, which may be prepared using the LRD CAP Programmatic Review Plan Model or prepared as a project specific Review Plan that meets the requirements of EC 1165-2-217. Section VI.A below specifies the project specific circumstances and rationale for adopting or excluding Type I IEPR of the Section 506 Ravine 10 decision document.

- **Type II IEPR.** Type II IEPR, or Safety Assurance Review (SAR), considers the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare, and in some cases may include decision document reviews during the Feasibility Phase. Type II IEPR is managed outside the USACE and is 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 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 risk informed decision on whether Type I and/or II IEPR will be required is documented below.

#### **A. Decision on IEPR.**

EC 1165-2-217 exempts CAP Section 506 projects from Type I IEPR, and based on the consideration of project specific factors presented in Section III.C relative to the criteria in Paragraph I.B above, the level of risk of the SECTION 506 RAVINE 10 project does not warrant a Type I IEPR of the project decision documents.

#### **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.

## **VII. 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 by the MSC Commander, or warrant a recommendation by the MSC Commander to higher authority for approval. 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.

## **VIII. COST ENGINEERING MANDATORY CENTER OF EXPERTISE (MCX) REVIEW AND CERTIFICATION**

The home District, in conjunction with the RMO, is responsible for coordinating with the Cost Engineering MCX located in the Walla Walla District for review of the cost estimate for all CAP decision documents. For decision documents prepared under the LRD CAP Programmatic Review Plan Model, regional cost personnel that are pre-certified by the MCX, and assigned by the Cost Engineering MCX, will conduct the cost engineering ATR. The MCX will provide the Cost Engineering MCX certification. Either the designated ATR Lead or the Cost Engineering MCX shall make the selection of the cost engineering ATR team member.

## **IX. 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 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 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>
Floristic Quality Assessment (FQA)	<p>This assessment tool was designed to be used as an all-inclusive method, not just as a way to identify high quality sites. The FQA was originally developed for the Chicago Region, but has since been developed for regions and states throughout North America. This method assesses the sensitivity of individual plant species that inhabit an area. Each native species is assigned a coefficient of conservatism ranging from “0 to 10”. A “0” is assigned to species that are highly tolerant to disturbance and are considered general in their habitat distribution and a “10” is assigned to species with a very low tolerance to disturbance and displays a very specific relationship to a certain habitat type. This model is used in this study to assess the ecological value of the existing site (future-without-project) condition and any proposed management measures, based on the function of the plant community.</p>	Certified
Qualitative Habitat Evaluation Index (QHEI)	<p>The QHEI in flowing waters was originally developed by the Ohio EPA as an index of macro-habitat quality of streams in Ohio and associated ecoregions. The QHEI was designed to provide a measure of habitat that generally corresponds to the physical and chemical characteristics which influences the presence and abundance of stream fishes, and which are generally important to other aquatic life (e.g., invertebrates). The author described the goal of the QHEI as “filling a gap between completely subjective habitat descriptions and more labor intensive Habitat Suitability Indices developed for each species in a fish community.” As a macro-scale approach, the QHEI measures emergent properties of habitat (e.g., sinuosity, pool/riffle development, bank erosion) rather than the individual factors which shape these characters (e.g., current velocity, depth).</p> <p>The QHEI is as a rapid, index-based, community-focused, ecological assessment. Calculation of the index is based on field observations and scoring of reach-scale habitat metrics organized under substrate quality, riffle-pool quality, bank and riparian quality, channel morphology development, and instream cover. Local stream gradient is scored using topographic maps. Each metric contains submetrics – for instance, the “channel morphology” metric is scored based on sinuosity, development, channelization, and stability. The metrics are individually scored and then summed to provide the total QHEI site score, with a maximum possible score of 100. The QHEI model is extensively used within Ohio and adjacent ecoregions, generally for the purposes of biological monitoring or determining stream impairment.</p>	Certified

IWR Planning Suite	IWR Planning Suite assists with plan formulation by combining user-defined solutions to planning problems and calculating the effects of each combination, or “plan.” The program can assist with plan comparison by conducting cost effectiveness and incremental cost analyses, identifying the plans which are best financial investments and displaying the effects of each on a range of decision variables.	Certified
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## 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
EPA-SWMM	EPA-SWMM is a hydrologic model developed by the EPA. This program represents the watershed as an interconnected system of sub basins that simulate the precipitation runoff process and hydraulic components that connect the sub basins, and models a storm sewer network through a series of conduits and junctions. It will be used to determine the peak discharges for selected synthetic and observed storm events which will subsequently be used as input into the HEC-RAS model.	Certified
HEC-HMS	HEC-HMS is a hydrologic model developed by the Hydrologic Engineering Center. The program is designed to simulate precipitation-runoff processes of dendritic drainage basins. It will be used to determine the peak discharges for selected synthetic storm events which will subsequently be used as input into the HEC-RAS model.	Certified

## X. REVIEW SCHEDULES AND COSTS

### A. ATR Schedule and Cost.

Approval of Review Plan – 03/12/2019  
 Agency Tech Review - 08/08/19 to 08/22/19  
 Evaluate ATR - 08/08/19 to 08/15/19  
 ATR Back-check - 08/16/19 to 08/22/19

### B. Type I IEPR Schedule and Cost.

Not Applicable.

## C. Model Review Schedule and Cost.

For decision documents prepared under the LRD CAP Programmatic Review Plan Model, 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.

## XI. PUBLIC PARTICIPATION

State and Federal resource agencies may be invited to participate in the study covered by this review plan as partner agencies or as technical members of the PDT, as appropriate. Agencies with regulatory review responsibilities will be contacted for coordination as required by applicable laws and procedures. The ATR team will be provided copies of public and agency comments.

Public input will be garnered during the 30-day NEPA review period, in which one or two public meetings would be held. This public review period will be conducted simultaneously with MSC review of the draft report. Project documentation requiring NEPA review will be distributed via electronic and hard copy correspondence to pertinent stakeholders as well as posted to the LRC public website for access and comment during the 30-day review period. The Final DPR and Integrated EA will document those pertinent and important aspects the public brings to the project.

## XII. REVIEW PLAN APPROVAL AND UPDATES

The LRD Commander is responsible for approving this review plan and ensuring that use of the LRD CAP Programmatic Review Plan Model 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. Minor changes to the review plan since the last LRD 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 LRD Commander following the process used for initially approving the plan. Significant changes may result in the MSC Commander determining that use of the LRD CAP Programmatic Review Plan Model is no longer appropriate. In these cases, a project specific review plan will be prepared and approved in accordance with EC 1165-2-217 and Director of Civil Works' Policy Memorandum #1. The Commander Approved Review Plan, along with the Commanders' approval memorandum, will be posted on the home district's webpage.

### XIII. REVIEW PLAN POINTS OF CONTACT

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

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## ATTACHMENT 1: TEAM ROSTERS.

### Product Delivery Team

Name	Section	Discipline	Phone	E-Mail
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Jeff Fuller	TSD-DH	Hydraulic Engineer	(312) 846-5516	Jeff.A.Fuller@usace.army.mil
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Mike Rohde	LRE-RE	Real Estate	312-846-5576	Michael.B.Rohde@usace.army.mil
Ramesh Kanapareddy		DPW City of Highland Park	487-432-0807	rkanapareddy@cityhpil.com
Rebecca Grill		Natural Areas Manager (PDHP)	847-579-4087	rgrill@pdhp.org
Brian Dorn		North Shore Water Reclamation		brdorn@northshorewrd.org

### District Quality Control Team

Eugene Fleming, Section Chief Environmental Analysis Section (Eugene.J.Fleming@usace.army.mil)

Jennifer Miller, Team Lead Environmental Engineering Section (Jennifer.Miller@usace.army.mil)

### Agency Technical Review Team

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## ATTACHMENT 2: STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS

### COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the [<type of product and brief description of it>](#) for [<project name and location>](#). The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-217. 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>.

SIGNATURE

Name

ATR Team Leader

Office Symbol/Company

Date

SIGNATURE

Name

Project Manager (home district)

Office Symbol

Date

SIGNATURE

Name

Architect Engineer Project Manager<sup>1</sup>

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 (home district)

Office Symbol

Date

SIGNATURE

Name

Chief, Planning Division (home district)

Office Symbol

Date

<sup>1</sup> Only needed if some portion of the ATR was contracted

### ATTACHMENT 3: REVIEW PLAN REVISIONS LOG

<All revisions after the initial LRD Commander approved review Plan shall be documented here, including major revisions (i.e. at initiation of Design and Implementation Phase) where LRD Commander is required and the cover page updated to reflect the latest Commander approval date. >

<b>Revision Date</b>	<b>Description of Change</b>	<b>Page / Paragraph Number</b>
01-AUG-2019	Change to Schedule, Engineering Models, Public Review Process, and ATR Team	

## ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

<u>Term</u>	<u>Definition</u>	<u>Term</u>	<u>Definition</u>
ASA(CW)	Assistant Secretary of the Army for Civil Works	NED	National Economic Development
ATR	Agency Technical Review	NER	National Ecosystem Restoration
CAP	Continuing Authorities Program	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	QMS	Quality Management System
FRM	Flood Risk Management	QA	Quality Assurance
FSM	Feasibility Scoping Meeting	QC	Quality Control
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RED	Regional Economic Development
IEPR	Independent External Peer Review	RMC	Risk Management Center
		RMO	Review Management Organization
LERRDs	Lands, Easements, Rights-of-Way, Relocations, Disposal/borrow areas	RTS	Regional Technical Specialist
MCX	Mandatory Center of Expertise	SAR	Safety Assurance Review
MDM	MSC Decision Meeting	USACE	U.S. Army Corps of Engineers
MSC	Major Subordinate Command	WRDA	Water Resources Development Act