REVIEW PLAN

AGAT SHORELINE PROTECTION, GUAM

Continuing Authorities Program (CAP) Section 14

Feasibility Study

Honolulu District

POD Approval Date: 18 April 2024
Last Revision Date: None

US Army Corps of Engineers ®

REVIEW PLAN
March 2024

1. OVERVIEW
This review plan (RP) defines the scope and level of peer review for the following study:

- **Study Name:** Agat Shoreline Protection, Guam, Feasibility Study
- **P2 Number:** 484633
- **Federal Project:** N/A
- **Decision Document - Type:** Integrated Feasibility Report and National Environmental Policy Act (NEPA) Document
- **Project Type:** Single-purpose emergency shoreline protection – Continuing Authorities Program (CAP) Section 14
- **Congressional Approval Required (Yes/No):** No
- **District:** Honolulu District (POH)
- **Major Subordinate Command (MSC):** Pacific Ocean Division (POD)
- **Review Management Organization (RMO):** POD
  Note: The RMO is the MSC for CAP projects not requiring or expected to require SAR.
- **Review Plan (RP) Contacts:**
  - **District:** POH Project Manager, 671-727-2491
  - **MSC:** POD Planning and Policy Chief, 808-835-4625

2. KEY REVIEW PLAN DATES

Action	Date - Actual[1]
POD Approval of RP	18 April 2024
Independent External Peer Review (IEPR) Exclusion Approval	N/A
Has RP changed since PCX endorsement?	N/A
Last RP revision[2]	N/A
RP posted on District Website	23 April 2024
Congressional notification[3]	Pending

[1]Date action occurred or 'pending' if not yet approved
[2]Enter 'none' if no updates have been made since approval
[3]Date RIT notified Congress of IEPR decisions

3. MILESTONE SCHEDULE

Action	Date - Scheduled	Date – Actual	Status – Complete?
Feasibility Cost Sharing Agreement Signed	24 Feb 2023	24 Feb 2023	Yes
Tentatively Selected Plan	25 Jun 2024		No
Release Draft Report to Public	22 Jul 2024		No
Final Report Transmittal	19 Mar 2025		No
Final Report Approval	20 Jun 2025		No

4. BACKGROUND

- **RP References:**
    - Engineer Regulation (ER) 1165-2-217, Civil Works (CW) Review Policy, 1 May 2021
    - Engineer Circular (EC) 1105-2-412, Assuring Quality of Planning Models, 31 March 2011
    - Planning Bulletin (PB) 2013-02, Subject: Assuring Quality of Planning Models (EC 1105-2-412), 31 March 2013
    - Office of Management and Budget, Final Information Quality Bulletin for Peer Review, Federal Register Vol. 70, No. 10, pp 2664-267, 14 January 2005.
    - USACE Planning Community Toolbox, https://planning.erdc.dren.mil/toolbox/current.cfm?Title=Peer%20Review&ThisPage=Peer&Side=No

- **Authority**: This study is authorized under Section 14 of the Flood Control Act of 1946, which authorizes the USACE to partner with a non-Federal sponsor to study, design, and construct emergency streambank and shoreline protection for public facilities in imminent danger of failing due to bank failure caused by natural erosion and not by inadequate drainage, by the facility itself, or by operation of the facility.
    - **Sponsor**: The Government of Guam, is the cost-sharing non-Federal sponsor of the feasibility study.
    - **Specific, Measureable, Attainable, Risk-Informed, and Timely (SMART) Planning Status:** A Feasibility Cost-Sharing Agreement (FCSA) was executed on 24 February 2023. The Tentatively Selected Plan (TSP) milestone is scheduled for February 2024. This study is 3x3x3 compliant and no policy exceptions are anticipated.
- **Project Area**: The Territory of Guam is located approximately 3,800 miles west of Honolulu. Guam is located in the North Pacific Ocean between the Commonwealth

of the Northern Mariana Islands (to the north) and the Federated States of Micronesia (to the south) as shown in the Figure 1. Guam is the largest island in the Mariana Islands and is approximately 30 miles long; 4.0 to 8.5 miles wide; and 209 square miles in area. The study area is located on the west central coast of Guam in the village of Agat (Figure 2). Agat is one of 19 municipalities on the Island of Guam. Located along Guam's western shore, it is home to an existing Corps of Engineers Small Boat Harbor and exhibits development typical of moderately urbanized coastal communities on islands with narrow, steep watersheds where both flash flooding from riverine sources can occur concurrently with coastal flooding due to coastal storms to include typhoons.

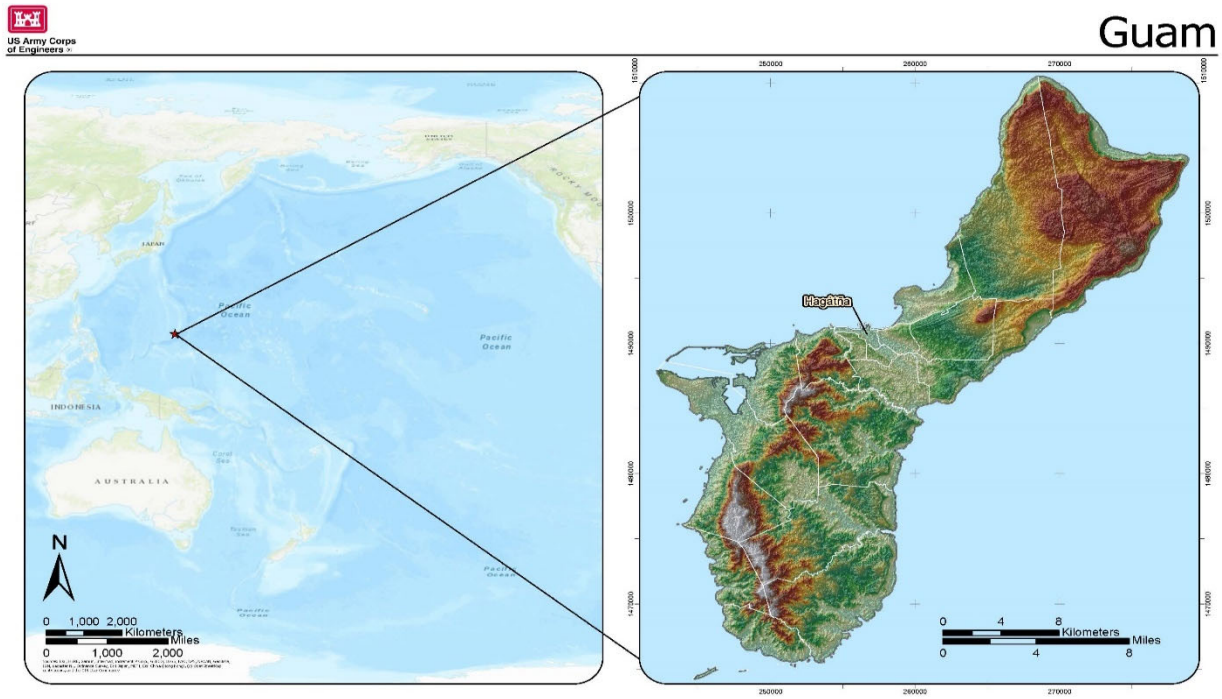

Figure 1: Guam location map

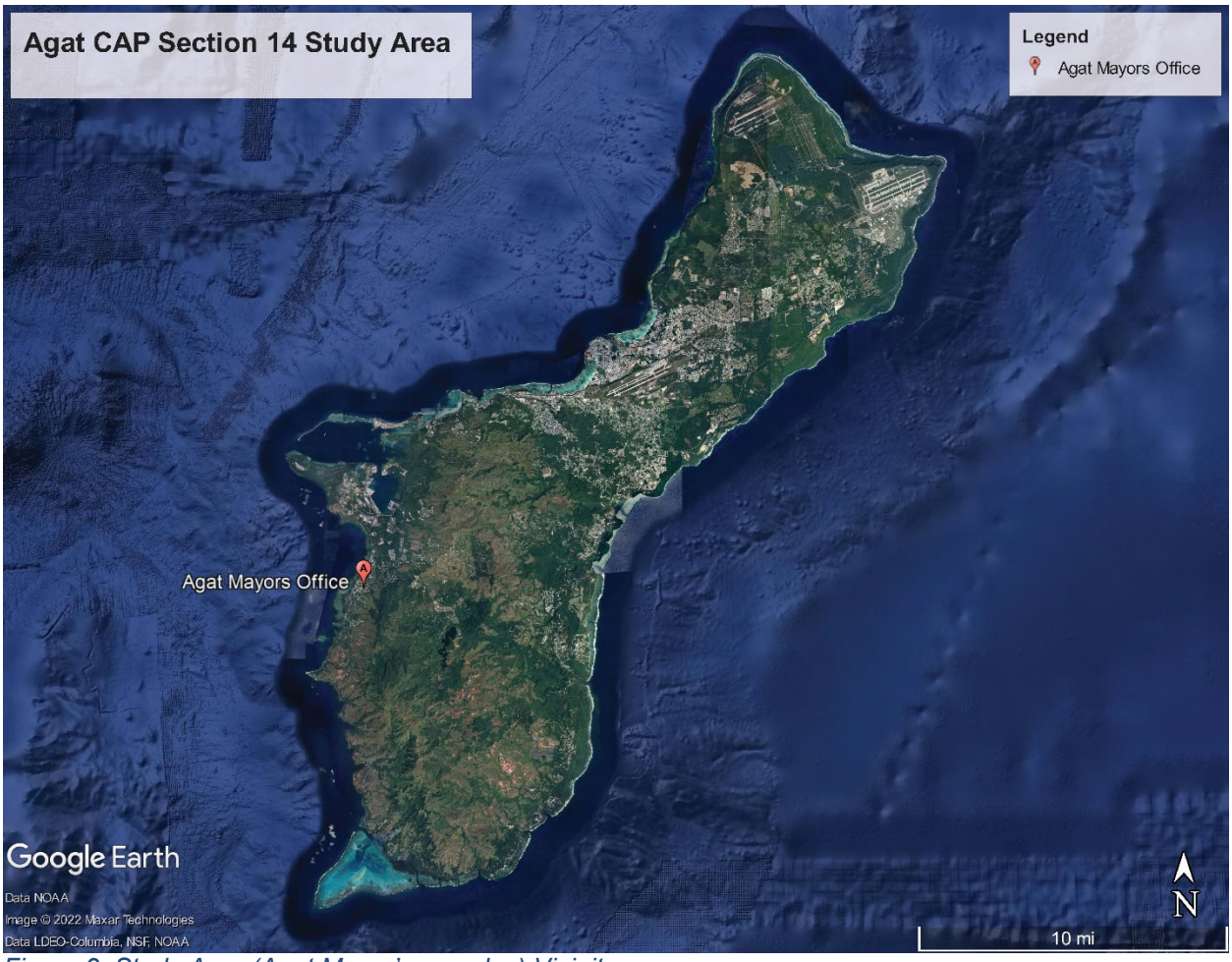

Figure 2: Study Area (Agat Mayor's complex) Vicinity

- **Problem Statement**: Guam is in close proximity to a breeding ground for tropical storms and typhoons and the low-lying coastline of Agat is subject to frequent storm wave attack. The much higher than usual wave heights reaching the shoreline during severe storm periods have caused erosion to the beach and have resulted in undermining of the existing seawall. This damage to the existing shore protection has put the Mayor's Office in the immediate vicinity of the project area at imminent risk. Future sea level rise will continue to exacerbate this condition and cause erosion and the resulting damage to accelerate.

  Problems in the study area can be summarized as:
  - Coastal erosion is threatening the municipal maintenance building, the Mayor's Office, and the Community Center structures at the Mayor's Complex in the village of Agat.
  - The existing concrete rubble masonry (CRM) and concrete block wall are at imminent risk of undermining and failure.
  - Existing erosion is (and will continue to be) exacerbated by sea level change.
  - The reliability and accessibility of common space for community gatherings will be impacted by continued erosion.

- **Study/Project Goals and Objectives:** Project objectives are to:
    - Reduce damages to and eventual loss of significant public infrastructure located at the Agat Mayor's Complex due to shoreline erosion over a 50-year period of analysis.
    - Manage risk of disproportionate impacts to Justice-40 Community in the Village of Agat over the 50-Year period of analysis.

- **Future Without Project Conditions:** Since the shoreline in the study area is receding landward, the threat of storm-driven erosion will become more extreme and frequent over time. The vertical CRM seawall protecting the ocean-fronting buildings within the Mayor's Complex is already undermining due to coastal erosion. Continued erosion will lead to collapse of the seawall and damage to the buildings and facilities behind it. In the future without-project condition, the Agat Mayor's Complex will sustain significant damage from storm-driven erosion due to long-term sea level rise and elevated sea levels during storm events.

- **Description of Action:** The study will evaluate the feasibility of shoreline protection measures to reduce the imminent risk of coastal erosion to critical infrastructure at the Agat Mayor's Complex in Agat, Guam. Measures likely to be considered include seawalls, revetments, and the relocation of facilities at the Agat Mayor's Complex.

- **Federal Interest:** A Federal Interest Determination investigation was completed in July 2022, finding that there are sufficient benefits to warrant continuation of a feasibility study. There are likely to be implementable shoreline protection measures that meet the CAP Section 14 per-project federal participation limit of $10 million and are less than the estimated cost of relocating the Mayor's office ($7 million).

- **Risk Identification:** Study-related risks have not been identified at this time. The PDT will identify and document risks and update this RP to reflect identified risks.

5. FACTORS AFFECTING THE SCOPE AND LEVEL OF REVIEW

A. Is it likely that part(s) of the study will be challenging (ER 1165-2-217, paragraph 3.6.1)? No. This study does not pose unique technical challenges and there is ample experience within USACE to complete the study. The final integrated feasibility report and supporting documentation will contain standard engineering, economic, and environmental analyses and information that is unlikely to be novel or precedent-setting.

B. Provide a preliminary assessment of where the project risks are likely to occur and assess the magnitude of those risks (ER 1165-2-217, paragraph 3.6.1/3.6.2.2). Study-related risks been identified as the following:

- Cost Engineering: Uncertainty about sourcing large rock on Guam; possible delays due to unknown source. Risk rating: Medium

- Cost engineering: Project scope growth could increase, potentially impacting the federal participation limit and delays to the feasibility study. Risk rating: Low
- Engineering: Depth to limestone is based off of LiDAR which is acceptable at this stage of the project, but in the next phase after Geotech investigation the limestone depth may be different, affecting quantities, cost, and potentially environmental review. Risk rating: Low
- Engineering: Water levels resulting from climate change (RSLC, storms) are unknown; project may be under- or over-designed if climate change is different than anticipated. Risk rating: Medium
- Cultural: Potential historic properties in study area may increase costs and delays for Section 106 compliance. Risk rating: Medium
- Environmental: For ESA Section 7 consultation, USFWS determines risk to tree snails or nesting sea turtles; Biological Opinion has a 180 day timeframe and mitigation requirements may lead to study delay and increased construction costs. Risk rating: High
- Environmental: Potential for UXO in study area may cause construction delays. Risk rating: High

C. Is there a significant threat to human life associated with aspects of the study or failure of the project or proposed project (ER 1165-2-217, paragraph 3.6.2.2.2)? The District Chief of Engineering has evaluated risks and determined there is not a significant threat to human life associated with the study or failure of the project.

D. Does/will the study/project have significant interagency interest (ER 1165-2-217, paragraph 3.7.2.2)? It is unlikely that this study will have significant interagency interest. While coordination with resources agencies under NEPA and NHPA is necessary to determine potential impacts to resources in the project area, neither the nonfederal sponsor nor federal or local consulting agencies have expressed strong concerns related to this project.

E. Is the estimated total cost of the project greater than $200 million (ER 1165-2-217, paragraph 6.4.1)? This is a CAP project with a per-project federal participation limit of $10 million. Costs are not expected to exceed $200 million.

F. Has the Governor of an affected state requested a peer review by independent experts (ER 1165-2-217, paragraph 6.4.2)? There has not been a request for independent peer review by the Governor of Guam.

G. Has the Chief of Engineers determined that the project study is controversial due to significant public dispute over the size, nature, or effects of the project or the economic or environmental costs or benefits of the project (ER 1165-2-217, paragraph 6.4.3))? No such determination has been made. The study/project

is not likely to involve significant public dispute as to its size, nature, or effects of the project or its economic or environmental costs or benefits as improvements are proposed to an existing port/Federal project.

H. **Has another agency requested IEPR due to significant environmental impacts (ER 1165-2-217, paragraph 6.5.1.1)?** No; to date, a request has not been made. Based on the information available at this time, it is assumed that IEPR will not be required. This assumption will be revisited once additional information has been obtained and analyses performed. If, at that time, it is determined that the project would benefit from IEPR, this RP will be updated to document that conclusion and submitted to the POD for endorsement and approval.

I. **Is the information in the decision document or anticipated project design likely to contain influential scientific information or be a highly influential scientific assessment – i.e., 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 (ER 1165-2-217, paragraphs 6.5.2 and 7.4.1.1)?** The information in the decision document or anticipated project design is unlikely to contain influential scientific information or be a highly influential scientific assessment as the project is anticipated to involve traditional coastal erosion measures such as seawalls and revetments. Standard engineering and environmental information and analyses will be used.

J. **Will the study/project require an environmental impact statement (EIS) (ER 1165-2-217, paragraph 6.6.1)?** At this time, it has not been determined whether an EIS will be required. Prior to the TSP milestone, the PDT will assess the significance of the potential environmental impacts of the alternatives in the final array to determine if an EIS is necessary. Unavoidable significant effects would require an EIS under NEPA. Should an EIS be required, this Review Plan will be updated to reflect the change in project scope.

K. **Is the project expected to have more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources (ER 1165-2-217, paragraph 6.6.1.2)?** Background research indicates both archaeological and historic resources are in or near the project area; however, there is not enough information to determine whether the project will have significant adverse impacts on scarce or unique tribal, cultural, or historic resources. Further consultation with the Guam SHPO will be undertaken to understand resources in the project APE and potential impacts.

L. **Is the project expected to have substantial adverse impacts on fish and wildlife species and their habitat prior to the implementation of mitigation measures (ER 1165-2-217, paragraph 6.6.1.3)?** The PDT is peripherally knowledgeable of fish and wildlife species in the project area; however, the extent of

each alternative and potential for adverse impacts to resources is yet unknown. Biological surveys of the project area will be performed to determine what living resources are in the project area area and if the project has the potential to have substantial adverse impact on such resources. Any recommendation made will be environmentally acceptable and ensure compliance with environmental laws and regulations.

M. **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 (ER 1165-2-217, paragraph 6.6.1.4)?** No. Based on knowledge of endangered and threatened species in the project area, more than a negligible adverse impact on endangered or threatened species or their designated critical habitat is not anticipated. Upon selection of the TSP, the PDT will be able to adequately evaluate the potential for adverse effects to ESA species and designated critical habitat and determine if more than a negligible adverse impact is anticipated. USACE will ensure close coordination with the Services to ensure full compliance of the project with the Endangered Species Act.

N. **Does the project study pertain to an activity for which there is ample experience within the USACE and industry to treat the activity as being routine (ER 1165-2-217, paragraph 6.6.2.2)?** Yes, the final integrated feasibility report and supporting documentation will contain standard engineering, economic, and environmental analyses and information. The prop osed project is likely to include the construction of a hardened shoreline protection measure, such as a revetment. There is ample experience for performing these activities within the USACE and industry to be considered routine. Study efforts will not utilize novel methods, models, or conclusions and will not be precedent setting or likely to change policy decisions.

Mandatory IEPR Triggers.

A project may require an IEPR if any of the three mandatory conditions in WRDA 2007 Sec 2034, as amended, are triggered:

- Is the estimated total project cost, including mitigation, greater than $200 million? No. This CAP study has a federal funding limit of $10 million. The estimated project first cost identified in the July 2022 Federal Interest Determination Report was approximately $2.3 million.

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

- Has the Chief of Engineers determined the project study is controversial due to significant public dispute over the size, nature or effects of the project or the

economic or environmental costs or benefits of the project (including but not limited to projects requiring an Environmental Impact Statement)?
No. The Chief of Engineers has not determined the project study as controversial due to significant public dispute over the size, nature or effects of the project, nor the economic or environmental costs or benefits of the project.

While none of the three mandatory triggers for IEPR have been met, the POD Commander retains the discretion to conduct IEPR based on a risk-informed assessment of the expected contribution of IEPR to the project.

Discretionary Decision. IEPR is discretionary when the head of a federal or state agency charged with reviewing the project study determines that the project is likely to have a significant adverse impact on environmental, cultural, or other resources under the jurisdiction of the agency after implementation of proposed mitigation plans and he/she requests an IEPR. No such request has been made with respect to this study.

6. REVIEW EXECUTION PLAN

This RP section provides a general description of each type of review and identifies the reviews anticipated for this study/project (Table 1).

A. Types of Review

- **District Quality Control (DQC).** DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements of the project management plan. All decision documents (including data, analyses, environmental compliance documents, etc.) undergo DQC review.

- **Agency Technical Review (ATR).** ATR is performed to assess whether study/project analyses are technically correct and comply with USACE guidance and whether documentation explains the analyses and results in a clear manner. Further, the ATR team will ensure that proper and effective DQC has been performed (as assessment of which will be documented in the ATR report) and will ensure that the product is consistent with established criteria, guidance, procedures, and policy. ATR of the draft and final decision documents and supporting analyses is required (ER 1165-2-217, paragraph 5.3). Targeted reviews may be scheduled as needed.

- **Quality Assurance Review.** POD has responsibility for Quality Assurance (QA). QA includes verifying that the overall project quality control activities are effective in producing a work product that meets the desired end quality. QA activities include reviewing work performed by the District (including implementation of the DQC and ATR processes) and the ATR Team.

- **Independent External Peer Review.** 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 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. The PDT performs a risk-informed assessment whether IEPR is appropriate and documents that assessment/ recommendation in the RP (ER 1165-2-217, paragraph 6.5.2). Should IEPR be required, POD should be contacted at least three months in advance of the anticipated start of the concurrent review period to allow sufficient time to obtain contract services. If required, IEPR will be managed by an Outside Eligible Organization (OEO), external to USACE. Neither the public nor scientific or professional societies would be asked to nominate potential external peer reviewers.

- **Cost Engineering Review.** The Cost Engineering Mandatory Center of Expertise (MCX) will review and certify project costs and may delegate the final cost certification at its discretion. The Director's Policy Memo dated 3 Sep 20 delegates the final cost certification and associated documentation for CAP projects to the cost engineering reviewer assigned to the ATR team. POD is responsible for coordinating with the MCX for review assignments and ATR of cost products.

- **Model Review and Approval/Certification.** EC 1105-2-412 provides the process and requirements for ensuring the quality of planning models. The EC mandates use of certified or approved planning models for all planning activities to ensure that planning products are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions regarding the availability of data, transparency, and described in sufficient detail to address any limitations of the model or its use.

- **Policy and Legal Compliance Reviews (P&LCRs).** All decision documents will be reviewed throughout the study process for compliance with law and policy. ER 1105-2-100 (Appendix H) and DPM CW/DCW memos provide guidance on policy and legal compliance reviews. These reviews culminate in determination whether report recommendations, supporting analyses, and coordination comply with law and policy and whether the decision document warrants approval or further recommendation to higher authority by the POD Commander.

- **Public Review.** POH will post the POD endorsed and approved RP on the District's public website. Internet posting of the RP provides opportunity for the public to comment on that document. It is not considered a formal comment period, and there is no set timeframe for public comment. The PDT should consider any comments received and determine if RP revisions are necessary. During the public comment period, the public will also be provided with the opportunity to review and comment on the report. Should IEPR be required, public comments will be provided to the IEPR panel for consideration.

B. Anticipated Project Reviews and Estimated Costs

Table 1 provides the estimated schedule and cost for reviews anticipated for this study.

Table 1: Agat Shoreline Protection Feasibility Study – Anticipated Reviews

Product to Undergo Review	Review	Start Date	End Date	Cost	Complete
Pre-TSP Milestone Submittals	QA	10 Jun 2024	25 Jun 2024	N/A	No
Draft Feasibility Report and NEPA Document	DQC	21 Mar 2024	24 Apr 2024	$15,000	No
	ATR*	2 May 2024	7 Jun 2024	$19,000	No
	P&LCR	3 May 2024	30 Jul 2024	N/A	No
	Public	22 Jul 2024	21 Aug 2024	N/A	No
Final Feasibility Report and NEPA Document	DQC	3 Dec 2024	13 Jan 2025	$10,000	No
	Targeted ATR*	14 Jan 2025	13 Feb 2025	$10,000	No
	P&LCR	20 Mar 2025	20 June 2025	N/A	No
ATR Lead Participation in Milestone Meetings		As scheduled	As scheduled	N/A	No

**The basis for estimated ATR and IEPR costs (if applicable) is provided in Appendix C of this RP, which must be removed prior to posting on the District's public website.*

C. District Quality Control (DQC)

POH shall manage DQC and will appoint a DQC Lead to oversee that review (ER 1165-2-217, paragraph 4.4.2).

- **Review Team Expertise.** Table 2 identifies the required expertise for the DQC team.

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 Section 14 CAP studies.

Environmental Resources	Expertise in evaluating the impacts associated with shoreline erosion risk. Should also be experienced with environmental coordination, National Environmental Policy Act (NEPA) requirements, Endangered Species Act (ESA) requirements, and the unique needs and lifestyles of small communities.
Coastal Engineering	Expert in the field of coastal engineering and have a thorough understanding of coastal zone processes, wave modeling and shoreline measures (i.e. seawalls). A registered, professional engineer is recommended.
Geotechnical Engineer	Experienced in geotechnical investigation practices including drilling, soil classification and seawall construction measures. 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.
Real Estate	A real estate specialist with experience in developing a Real Estate Plan, non Federal sponsor capabilities assessment, and Appraisal for Section 14 or similar studies.
Climate Preparedness and Resilience	Experienced in USACE coastal preparedness and resilience policy and guidance.
Office of Counsel	Experienced attorney with expertise reviewing Civil Works Decision documents to ensure they are legally sufficent and compliant with existing laws, regulations, and USACE policies.

- **Documentation of DQC**. Quality Control should be performed continuously throughout the study. DrChecks software will be used to document DQC review comments, responses, and issue resolution. Certification of DQC completion is required at the draft and final report stages. Documentation of DQC should follow the District Quality Manual and the POD Quality Management Plan. An example DQC Certification statement is provided in ER 1165-2-217 (Appendix D).

- Documentation of the completed DQC review (i.e., all comments, responses, issue resolution, and DQC certification) will be provided to the ATR Team leader prior to initiating an ATR. The ATR team will assess the quality of the DQC performed and provide a summary of that assessment in the ATR report. Missing or inadequate DQC documentation can result in the start of subsequent reviews being delayed (ER 1165-2-217, paragraph 5.2.2).

D. Agency Technical Review

ATR is mandatory for draft and final decision documents and supporting analyses (ER 1165-2-217, paragraph 5.3). POD will manage the ATR. ATR will be performed by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. Only those persons listed in CTP-CERCAP as certified may perform ATRs (Engineering and Construction (ECB) Implementation of CERCAP Refresh (CTP-CERCAP), Sep 20). POD will identify an ATR lead and ATR team members. The ATR team lead will be from outside POD. The anticipated disciplines and team expertise required for ATR reviews are identified in Table 3.

Table 3: Required ATR Team Expertise

ATR Team Disciplines	Expertise Required
ATR Lead (the ATR Lead should be from outside of the home MSC)	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, economics, environmental resources, etc.).
Planning	A senior water resources planner with experience in Section 14 CAP studies.
Environmental Resources	Expertise in evaluating the impacts associated with shoreline erosion risk. Should also be experienced with environmental coordination, National Environmental Policy Act (NEPA) requirements, Endangered Species Act (ESA) requirements, and the unique needs and lifestyles of small communities.
Coastal Engineering	Expert in the field of coastal engineering and have a thorough understanding of coastal zone processes, wave modeling and shoreline measures (i.e. seawalls). Experience in the evaluation and adaptation of climate change. A registered, professional engineer is recommended.
Geotechnical Engineer	Experienced in geotechnical investigation practices including drilling, soil classification and seawall construction measures. 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.
Real Estate	Experienced in Federal Civil Works real estate law, policy, and guidance. Experienced in development of Real Estate Plans for Civil Works studies, particularly in regards to property acquisition. Must be on the CEMP-CR list of approved reviewers for CAP Section 14 projects.
Climate Preparedness and Resilience	A member of the Climate Preparedness and Resiliency Community of Practice will participate in the ATR review. Experienced in USACE coastal preparedness and resilience policy and guidance.

Risk and Uncertainty	A subject matter expert in multi-discipline flood risk analysis to ensure consistent and appropriate identification, analysis, and written communication of risk and uncertainty.

- **Documentation of ATR.** DrChecks will be used to document ATR comments, responses, and issue resolution. Comments should be limited to those needed to ensure product adequacy. All members of the ATR team should use the four-part comment structure (ER 1165-2-217, paragraph 5.8.3). If a concern cannot be resolved by the ATR team and PDT, it will be elevated to the vertical team for resolution using the issue resolution process identified in ER 1165-2-217. The comment(s) can then be closed in DrChecks by noting the concern has been elevated for resolution. The ATR Lead will prepare a Statement of Technical Review Report, for both draft and final decision documents (ER 1165-2-217, paragraph 5.11). Any unresolved issues will be documented in the ATR report prior to certification. The Statement of Technical Review (ATR completion) includes signatures from the ATR Lead, Project Manager, and POD, and the Certification of ATR includes signatures from the District's Chiefs of Engineering and Planning Divisions.

E. Independent External Peer Review

As detailed in Section 5 above, the mandatory triggers for IEPR have not been met and no requests for IEPR have been submitted by federal or state agencies. Based on this assessment and the RIDM considerations outlined in ER 1165-2-217, para. 6.5.2, the PDT does not recommend an IEPR. The POD Commander maintains the discretionary authority to revisit the decision to conduct an IEPR should significant adverse environmental impacts be identified during the study.

F. Safety Assurance Review

SAR is the most independent level of review for implementation documents or other work products 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 of experts outside USACE is warranted. The purpose of SAR is to have external panels assess the critical decisions and criteria of design or construction activities prior to initiating physical construction and periodically thereafter until construction activities are completed.

Decision on Safety Assurance Review.
Per provisions in ER 1165-2-217, SAR is completed for implementation documents for PED and construction activities for projects where potential hazards pose a significant threat to human life (public safety). The POH Chief of Engineering and Construction has assessed that there is not a significant threat to human life associated with aspects of the study or failure of the proposed project, and therefore SAR is not anticipated to be

required. Following completion of the Feasibility Study a new Review Plan will be developed for the Design & Implementation (D&I) phase. The D&I Review Plan will confirm the determination whether SAR will be needed in the next phase of the study.

G. 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.

EC 1105-2-412 does not address 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 is the responsibility of the user and is subject to DQC, ATR, and IEPR (if required). The following models may be used to develop the decision document.

Table 6: Engineering Models

Model Name and Version	Brief Model Description and How It Will Be Used in the Study	Approval Status
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	CW Cost Engineering MCX mandatory

	using Crystal Ball Abbreviated Risk Analysis for projects under $40 million.	
Total Project Cost Summary (TPCS) (Cost Engineer)	The TPCS is the required cost estimate document that will be submitted for either division or HQUSACE approval. The Total Project Cost for each CW project includes all Federal and authorized non-Federal costs represented by the CW 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
Spectral Wave Model (CMS or STWAVE)	A spectral wave model is a physics based numerical model to aid in the determination of design wave heights.	HH&C CoP Preferred Model

H. Policy and Legal Compliance Reviews

Policy and legal compliance reviews for draft and final planning decision documents have been delegated to the MSC (see Director's Policy Memorandum 2019-01). The P&LC review team is identified by the POD Chief of Planning and Policy for CAP studies. The team is identified in Attachment 1 of this Review Plan. The makeup of the P&LC review team will be drawn from POD, the Planning Centers of Expertise, and other review resources as needed.

- The P&LC review team will be invited to participate in key meetings during the development of decision documents as well as 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 P&LC review team will be documented in a Memorandum for the Record (MFR) produced for each engagement with the team. The MFR will be distributed to all meeting participants.

- In addition, teams may choose to capture some of the P&LC 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 will be documented in an MFR.