



DEPARTMENT OF THE ARMY
PACIFIC OCEAN DIVISION, U.S. ARMY CORPS OF ENGINEERS
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FORT SHAFTER, HAWAII 96858-5440

CEPOD-PDC (1105)

9 January 2023

MEMORANDUM FOR Commander, Honolulu Engineer District (CEPOH-PPC/Benjamin Reder), Building 230, Fort Shafter, HI 96858-5440

SUBJECT: Review Plan Approval for East Hagatna Emergency Shoreline Protection (Section 14), East Hagatna, Guam Feasibility Study

1. References:

- a. Engineering Regulation 1165-2-217, Civil Works Review Policy, 1 May 21.
- b. Review Plan for East Hagatna Emergency Shoreline Protection (Section 14) Feasibility Study (Encl).
- c. HQ POD, CEPOD-PDC memorandum (Delegation of Approval Authority for Review Plans for Civil Works Products), 6 Aug 22.

2. The Pacific Ocean Division (POD) is the lead office to execute this Review Plan. In accordance with Reference 1.c., the authority to approve POD Review Plans covering decision documents for Civil Works studies/projects has been delegated to the Director of Programs, POD. The Review Plan does not include an Independent External Peer Review or Safety Assurance Review.

3. I hereby approve this Review Plan, which is subject to change as circumstances require, consistent with work product development under the Project Delivery Business Process. Subsequent revisions to this Review Plan or its execution due to significant changes in the study/scope or level of review will require written approval from the Director of Programs, POD.

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

Encl


DAMON P. LILLY, SES
Director of Programs

REVIEW PLAN

EAST HAGATNA EMERGENCY SHORELINE PROTECTION, GUAM

Continuing Authorities Program (CAP) Section 14

Feasibility Study

Honolulu District

MSC Approval Date: 09 January 2023

Last Revision Date: 12 January 2023



**US Army Corps
of Engineers®**

PLANNING DECISION DOCUMENT REVIEW PLAN

January 2023

OVERVIEW

Project Name: East Hagatna, Section 14 Emergency Shoreline Protection Project
P2 Number: 487594

Decision Document Type: Feasibility Report

Project Business Line: Single-purpose Flood and Storm Damage Reduction
/Emergency Shoreline Protection

District: Honolulu District (POH)

District Contact: Project Manager, 808-835-4029

Major Subordinate Command (MSC): Pacific Ocean Division (POD)

MSC Contact: Continuing Authorities Program (CAP) Manager, 808-835-4621

Review Management Organization (RMO): POD

RMO Contact: Chief of Planning, 808-835-4625

Note: The RMO is the MSC for CAP projects not requiring or expected to require SAR.

Key Review Plan Dates

Date of RMO Endorsement of Review Plan: 09 January 2023

Date of MSC Approval of Review Plan: 09 January 2023

Date of IEPR Exclusion Approval: N/A

Has the Review Plan changed since PCX Endorsement? N/A

Date of Last Review Plan Revision: 12 January 2023

Date of Review Plan Web Posting: 13 January 2023

Date of Congressional Notifications: N/A

Milestones and Other Key Dates

	<u>Scheduled</u>	<u>Actual</u>	<u>Complete</u>
FCSA Execution:	Aug 2021	18 Aug 2021	Yes
Tentatively Selected Plan Milestone:	15 Jun 2022	22 Jun 2022	Yes
Draft Decision Document Concurrent Review (ATR, NEPA, Policy, Public Comment Period Starts):	22 Aug 2022		
Concurrent Review Ends:	22 Sep 2022		
Final Report Transmittal to MSC:	6 Mar 2023		
Final Decision Document Approved:	19 Jun 2023		

Project Fact Sheet
January 2023

Project Name: East Hagatna, Section 14 Emergency Shoreline Protection Project

Location: East Hagatna, Guam

Authority: Section 14 of the 1946 Flood Control Act, as amended (33 U.S.C 701r)

Sponsor: Government of Guam. Guam is a U.S. territory represented by a delegate in the U.S. Congress. The Guam delegate at the time of this report is Mr. Michael F. Q. San Nicholas (D).

Type of Study: Feasibility Study

SMART Planning Status: This CAP study will be completed for a cost of less than \$3 million and within less than 3 years. Based upon estimated costs for the Tentatively Selected Plan and costs to complete the feasibility study, total Federal costs for the project are within the \$10 million limit for CAP Section 14 projects established by the Water Resources Development Act of 2022.

Project Area: The Island of 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 (Figure 1 inset). The project area includes the west central coast of Guam in Hagatna Bay, between the villages of Asan and Tamuning (Figure 1) and more specifically is focused along Marine Corps Drive and the Trinchera Beach reach (Figure 2). Marine Corps Drive is the primary north-south route on the island connecting Andersen Air Force Base to the north and Naval Base Guam to the south.

Problem Statement: Guam is in close proximity to a breeding ground for tropical storms and typhoons and the low-lying coastline of East Hagatna 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 shoreline and undermined the existing seawall along Marine Corps Drive. This damage to the existing shore protection has put Marine Corps Drive and public utilities 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.



Figure 1. Project Area, East Hagatna, Guam.

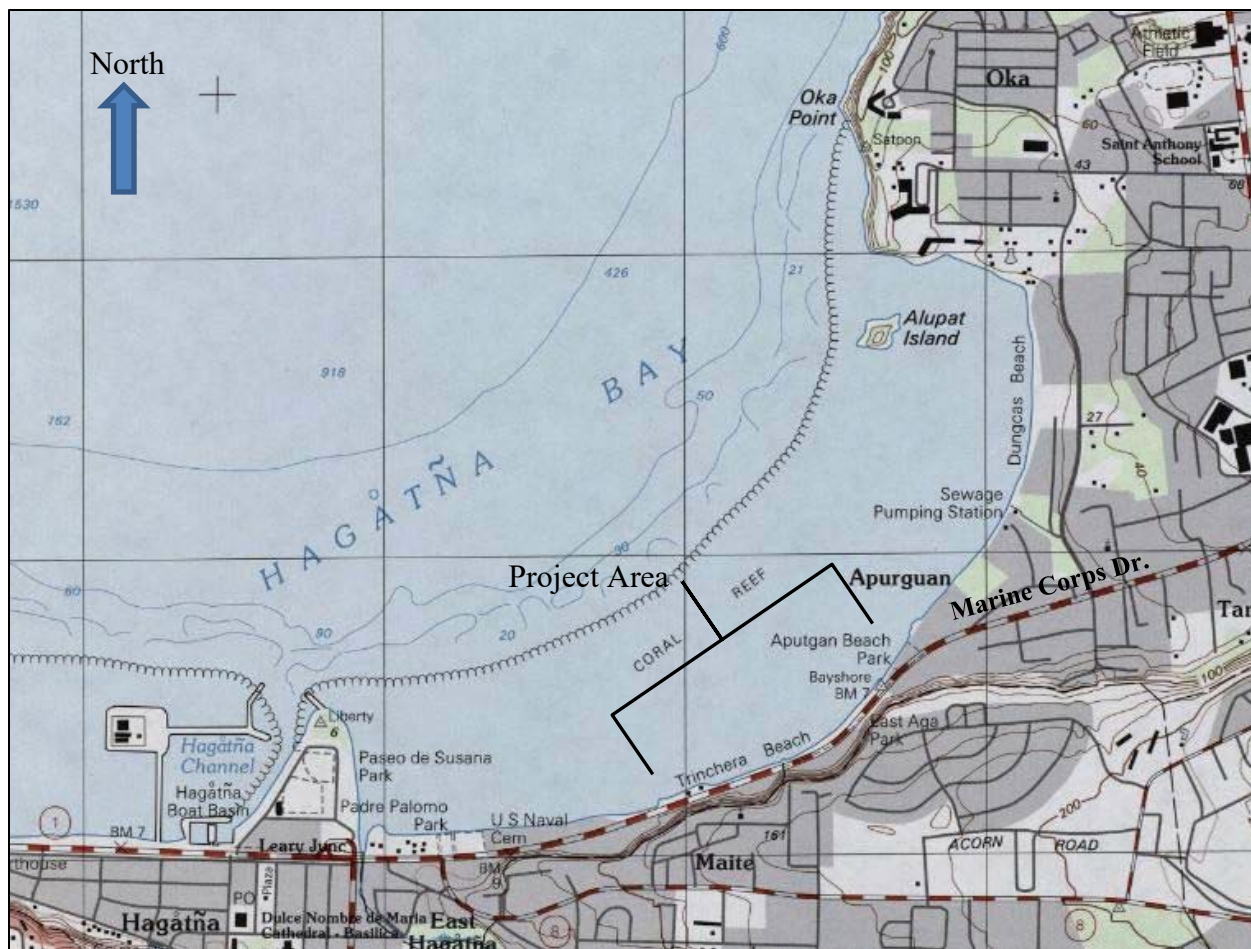


Figure 2. Project Area Detail

Federal Interest: The Federal Interest Determination (FID) was approved by POD on 23 September 2020 and demonstrated federal interest for conducting shoreline protection measures at East Hagatna, Guam. The Feasibility Cost Share Agreement (FCSA) was executed 18 August 2021.

Goals and Objectives: The primary objective of this project is to identify a plan that will provide emergency shoreline protection from coastal erosion to Marine Corps Drive and public utilities in the area, consistent with Federal policy and acceptable to the Non-Federal sponsor. The Government of Guam strongly supports the project and has indicated that there is strong community support. The Conservation of Natural Resource element in the Guam Comprehensive Development Plan and the Guam Territorial Seashore Protection Act of 1974 (PL 12-108, Chapter V-A), will assist in guiding plan formulation, including applicable provisions in Executive Order 78-23 which guide shore area development, and visual quality. The Government Code Section 13450 Territory Beach Areas Act also guides shoreline structure development.

Inventory and Forecast: Under existing conditions, Marine Corps Drive and utilities within the project area will continue to sustain damage from storm event waves. In the future without project conditions, with the added effects of sea level rise, the damage

will become more extreme and frequent over time. Damage to Marine Corps Drive and associated public utilities will result in significant traffic delays, inhibiting not only accessibility for locals and emergency vehicles but also the U.S. military's capability to prepare for and respond to a crisis in the region in a timely manner. The Government of Guam would bear the full burden to protect the public infrastructure, with fiscal impacts and burdens on the Government of Guam to repair or replace the existing seawall wall via a piece meal approach as needed to protect critical public infrastructure. A future project should provide a stabilized shoreline guided by the objectives above that will protect public infrastructure and utilities in the project area while still allowing for continued access to the bay with minimal disruption for recreational activities.

Measures and Alternatives: There is insufficient land area to the east of Marine Corps Drive to relocate the roadway and buried utilities inland to avoid coastal storm damages. The construction contract costs to relocate a 4-lane highway (Marine Corps Drive) inland is approximately \$10M per mile for an anticipated 5-mile road. This cost does not include the additional land acquisition and utility relocation costs. Based on the findings of a November 2019 site visit and input from the non-federal sponsor, it has been determined that relocation of the public facilities at risk is not a feasible option and structural storm damage reduction measures are required to protect existing public infrastructure.

At the time of this review plan preparation, each alternative plan considered, except the no action alternative, consists of a single measure that has potential to protect against erosion, coastal flooding, and wave attacks. The following alternative plans considered included: 1) the no action plan, 2) a revetment, 3) a precast concrete seawall, and 4) a concrete rubble masonry (CRM) wall.

Based on rough-order-magnitude (ROM) or Class 4 screening level cost estimates the total project costs ranged from \$10.68 million (Alternative 2) to \$24.4 million (Alternative 4). The Government of Guam owns all project lands in the area. No real estate acquisition costs are anticipated.

Risk Identification: Marine Corps Drive is the primary north-south route on the island connecting Andersen Air Force Base and Naval Base Guam, both of which play a vital role in regional and national security. Closure of Marine Corps Drive or significant traffic delays would result in concerns with the U.S. Military's ability to prepare for and respond to a crisis in the region.

Additionally, Marine Corps Drive connects numerous island villages on the west side off the island including the capital city of Hagatna. Guam Department of Public Works traffic counts indicate an average of 51,234 vehicles pass through the section of road at risk on a daily basis. Damage to the road and public utilities beneath it, would delay the villages to the south access to essential services such as hospitals and emergency responders, thereby resulting in health and safety risks as well as a significant disruption to Guam's economy.

Due to the increasing risk to Marine Corps Drive and its importance as a commercial transportation artery and strategically vital route, this study was converted from a Section 103 (Hurricane and Storm Damage Reduction) to a Section 14 (Emergency Streambank and Shoreline Protection) under the CAP.

Geotechnical information is required to accurately define site conditions and with incomplete data there is a risk to the plan designs and costs developed during the study. Availability of armor stone and other construction supplies can be limiting on the island. Environmental and other risks are assumed limited at this time.

At this time the USACE understands that risks associated with environmental resources, if any appear, can be minimized or avoided during implementation. Upland habitat in the immediate project area consists of a narrow strip of urban lawn with widely spaced trees and other plantings adjacent to a six-lane roadway referred to as Marine Corps Drive or South Marine Corps Drive. While Guam is home to several terrestrial endangered and threatened species and their critical habitat, it is unlikely that any of these species would be present in the project area. The beach along the toe of the seawall is also quite narrow, and not known to be used as nesting habitat for sea turtles, although sea turtles may be present offshore in Hagatna Bay. The Hagatna Bay benthic habitat includes broad areas of coral, seagrass, and macroalgae; however, the seafloor within roughly 100 feet from the beach appears to be primarily uncolonized sand. No marine or terrestrial preserves exist in the project area.

DOCUMENTATION OF RISKS AND ISSUES

1. PURPOSE

Purpose: This Review Plan defines the levels and scopes of reviews for the East Hagatna, Section 14 Emergency Shoreline Protection project products. Products expected for review includes a project Factsheet (located in the section above); and a Feasibility Report including appendices. Reviews will be managed in accordance to Engineering Regulation (ER) 1165-2-217, Civil Works Review Policy, 01 May 2021. Additional information concerning the CAP can be found in Engineer Pamphlet (EP) 1105-2-58. Planning Continuing Authorities Program, 01 March 2019.

2. FACTORS AFFECTING THE LEVELS AND SCOPES OF REVIEWS

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. Estimated total project costs, based on class IV cost estimates developed for the Tentatively Selected Plan milestone, are approximately \$10.68 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 MSC 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.

Risk-Informed Assessment. The PDT does not recommend an IEPR based on the Risk-Informed Decision Making (RIDM) considerations outlined in ER 1165-2-217, para. 6.5.2, as an IEPR would not substantially benefit or add value to the project study. The study does not address significant life safety concerns, is not burdened by complex challenges, is not controversial, is not expected to utilize novel or precedent setting methods or models, is unlikely to change prevailing practices, does not have significant interagency interest, and does not have significant economic, environmental, or social effects to the Nation. Each of the management measures considered during the federal interest determination are relatively simple in design and construction methods and have been recommended and implemented by USACE on other coastal erosion protection projects.

Level and Scope of Review.

The study will produce a feasibility report (including appendices) with an integrated NEPA document. The draft report will undergo an initial District Quality Control (DQC) review, followed by a concurrent review that includes Agency Technical Review (ATR), policy & legal compliance (P&LC) review, and public review. After the concurrent review comments are addressed, the final report will undergo DQC, Targeted ATR, and MSC Quality Assurance (QA) and P&LC reviews before the final report is approved. The various reviews are detailed in Table 1. Factors affecting the risk informed decisions on the appropriate levels of review are discussed below.

- Will the study likely be challenging? No, the project does not have any significant technical, institutional, or social challenges that will affect the level of review. The study consists of shoreline erosion measures that do not involve the use of innovative materials or techniques and do not present complex challenges or precedent-setting methods or models.
- Provide a preliminary assessment of where the project risks are likely to occur and assess the magnitude of those risks. A preliminary list of risks have been identified by the Project Development Team (PDT), as noted in the Risk Identification section above, and none are expected to affect the level of review. The magnitude of each of these identified risks is assumed to be low, but the risk will be managed as the data gaps are filled. Additionally, a risk register will be developed for this study.
- Is the project likely to be justified by life safety or is the study or project likely to involve significant life safety issues? No. Stabilized shoreline conditions along Marine Corps Drive will decrease threats to human life and safety by reducing the risk of loss of public infrastructure, including utilities. This statement has been reviewed by the Chief, Engineering Construction and Operations, Honolulu District District, and has his concurrence. While life safety is a consideration and may

provide additional benefits, the project is expected to have justification based on economic benefits. For CAP Section 14 projects, the least cost alternative plan is considered to be justified if the total cost of the proposed alternative is less than the cost to relocate the threatened facility.

- 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 shoreline protection projects completed by POH 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? No. This is a small project in scope and complexity and is unlikely to require redundancy, resiliency, and/or robustness. If needed during construction there are alternative, although longer, alternative north-south routes that can be utilized by vehicle traffic.

- Is the project expected to have more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources? No. Alternative plans will be implemented along an existing roadway and this activity is not anticipated to adversely impact scarce or unique tribal, cultural, or historic resources; however, this will be formally assessed during feasibility. Due to the history of traditional burials on beaches, an archaeological monitor would be present during construction to minimize any potential adverse effect associated with an unanticipated human remains discovery.

- Is the project expected to have substantial adverse impacts on fish and wildlife species and their habitat prior to the implementation of mitigation measures? No. This project is not expected to have substantial adverse impacts on fish, wildlife, or their habitat. In-water work would require coordination in order to obtain a Fish Habitat Permit (FHP) by the local sponsor. The placement of fill material in the water of the United States, including wetlands, would require analysis under Section 404 of the Clean Water Act (CWA).

- 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? No. It is not anticipated that this project would adversely impact endangered or threatened species or their designated critical habitat, but this will be evaluated during feasibility.

- Will the project 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 community support.

- 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. Preliminary evaluation of project costs and potential benefits indicates that all structural alternatives proposed would improve shoreline erosion for less than the cost of relocating Marine Corps Drive. Estimated total project costs for the Tentatively Selected Plan are approximately \$10.68 million.

District Chief of Engineering's Life/Safety Assessment. 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.

3. REVIEW EXECUTION PLAN

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

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

Agency Technical Review (ATR). ATR will be performed by a qualified team 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 the home MSC.

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 be the cost engineering reviewer assigned to the ATR team. The RMO is responsible for coordinating with the MCX for review assignments and ATR of cost products.

Model Review and Approval/Certification. EP 1105-2-58 specifies that approval of planning models is not required for CAP projects, but planners should utilize certified models if they are available. The ATR certification package for CAP ATR reviews must include an explicit statement that says that models and analyses are used appropriately and in a manner that is compliant with Corps policy, and they are theoretically sound, computationally accurate, and transparent. ATR certification packages also must address any limitations of applied models or their use.

Policy and Legal Review. 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 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 home MSC Commander.

Public Review. The home District will post the Review Plan and approval memo on the district internet site. Public comment on the adequacy of the Review Plans will be accepted and considered. Additional public review will occur when the report and environmental compliance document(s) are released for public and agency comment.

Quality Assurance Review. POD, as the RMO, 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.

Table 1 provides the schedules and cost for reviews. The specific expertise required for the teams are 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 Level	Site Visit	Start Date (mo/day/yr)	End Date (mo/day/yr)	Cost	Complete
Appendices for Draft Feasibility Report and EA	On-going in District peer level reviews of appendices/technical data supporting and leading up to Draft Feasibility Report and EA: e.g., Hydrology/Hydraulics, Coastal Engineering, Economics, Geotechnical Engineering, Structural Engineering, Cost Engineering, and Real Estate Plan.				N/A	
Draft Feasibility Report, EA and Appendices	DQC	No	Jun 2022	Aug 2022	\$5,000	No
	District Legal Sufficiency Review	N/A	25 July 2022	22 Aug2022	N/A	No
	ATR	No	22 Aug 2022	22 Sep 2022	\$15,000	No
	MSC QA and Policy & Legal Compliance Review	N/A	22 Aug 2022	22 Sep 2022	N/A	No
	Public Review	N/A	22 Aug 2022	22 Sep 2022	N/A	No
Final Feasibility Report, EA and Appendices	DQC	No	Dec 2022	Jan 2023	\$5,000	No
	Targeted ATR	No	Jan 2023	Jan 2023	\$5,000	No
	District Legal Sufficiency Review	N/A	Jan 2023	Feb 2023	N/A	No
	MSC QA and Policy & Legal Compliance Review	N/A	Mar 2023	Apr 2023	N/A	No
In-kind Products from Sponsor - Site Control Survey (Lidar)	District Review	N/A	May 2022	Sep 2022	N/A	No

a. DISTRICT QUALITY CONTROL

The home district (POH) will manage DQC and will appoint a DQC Lead to manage the local review (see ER 1165-2-217, Chapter 4, section 8.a.1). Table 2 identifies the required DQC team expertise. The DQC Team members should not be involved in the production of any of the products reviewed. The DQC Lead should prepare a DQC Plan and provide it to the RMO prior to starting DQC reviews.

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 engineering, environmental resources, etc.).
Planning	A senior water resources planner with experience in formulation, evaluation, and selection of alternatives for coastal storm risk management. The planning reviewer will review the evaluation and selection of the least-cost environmentally acceptable alternative and comparison of alternative costs to the cost of relocation.
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 Engineer/Climate Preparedness & Resilience	Expert in the field of coastal hydraulics and have a thorough understanding of analyses of cross-sections, wave modeling and shoreline measures (i.e., seawalls). Experience in USACE climate preparedness and resilience policy and guidance. Experience in the evaluation of climate preparedness and resilience. 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.
Structural Engineer	Expert in design and physical integrity of concrete structures. 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	The Real Estate reviewer should have experience developing Real Estate Plans supported by appropriate analyses for coastal storm risk management projects.
Office of Counsel	Experienced attorney with expertise reviewing Civil Works decision documents to ensure they are legally sufficient and compliant with existing laws, regulations, and USACE policies. An OC reviewer will conduct a legal sufficiency review.

Documentation of DQC. Quality control will be performed continuously throughout completion of the Feasibility Study. Certification of DQC completion is required prior to ATR. Documentation of DQC should follow the POH Quality Manual and the POD Quality Management Plan. DrChecks software will be used to document DQC review (comments, responses, and issue resolution) except those provided by Office of Counsel. An example DQC Certification statement is provided in ER 1165-2-217, Appendix D (Figure F).

Documentation of the completed DQC review (i.e., all comments, responses, issue resolution, and DQC certification) will be provided to the RMO and ATR Team leader prior to initiating an ATR/subsequent reviews. 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 (see ER 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. POD will manage the ATR. The review will be 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 ER 1165-2-217, Chapter 5.5.3). Table 3 identifies the disciplines and required expertise for this ATR Team (also see Attachment 1 – the ATR Team roster).

Table 3: Required Agency Technical Review Team Expertise

ATR Team Disciplines	Expertise Required
ATR Team Lead	The lead will be a senior professional with extensive experience preparing CW decision documents and conducting ATR. The lead may also serve as a reviewer for a specific discipline (such as plan formulation, environmental resources, etc.).
Planning	A senior water resources planner with experience in formulation, evaluation, and selection of alternatives for

	coastal storm risk management. The planning reviewer will review the evaluation and selection of the least-cost environmentally acceptable alternative and comparison of alternative costs to the cost of relocation.
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.
Cultural Resources	A senior archeologist will have experience with the National Historic Preservation Act (NHPA) and preferably be familiar with the local cultures of Guam.
Coastal Engineer/Climate Preparedness & Resilience	Expert in the field of coastal hydraulics and have a thorough understanding of analyses of cross-sections, wave modeling and shoreline measures (i.e., seawalls). Experience in USACE climate preparedness and resilience policy and guidance. Experience in the evaluation of climate preparedness and resilience. 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.
Structural Engineer	Expert in design and physical integrity of concrete structures. 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	The Real Estate reviewer should have experience developing Real Estate Plans supported by appropriate analyses for coastal storm risk management projects.

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 review team should use the four-part comment structure (ER 1165-2-217, Paragraph 5.8). If a concern cannot be resolved by the review team and PDT, it will be elevated to the vertical team for resolution using the issue resolution process identified in ER 1165-2-217, Paragraph 5.9. The comment(s) can then be closed in DrChecks by noting the concern has been elevated for resolution. The Review Team Lead will prepare a Statement of Technical Review Report (see ER 1165-2-217, Paragraph 5.10), for the draft and final reports, certifying

that review issues have been resolved or elevated. Any unresolved issues will be documented in the review report prior to certification.

c. INDEPENDENT EXTERNAL PEER REVIEW

As detailed in Section 2 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 MSC maintains the discretionary authority to revisit the decision to conduct an IEPR should significant adverse environmental impacts be identified during the study.

d. 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.

e. MODEL CERTIFICATION OR APPROVAL

EP 1105-2-58 specifies that approval of planning models is not required for CAP projects. It is not anticipated that any planning models will be utilized for the study. The following engineering models will be used to develop the decision document:

Table 4: Engineering Models. These models may be used to develop the decision document:

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 using Crystal Ball 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 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

f. POLICY AND LEGAL COMPLIANCE REVIEW

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

(i) Policy Review.

The policy review team is identified by the POD Chief of Planning and Policy for CAP. The team is identified in Attachment 1 of this Review Plan. The makeup of the Policy Review team will be drawn from POD, 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 the milestone meeting. These engagements may include In-Progress Reviews or policy team meetings in addition to the milestone meeting.
- 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 the District and POD. 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.

g. PUBLIC POSTING INFORMATION PER ER 1165-2-217

As required by ER 1165-2-217, Paragraph 3.8.1 the approved Review Plan, excluding project sensitive or security-related information, will be posted on the District public website (<https://www.poh.usace.army.mil/Missions/Civil-Works/Project-Review-Plans/>). This is not a formal comment period and there is no set timeframe for the opportunity for public comment. When comments are received, the PDT will consider them and decide if revisions to the Review Plan are necessary.

h. REVIEW PLAN APPROVALS AND UPDATES

The POD Commander has delegated the authority to approve Review Plans for decision documents to the POD Director of Programs. The approval from the POD Director of Programs reflects vertical team input (involving POH and POD) regarding the appropriate scope, level of review, and endorsement by POD. The Review Plan is a living document and should be approved and updated in accordance with ER 1165-2-217, Paragraph 3.7.2 and 3.7.3. All changes made to the approved Review Plan will be documented. The latest version of the Review Plan, along with the POD Programs Director's approval memorandum, will be posted on the POH District's webpage and linked to the HQUSACE webpage. The approved Review Plan should be provided to the POD..

DISCLAIMER: This information is distributed solely for the purpose of pre-dissemination review under applicable information quality guidelines. It does not represent and may not be construed to represent any agency determination or policy.