DEPARTMENT OF THE ARMY
PACIFIC OCEAN DIVISION, U.S. ARMY CORPS OF ENGINEERS
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CEPOD-PDC (1105)

JAN 14 2021

MEMORANDUM FOR Commander, Alaska Engineer District (CEPOA-PM-C-PL/Erin Stockdale), P.O. Box 6898 JBER, AK 99506-0898

SUBJECT: Approval of the Review Plan for the Japanese Creek Continuing Authorities Program Section 205 Feasibility Report

1. References:

a. Engineering Circular 1165-2-217, Review Policy for Civil Works, 20 Feb 18.

b. HQUSACE, CECW-CE memorandum, (Interim Guidance on Streamlining Independent External Peer Review (IEPR) for Improved Civil Works Product Delivery), 5 Apr 19.

c. Review Plan for the Japanese Creek Section 205 Feasibility Report, Alaska District, U.S. Army Corps of Engineers. (Encl)

2. This memorandum constitutes approval of the Review Plan for the Japanese Creek Section 205 Feasibility Report, Alaska District, U.S. Army Corps of Engineers, which does not include a Type I Independent External Peer Review.

3. The approved Review Plan is subject to change as circumstances require, consistent with project development under the Project Management Business Process. Subsequent significant revisions to this Review Plan or its execution require my written approval.

4. POC is Mr. Russell Iwamura, Team Leader for Planning and Policy, Civil Works Integration Division, at 808-835-4625 or email Russell.K.Iwamura@usace.army.mil.

Encl

KIRK E. GIBBS
Colonel, EN
Commanding

REVIEW PLAN

Continuing Authorities Program Section 205
Feasibility Study
Japanese Creek
Seward, Alaska

Alaska District

MSC Approval Date: 14 January 2021
Last Revision Date: None

US Army Corps
of Engineers ®

REVIEW PLAN

January 2021

Project Name: Section 205 Japanese Creek Seward Alaska
P2 Number: 330378

Decision Document Type: Integrated Feasibility Report

Project Type: Flood Risk Management

District: Alaska District (POA)
District Contact: Project Manager 907-753-5628 (Leif Hammes); Plan Formulator 907-753-2503 (Erin Stockdale)

Major Subordinate Command (MSC): Pacific Ocean Division (POD)
MSC Contact: Sharon Ishikawa, POD Continuing Authorities Program (CAP) manager 808-835-4621

Key Review Plan Dates

Date of Review Management Organization Endorsement of Review Plan: 14 Jan 2021
Date of POD Approval of Review Plan: 14 Jan 2021
Date of IEPR Exclusion Approval: N/A
Has the Review Plan changed since PCX Endorsement? N/A
Date of Last Review Plan Revision: N/A
Date of Review Plan Web Posting: 19 Jan 2021
Date of Congressional Notifications: (Pending)

Milestone Schedule

	Scheduled	Actual	Complete
Feasibility Cost Sharing Agreement Signed	N/A	31 March 2020	Yes
Tentatively Selected Plan (TSP) Milestone	01 June 2021	TBD	No
Decision Documents Submitted	15 Nov 2021	TBD	No
Decision Document Approval	TBD	TBD	No

Project Fact Sheet

January 2021

Project Name: Section 205 Japanese Creek Seward Alaska

Location: Seward, Alaska

Authority: Section 205 of the Flood Control Act of 1948 (Public Law [P.L] 80-858), as amended, authorizes the United States Army Corps of Engineers (USACE) to study, design, and construct flood risk management projects.

Sponsor: Kenai Peninsula Borough

Type of Study: Feasibility Study

SMART Planning Status: The study is currently between the Alternatives and Tentatively Selected Plan milestones.

Project Area: Japanese Creek is located on the northwest side of Seward, Alaska, and is a tributary to the Resurrection River (Figure 1). The stream originates at the terminus of an alpine glacier, with the watershed draining approximately 3.5 square miles. The creek flows through a steep canyon before entering a broad alluvial fan. The fan is prone to aggradation from high flow events. An estimated 200,000 cubic yards of material was deposited throughout the fan during a high flow event in October 2006 (NHCb 2007). The event resulted in more than 20 feet of deposition in some areas.

Low-density development exists in the lower part of the alluvial fan. It includes three public schools, the Seward Military Resort, a retirement community, and at least 80 private residences with future planned development. The City currently maintains an earthen embankment that constrains the creek to its channel between the embankment on the east and a mountain ridge on the west. The embankment was originally constructed to redirect the creek and prevent flood damages to personal property. Subsequent development in the alluvial fan has increased the amount of potential damages related to a potential failure of the embankment.

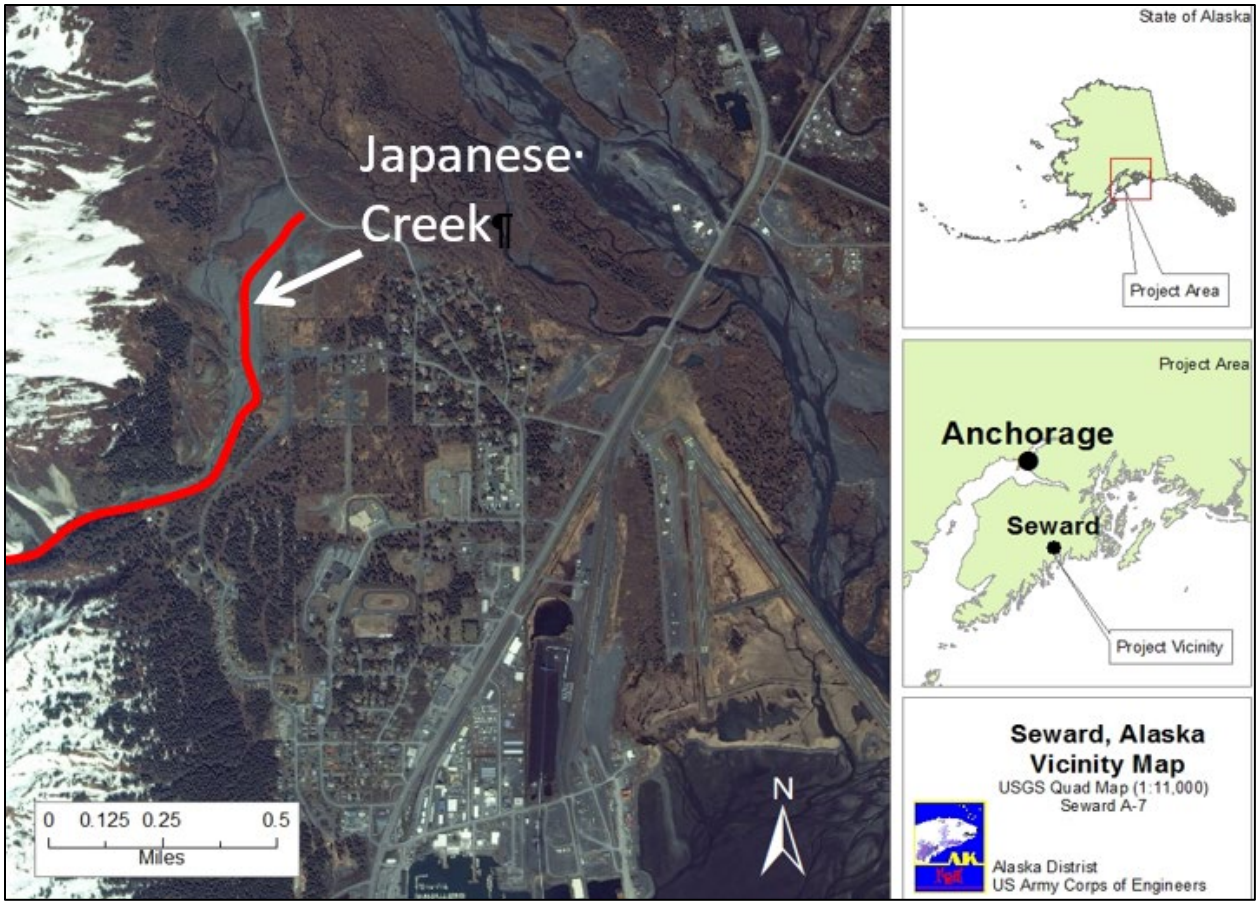

Figure 1. Location of Japanese Creek in Seward, Alaska

Problem Statement: The Japanese Creek watershed poses a significant risk of economic flood damages to homes, buildings, and public and private infrastructure in and around the City of Seward, Alaska, endangering numerous structures (both residential and non-residential) as well as critical roads and infrastructure associated with the community's solid waste management. In addition to the existing earthen embankment's low capacity design (only able to contain a 10-20-year event), extreme bedloads and landslides during events carry the risk of debris damming and surge release throughout the watershed. Flooding risks may also be compounded by other natural disasters such as earthquakes and tsunamis. Although there have been no known casualties due to past events, recent development along the watershed also presents a risk to public health and life safety.

Federal Interest: The project purpose intended for Section 205 Continuing Authorities Program (CAP) projects is briefly described as flood plain management and risk reduction projects of relatively small scope, cost, and complexity. The CAP is a delegated authority to plan, design, and construct certain types of the water resource and environmental restoration projects without specific Congressional authorization.

Anticipated benefits of a flood reduction project are avoided damages to public and private property and potential cost savings associated with evacuation, clean-up, and

recovery. The non-Federal sponsor has indicated that the project would increase the City's ability to protect residents and property and allow flood-fighting resources and efforts to be redirected to other areas of need.

Preliminary project costs identified in the Federal Interest Determination phase sheet for 5,000 feet of revetment were approximately $10.5 Million based on recent costs at nearby watersheds with similar hydrology.

The measures considered at this time include both structural and non-structural measures, including a No Action alternative, as summarized below.

Alternative 1: Structural, New Flood Protection Structure
This alternative involves constructing a certified levee on the footprint of the existing earthen embankment. A debris basin would be constructed in the upper reaches of the creek, including an access road for basin cleanout. A comprehensive sediment management plan would be developed, including the acquisition of property and/or permanent access/right of way to sections of the creek on the University of Alaska (UA) and the Department of Natural Resources (DNR) lands. A conveyance under Dieckgraff Rd. will be increased by adding or expanding culverts and modifying the road as needed. This alternative also includes the addition of recreation facilities, which may include a trail along the levee, a restroom building, and/or a trailhead and parking lot near the water tower. The installation of an upstream early warning system, such as a flood gauge, is also included in this alternative.

Alternative 2: Structural, Rehabilitated with Debris Basin
This alternative consists of employing several techniques to reduce the impact of erosion on the existing embankment, including reinforcing with grout or shotcrete, vegetation management, and/or upgrading armor as needed. Raising the existing levee would also be included if needed, which may involve rebuilding sections of the existing embankment. This alternative also includes the sediment management plan, addition of recreation facilities, and upstream early warning system as identified in Alternative 1.

Alternative 3: Structural, Rehabilitated
This alternative consists of employing several techniques to reduce the impact of erosion on the existing embankment, including reinforcing the levee with grout or shotcrete, vegetation management, and/or upgrading armour as needed. Raising the existing embankment would also be included if needed, which may involve rebuilding. Sediment removal operations would occur now, after each flood event, as needed. This alternative also includes the addition of simple recreation facilities and upstream early warning system, as identified in Alternative 1.

Alternative 4: Non-Structural, Relocate Landfill
This alternative involves relocating the landfill and removing the landfill access road. Private properties located in the floodplain would also be relocated, bought out, or reinforced to withstand flood events. Public properties would be relocated or reinforced

to withstand flood events. Sediment removal would occur after each flood event as needed. This alternative also includes an upstream early warning system, as identified in Alternative 1.

Alternative 5: Non-Structural, Relocate and/or flood-proof schools
This alternative involves relocating or buying out private properties located in the floodplain. Public properties, primarily schools, would be reinforced to withstand flood events. Sediment removal would occur after each flood event as needed. This alternative also includes an upstream early warning system, as identified in Alternative 1.

Alternative 6: No Action Alternative
Existing conditions in Japanese Creek will remain the same without additional structural or non-structural improvements. The risk of future flood damages to the area will be dependent on the City's ability to continue providing resources to maintain the earthen embankment. Sediment removal will occur after flood events as needed.

Risk Identification: None of the risks identified to date appear to represent a significant risk to human health or the environment now or in the future. The primary sources of study/project risk are summarized below:

- Existing LiDAR data utilized for the study was collected in 2009. The Project Delivery Team (PDT) has determined that this data is adequate for HEC-RAS modeling within the scope of this project. No new data is expected at this time. Should new data be required, the schedule and budget may be impacted.

- A large portion of the creek bed has state and private ownership. While the Sponsor has the ability to obtain the property during the Design and Implementation phase, access to private property, and landowner cooperation within the project boundaries may cause a delay.

1. FACTORS AFFECTING THE SCOPE AND LEVELS OF REVIEW

- Will the study likely be challenging? No, the project does not have any significant technical, institutional, or social challenges. The study consists of flood risk management by revitalizing the structure along the bank of a glacial stream.

- Provide a preliminary assessment of where the project risks are likely to occur and assess the magnitude of those risks. A preliminary list of risk has been identified by the PDT, as noted in the section above. The magnitude of each of these identified risks is assumed to be low. Each risk will be managed as the data gaps are filled.

- Is the project likely to be justified by life safety, or is the study or project likely to involve significant life safety issues? No, the project is expected to have NED justification; life safety is not expected to be substantially impacted.

- Has the Governor of an affected state requested a peer review by independent experts? No. There has been no request by the Governor of Alaska for peer review by independent experts, and such a request is not anticipated.

- Will the project/study likely involve significant public dispute as to the project's size, nature, or effects? No. The project is unlikely to involve significant public dispute as to its size, nature, or effects due to the fact that the project has avid community support. A charrette was held on June 2-3, 2020, and the Sponsor has been included in several PDT meetings with no public disputes raised during the meetings.

- Is the project/study likely to involve significant public dispute as to the economic or environmental cost or benefit of the project? No. The project is not likely to involve significant public dispute as to the economic or environmental cost or benefit of the project.

- Is the information in the decision document or anticipated project design likely to be based on novel methods, involve 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? No. Project design and implementation techniques will be based on similar flood risk management projects in Alaska and are unlikely to be contained precedent-setting, unique, or change prevailing practices.

- Does the project design require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design/construction schedule? The project is unlikely to require redundancy, resiliency, and/or robustness.

- Is the estimated total cost of the project greater than $200 million? No. This is a CAP study, which has a Federal funding cap of $10 million. The estimated total project costs identified in the Preliminary CAP Fact sheet were approximately $10.5 Million.

- Will an Environmental Impact Statement be prepared as part of the study? An EIS is not anticipated at this time. An EA is being prepared with an anticipated Finding of No Significant Impact (FONSI).

- Is the project expected to have more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources? This project is expected to have little to no adverse impacts on cultural resources or historic property impact. In the case of a large flood event, it is likely that the No Action Alternative may have an adverse impact on historic properties.

- Is the project expected to have substantial adverse impacts on fish and wildlife species and their habitat prior to the implementation of mitigation measures? This project is not expected to have substantial adverse impacts on fish, wildlife, or their habitat.

- Is the project expected to have, before mitigation measures, more than a negligible adverse impact on an endangered or threatened species or their designated critical habitat? There are no known endangered species or designated critical habitat within the anticipated project footprint. Resurrection Bay is within the range of the Steller sea lion western distinct population segment (DPS). Pacific Salmon are considered primary constituent elements (PCE) for the Stellar sea lion. It is unlikely that this project will impact the Pacific Salmon population of Resurrection Bay.

2. REVIEW EXECUTION PLAN

This section describes each level of review to be conducted. Based on the factors discussed in Section 1, this study will undergo the following types of reviews:

District Quality Control (DQC). All decision documents (including data, analyses, environmental compliance documents, etc.) undergo DQC. This internal review process covers basic science and engineering work products. It fulfills the project quality requirements of the Project Management Plan.

Agency Technical Review (ATR). ATR is performed by a qualified team from outside POA that is not involved in the day-to-day production of the project/product. These teams will be comprised of certified USACE personnel. The ATR team lead will be from outside POD. If significant life safety issues are involved in a study or project, a safety assurance review should be conducted during ATR.

Independent External Peer Review (IEPR). Type I IEPR may be required for decision documents under certain circumstances. This is the most independent level of review and is applied in cases that meet criteria where the risk and magnitude of the project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision is made as to whether Type I IEPR is appropriate.

Cost Engineering Review. All decision documents shall be coordinated with the Cost Engineering Mandatory Center of Expertise (MCX). The MCX will assist in determining the expertise needed on the ATR and IEPR teams. The MCX will provide the Cost Engineering certification. The Review Management Organization (RMO) is responsible for coordinating with the MCX for the reviews. These reviews typically occur as part of ATR.

Model Review and Approval/Certification. EC 1105-2-412 mandates the use of certified or approved models for all planning work to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions.

Policy and Legal Review. All decision documents will be reviewed for compliance with law and policy. ER 1105-2-100, Appendix H provides guidance on policy and legal compliance reviews. These reviews culminate in determinations that report recommendations, and the supporting analyses and coordination comply with law and policy and warrant approval or further recommendation to higher authority by the POD Commander. These reviews are not further detailed in this section of the Review Plan.

The schedules and costs for reviews are displayed in Table 1. The specific expertise required for the teams is identified in later subsections covering each review. These subsections also identify requirements, special reporting provisions, and sources of more information.

Table 1. Levels of Review

Product to Undergo Review	Review	Start Date	End Date	Cost	Complete
Planning Model Review	NA				
Draft Feasibility Report and Environmental Assessment	DQC	7-Apr-21	1-Jun-21	$25,000	No
	ATR	2-Jun-21	1-Aug-21	$50,000	No
	District Legal Review	18-Sep-21	25-Sep-21	N/A	No
Pre-MDM Milestone Submittals	DQC	18-Sep-21	25-Sep-21	$15,000	No
Final Feasibility Report and Environmental Assessment	DQC Final	2-Oct-21	14-Oct-21	$10,000	No
	ATR Finalize	14-Oct-21	1-Nov-21	$20,000	No
	District Legal Review after NEPA public comment	15-Nov-21	24-Nov-21	NA	No
In-kind Products	N/A	N/A	N/A	N/A	N/A

A. DISTRICT QUALITY CONTROL

POA shall manage DQC and will appoint a DQC Lead to manage the local review (see EC 1165-2-217, section 8.a.1). The DQC Lead should prepare a DQC Plan and provide it to the RMO and POD (if not the RMO) prior to starting DQC reviews. The required expertise for the DQC team is identified in Table 2.

Table 2. Required DQC Expertise

DQC Team Disciplines	Expertise Required
DQC Lead	A senior professional with extensive experience preparing Civil Works decision documents and conducting DQC. The lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc.).
Planning	A senior water resources planner with experience in flood risk management and SMART Planning.
Economics	A senior economist with experience with flood risk management. The reviewer should also have familiarity with the economic models identified in Table 4.
Environmental and Cultural Resources	Expertise in evaluating the impacts associated with flood risk management. Should also be experienced with environmental coordination, National Environmental Policy Act (NEPA) requirements, Endangered Species Act (ESA) requirements. Experience with National Historic Preservation Act (NHPA) would also be beneficial.
Hydrology and Hydraulics (H&H) Engineer	Expert in the field of riverine hydraulics and have a thorough understanding of analyses of flows, stage depths, sediment load and levee construction. A registered professional engineer is recommended. The reviewer should also have familiarity with the hydrology and hydraulics (H&H) model identified in Table 5.
Geotechnical Engineer	Experienced in geotechnical investigation practices including soil classification, the design of levee foundations, and the classification of rip rap and core materials for suitability in use of levee construction. A registered, professional engineer is recommended.
Cost Engineering	Familiar with cost estimating using the Microcomputer Aided Cost Engineering System (MCACES) model and preparation of an MII Cost Estimate. The reviewer will be Certified Cost Technician, Certified Cost Consultant, or Certified Cost Engineer. The reviewer should also have familiarity with the cost engineering models identified in Table 5.
Real Estate	The real estate reviewer will be experienced in Federal Civil Works real estate law, policy, and guidance, development of Real Estate Plans for Civil Works studies, particularly in regards property acquisition.
Office of Counsel	Legal expert with experience reviewing planning documents to ensure legal sufficiency.

Documentation of DQC. Quality Control should be performed continuously throughout the study. A specific certification of DQC completion is required at the draft and final report stages. Documentation of DQC should follow the POA Quality Manual and the POD Quality Management Plan. An example DQC Certification statement is provided in EC 1165-2-217, on page 19 (see Figure F).

Documentation of completed DQC should be provided to the POD, RMO, and ATR Team leader prior to initiating an ATR. The ATR team will examine DQC records and comments in the ATR report on the adequacy of the DQC effort. Missing or inadequate DQC documentation can result in delays to the start of other reviews (see EC 1165-2-217, section 9).

B. AGENCY TECHNICAL REVIEW

The ATR will assess whether the analyses are technically correct and comply with guidance, and that documents explain the analyses and results in a clear manner. An RMO manages ATR. The review is conducted by an ATR Team whose members are certified to perform reviews. Lists of certified reviewers are maintained by the various technical Communities of Practice (see EC 1165-2-217, section 9(h)(1)). The disciplines and required expertise for this ATR Team are identified in Table 3.

Table 3. Required ATR Team Expertise

ATR Team Disciplines	Expertise Required
ATR Lead	A senior professional with extensive experience preparing Civil Works decision documents and conducting ATR. The lead should have the skills to manage a virtual team through an ATR. The lead may serve as a reviewer for a specific discipline (such as planning).
Planning	A senior water resources planner with experience in flood risk management and SMART Planning.
Economics	A senior economist with experience with flood risk management. The reviewer should have expertise with the types of economic models identified in Table 4.
Environmental and Cultural Resources	Expertise evaluating the impacts associated with flood risk management and dredged material placement/ beneficial use options. Should also be experienced with environmental coordination, NEPA requirements and ESA requirements. Working familiarity with NHPA would also be useful, as there are no anticipated impacts to cultural resources at this time.
H&H Engineer	Expert in the field of riverine hydraulics and have a thorough understanding of analyses of flows, stage depths, sediment load and levee construction. A registered professional engineer is recommended. The reviewer should also have

	familiarity with the hydrology and hydraulics (H&H) model identified in Table 5.
Geotechnical Engineer	Experienced in geotechnical investigation practices including soil classification, the design of levee foundations, and the classification of rip rap and core materials for suitability in use of levee construction. A registered, professional engineer is recommended.
Cost Engineer	Familiar with cost estimating using the MCACES model and preparation of an MII Cost Estimate. The reviewer will be a Certified Cost Technician, Certified Cost Consultant, or Certified Cost Engineer. Coordination with the Cost Engineering MCX will be required for their selection of the cost engineering reviewer and to obtain Cost Engineering MCX certification of the cost estimate. The reviewer should also have expertise with the cost engineering models identified in Table 5.
Real Estate	The real estate reviewer will be experienced in Federal Civil Works real estate law, policy, and guidance, development of Real Estate Plans for Civil Works studies, particularly in regard to application of navigational servitude.
Climate Preparedness and Resilience CoP Reviewer	A member of the Climate Preparedness and Resiliency Community of Practice (CoP) or a HH&C Climate reviewer will participate on the ATR team.

Documentation of ATR. DrChecks will be used to document all ATR comments, responses and resolutions. Comments should be limited to those needed to ensure product adequacy. If a concern cannot be resolved by the ATR team and PDT, it will be elevated to the vertical team for resolution using the EC 1165-2-217 issue resolution process. Concerns can be closed in DrChecks by noting the concern has been elevated for resolution. The ATR Lead will prepare a Statement of Technical Review (see EC 1165-2-217, Section 9), for the draft and final reports, certifying that review issues have been resolved or elevated. ATR may be certified when all concerns are resolved or referred to the vertical team and the ATR documentation is complete.

C. INDEPENDENT EXTERNAL PEER REVIEW

Decision on 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.

All CAP projects are excluded from Type I IEPR except Section 205 and Section 103 projects or those projects that include an EIS or meet the mandatory triggers for Type I

IEPR, as stated in EC 1165-2-217. Additionally, CAP projects that do not require an EIS can be considered for exclusion from Type I IEPR (see the 5 April 2019 DCW memorandum, paragraph 6.c). Exclusions from Type I IEPR for Section 205 and Section 103 projects will be approved on a case by case basis by the POD Commander, based upon a risk-informed decision process as outlined in EC 1165-2-217, and may not be delegated.

Based upon the criteria identified in EC 1165-2-217 and the scope of the study, the risk informed assessment is that the study does not require Type I IEPR.

The risk informed decision that Type I IEPR is not warranted was based on consideration of the following:

The decision document does not meet any of the statutory triggers for Type I IEPR (paragraph 11.D.(1) of EC 1165-2-217 and the 5 April 2019 DCW memorandum) as described in detail in Section 1 of this RP: the estimated total cost of the project is capped at $10M in Federal funds, which is less than the $200M trigger; the Governor of Alaska has not requested peer review by independent experts; and the Chief of Engineers has not determined that the project study is controversial due to significant public dispute over either the size, nature, or effects of the project or the economic or environmental costs or benefits of the project.

Beyond the statutory requirements, an IEPR would not add value to the study because the project study does not pose a significant threat to human life; does not involve the use of innovative materials or techniques where the engineering is based on novel methods; does not present complex challenges for interpretation; does not contain precedent-setting methods or models; and does not present conclusions that are likely to change prevailing practices.

Decision on Type II IEPR. Type II IEPR, Safety Assurance Review, is managed outside of the USACE and is performed on design and construction activities for any project where potential hazards pose a significant threat to human life. For Type II IEPRs, a panel is convened to review the design and construction activities before construction begins and periodically thereafter until construction activities are completed.

This flood risk management project does not meet the criteria for conducting Type II IEPR:

- The Federal action is not justified by life safety and failure of the project will not pose a significant threat to human life;

- The project does not involve the use of innovative materials or techniques where the engineering is based on novel methods, it does not present complex challenges for interpretations, does not contain precedent-setting methods or models, and does not present conclusions that are likely to change prevailing practices;

- The project design does not require redundancy, resiliency, or robustness; and

- The project does not have unique construction sequencing or a reduced or overlapping design construction schedule.

D. MODEL CERTIFICATION OR APPROVAL

EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. Planning models are any models and analytical tools used to define water resources management problems and opportunities; to formulate potential alternatives to address study area problems and take advantage of opportunities; to evaluate potential effects of alternatives; and to support decision making. The use of a certified/approved planning model does not constitute technical review of a planning product. The selection and application of the model and assessment of input and output data is the responsibility of the users and is subject to DQC, ATR, and IEPR (if required). The following models may be used to develop the decision document.

Table 4. Planning Models

Model Name and Version (discipline to apply)	Brief Model Description and How It Will Be Used in the Study	Certification / Approval
Regional Economic System (RECONS) (Economics)	RECONS is a regional economic impact modeling tool that estimates jobs, income, sales, and value-added associated with USACE CW spending and additional economic activities. The model will be used to estimate the regional economic impacts of project implementation.	Certified
IWR-Planning Suite 2.0 (Economics)	IWR-Planning Suite is a water-resources investment decision support tool originally built for the formulation and evaluation of ecosystem restoration alternative plans; however, it is now more widely used by all USACE business lines for evaluation of actions involving monetary and non-monetary cost and benefits. This model will be utilized to conduct CE/ICA, if needed.	Certified

EC 1105-2-412 does not cover engineering models used in planning. The responsible use of well-known and proven USACE developed, and commercial engineering software will continue. The professional practice of documenting the application of the software and modeling results will be followed. The USACE Scientific and Engineering Technology Initiative has identified many engineering models as preferred or acceptable for use in studies. These models should be used when appropriate. The selection and

application of the model and the input and output data are still the responsibility of the users and are subject to DQC, ATR, and IEPR.

Table 5. Engineering Models

Model Name and Version (discipline to apply)	Brief Model Description and How It Will Be Used in the Study	Model Certification / Acceptance Status
HEC-FDA 1.4.2 (Flood Damage Analysis)	The Hydrologic Engineering Center Flood Damage Analysis (HEC-FDA) program provides the capability for integrated hydrologic engineering and economic analysis for formulating and evaluating flood risk management plans using risk-based analysis methods. The program will be used to evaluate and compare the future without- and with-project plans along Japanese Creek near Seward, Alaska, to aid in the selection of a recommended plan to manage flood risk.	Certified
HEC-RAS 4.0 (River Analysis System)	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. The program will be used for steady flow analysis to evaluate the future without- and with-project conditions along Japanese Creek and its tributaries.	HH&C CoP Preferred Model
Microcomputer Aided Cost Engineering System (MCACES), MII (Cost Engineer)	MCACES is the cost estimating software program tools used by cost engineering to develop and prepare Class 3 CW cost estimates.	CW Cost Engineering MCX mandatory
Abbreviated Risk Analysis, Cost Schedule Risk Analysis (Cost Engineer)	Cost risk analyses identify the amount of contingency that must be added to a project cost estimate and define the high-risk drivers. The analyses will include a narrative identifying the risks or uncertainties. During the alternative's evaluation, the PDT will assist the cost engineer in defining confidence/risk levels associated with the project features within the abbreviated risk analysis. For the Class 3 estimate, an evaluation of risks will be performed using Crystal Ball Cost Schedule Risk Analysis for construction costs over $40 million or the Abbreviated Risk Analysis for projects under $40 million.	CW Cost Engineering MCX mandatory
Total Project Cost Summary (TPCS) (Cost Engineer)	The TPCS is the required cost estimate document that will be submitted for either POD or HQUSACE approval. The Total Project Cost for each Civil Works project includes all Federal and authorized non-Federal costs represented by the Civil Works Work Breakdown Structure features and respective estimates and schedules, including the lands and damages, relocations, project construction costs, construction schedules, construction contingencies, planning, and engineering costs, design contingencies, construction management costs, and management contingencies.	CW Cost Engineering MCX mandatory

E. POLICY AND LEGAL REVIEW

Policy and legal compliance reviews for the draft and final planning decision documents are delegated to POD (see Director's Policy Memorandum 2018-05, paragraph 9).

(i) Policy Review.

The policy review team is identified through the collaboration of the POD Chief of Planning and Policy and the HQUSACE Chief of the Office of Water Project Review. The team is identified in Attachment 1 of this Review Plan. The makeup of the Policy Review team will be drawn from Headquarters (HQUSACE), the MSCs, the Planning Centers of Expertise, and other review resources as needed.

- The Policy Review Team will be invited to participate in key meetings during the development of decision documents as well as SMART Planning Milestone meetings. These engagements may include In-Progress Reviews, Issue Resolution Conferences, or other vertical team meetings plus the milestone events.

- The input from the Policy Review team should be documented in a Memorandum for the Record (MFR) produced for each engagement with the team. The MFR should be distributed to all meeting participants.

- In addition, teams may choose to capture some of the policy review input in a risk register if appropriate. These items should be highlighted at future meetings until the issues are resolved. Any key decisions on how to address risk or other considerations should be documented in an MFR.

(ii) Legal Review.

Representatives from the Office of Counsel will be assigned to participate in reviews. Members may participate from POA, POD, and HQUSACE. The POD Chief of Planning and Policy will coordinate membership and participation with the office chiefs.

- In some cases, legal review input may be captured in the MFR for a particular meeting or milestone. In other cases, a separate legal memorandum may be used to document the input from the Office of Counsel.

- Each participating Office of Counsel will determine how to document legal review input.