



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NORTH ATLANTIC DIVISION
FORT HAMILTON MILITARY COMMUNITY
302 GENERAL LEE AVENUE
BROOKLYN NY 11252-6700

AUG 26 2015

CENAD-PD-P

MEMORANDUM FOR Commander, New York District, (CENAN-PP-C/Nathanael Wales) 26 Federal Plaza, New York, NY 10278

SUBJECT: Review Plan Approval for North Shore of Long Island, Bayville, New York Feasibility Report

1. Reference, North Shore of Long Island, Bayville, New York Feasibility Report Review Plan prepared by New York District dated June 2015.
2. The Coastal Storm Risk Management Planning Center of Expertise of the North Atlantic Division is the lead office to execute the referenced Review Plan. The Review Plan includes Independent External Peer Review.
3. The referenced Review Plan is approved for execution and subject to change, as study circumstances require, consistent with study development under the Project Management Business Process. Subsequent revisions to this Review Plan or its execution require new written approval from the NAD Commander.
4. The point of contact is Mr. Larry Cocchieri, NAD Planning Program Manager, 347-370-4571, Lawrence.J.Cocchieri@usace.army.mil.

Encl

A handwritten signature in black ink, appearing to read "W. H. Graham".

WILLIAM H. GRAHAM
Brigadier General, USA
Commanding

REVIEW PLAN

NORTH SHORE OF LONG ISLAND, BAYVILLE,
NEW YORK
Feasibility Report

New York District

MSC Approval Date: Pending
Last Revision Date: None



REVIEW PLAN

NORTH SHORE OF LONG ISLAND, BAYVILLE, NEW YORK Feasibility Report

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the North Shore of Long Island, Bayville, New York, Feasibility Report.

b. References

(1) Engineering Circular (EC) 1165-2-214, Civil Works Review, 15 Dec 12

(2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 11

(3) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 06

(4) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 07

(5) Bayville feasibility study PMP

(6) New York District Quality Management Plan

c. Requirements. This Review Plan was developed in accordance with EC 1165-2-214, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-214) and planning model certification/approval (per EC 1105-2-412).

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

a. The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for decision documents is typically a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The RMO for the peer review effort, described in this Review Plan, is the Planning Center of Expertise for Coastal Storm Risk Management, PCX-CSR (*the "Coastal PCX"*).

b. The RMO will coordinate with the Cost Engineering and ATR Mandatory Center of Expertise (MCX) to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies.

3. STUDY INFORMATION

a. Decision Document. The North Shore of Long Island, Bayville, New York Feasibility Study is a General Investigations, PL113-2-funded study with alternatives which will most likely require approval of the USACE Director of Civil Works (a Director's Report) and authorization for construction from the Assistant Secretary of the Army for Civil Works. The project purpose is coastal storms risk management (CSRM) to protect the village of Bayville from storm-induced erosion and flooding from both Long Island Sound and Oyster Bay/Millneck Bay (which are to the south of this low-lying community). The National Environmental Policy Act (NEPA) documentation will be an Environmental Assessment (EA) prepared along with the document.

b. Study/Project Description. Bayville is a low-lying community bound by two water bodies: Long Island Sound to the north and Oyster Bay/Millneck Bay to the south. During periods of storm events, water levels of the Sound and the Bay rise to exceptional heights due to the combination of high astronomical tide and storm surges. The floodwater flows through low or damaged seawalls and dunes on Long Island Sound and through low-lying ground on the Bayside, causing severe flooding damage. In addition, interior drainage via gravity force is mostly blocked due to the rise of surrounding sea level and ground water level. Historically, the worst inundated and flood damaged area is located approximately between Arlington Avenue to the west and West Harbor Drive to the east and between the north and south waterfront shorelines. The community north of Bayville Avenue confronts exceptionally high water level due to storm surge combined with large storm waves generated in Long Island Sound and breaking on the existing bulkhead seawall or segments of dune system. Storm waves also undermine the toe of the shore protection structures or overtop the existing protective seawall and dune, resulting in eventual failure during storms. Breaking waves directly attack properties landward of failed seawalls or dunes, causing property damages. In addition, floodwater inundates the low ground and continues flowing to the low ground south of Bayville Avenue, causing inundated streets and basements. The average ground elevation in this area ranges from approximately +12 ft NGVD along northern shoreline to approximately +8 ft NGVD along Bayville Avenue. Average ground elevation is generally higher to the east of Ludlam Avenue (located approximately in the middle of the study area). In addition to direct wave damages to the seawall, dune, front row buildings, and road, additional properties on the low-lying ground are also inundated. During the December 1992 nor'easter, storm waves crashed through seawalls and dunes, damaged buildings and foundations, and flooded basements and properties in the region north of Bayville Avenue. The hardest hit area was the waterfront structures near Ludlam Avenue with breaking waves and flood flows rushing through damaged buildings. The crest elevations of breaking waves were estimated at +14.5 to +15.0 ft NGVD while the flood elevation north of Bayville Avenue was estimated from +10.0 ft to +10.7 ft NGVD (Flood Mark Report and Mapping by Sydney Bowne, March, 2003).

(1) Although the low-lying community south of Bayville Avenue is spared from direct wave-attack, this area is vulnerable to storm water inundation due to surge flows

from Long Island Sound through damaged seawalls and dunes to the north Bay. Flood flows through low-lying marsh lands and roadway (West Harbor Drive). The average ground elevation in this area is generally lower to the west of Ludlam Avenue (+ 8 to +10 ft NGVD) and higher to the east (+10 to +12 ft NGVD). The average road elevation of West Harbor Drive, which rings the southeastern border of this area, is approximately +11.5 ft NGVD. Several low spots in this area at elevation +6.8 to +7.5 ft NGVD have served as temporary drainage basins. In addition to storm surge flows, heavy rainfall during storms (estimated at 3.5 inches during the 1992 nor'easter) combined with saturated soil and higher ground water table also contributes to inundation.

(2) During the 1992 nor'easter, the floodwater elevations were estimated at approximately +10.5 to +11.0 ft NGVD south of Bayville Avenue. Floodwater would remain in the basement and on low ground for the duration of the storm due to the lack of efficient internal drainage systems, storm rainfall, and higher than normal groundwater level, causing prolonged flood damage. During the 1992 nor'easter, approximately 1,000 homes, more than one-third of the total 2,437 homes in the Village, were affected by the storm. The damage range from failed seawalls, demolished homes, flooded basements and floors, and cars to irreplaceable pieces of personal valuables such as collections of antiques, old photographs, books, and furniture. The roadway was temporarily cut off, and many residents had to be in shelters due to interruption of utility and food supply. In summary, significant flooding from both the Sound and Bay combined with storm rain and high groundwater elevation will continue to cause property damage, traffic delays or interruption, and threats to life and safety, under the existing condition.

(3) The feasibility report, under review, will examine structural and nonstructural measures and formulate plans to reduce this beach erosion and storm damage. Plans will be formulated in accordance with general Planning Guidance and Collaborative Planning Guidance. Plans, outlined in the draft feasibility study, will emphasize beach erosion control and storm damage reduction activities that involve construction of structures, fill, or nonstructural measures, and are most likely to be appropriate for Corps initiatives.

c. Factors Affecting the Scope and Level of Review. This section addresses the factors affecting the risk informed decisions on the appropriate scope and level of review. The discussion is intended to be detailed enough to assess the level and focus of review and support the PDT, the PCX, and vertical team decisions on the appropriate level of review and types of expertise represented on the various review teams. Bulleted issues are addressed as follows:

- If parts of the study will likely be challenging (with some discussion as to why and why not and, if so, in what ways – consider technical, institutional, and social challenges, etc.):

There are no challenging aspects in this study. Standard study techniques will be used to examine the exposure of Bayville to coastal storm erosion and flooding and

to consider measures such as hard structures, beach fill, and non-structural measures to reduce the risk of storm damage.

- A preliminary risk assessment of where the project risks are likely to occur and what the magnitude of those risks might be (e.g. what are the uncertainties and how might they affect the success of the project):

The only anticipated risks are associated with the unpredictability of the number and severity of future storm events that might affect the performance of alternatives.

- If the project will be justified by life safety or if the project likely involves significant threat to human life/safety assurance, consider at minimum the safety assurance measures described in EC 1165-2-214 including, but not necessarily limited to, the consequences of non-performance of project economics, the environmental and social well-being (public safety and social justice); residual risk; uncertainty due to climate variability, etc.:

While adding hard structures and beach fill and non-structural measures will reduce the current risk to residents during storms, there is a residual risk from the non-performance of hard structures on project economics and life safety.

- If there is a request by the Governor of an affected state for a peer review by independent experts:

There has been no such request.

- If the project is likely to involve significant public dispute as to the size, nature, or effects of the project:

We anticipate that public issues would not be significant and would not require preparation of an Environmental Impact Statement. Hard structures and beach fill are generally desired as measures to reduce the risk of storm damages.

- If the project is likely to involve significant public dispute as to the economic or environmental cost or benefit of the project:

We anticipate that public issues would not be significant and would not require preparation of an Environmental Impact Statement. Hard structures and beach fill are generally desired as measures to reduce the risk of storm damages.

- If information in the decision document or anticipated project design is likely to be based on novel methods, involve the use of 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:

Standard methods of analysis will be employed and include well-documented techniques for evaluating coastal processes.

- If the project design is anticipated to require redundancy, resiliency, and/or robustness, unique construction sequencing, or reduced or overlapping design construction schedule:

The project is likely to use standard construction designs and techniques, and if included, dredging equipment, which has used many times in the past. Hard structures, beach fill, and non-structural measures are employed at many similar project locations. This is not expected to require redundancy, unusual resiliency or robustness, unique construction sequencing or reduced or overlapping design construction schedule.

d. In-Kind Contributions. The in-kind products and analyses to be provided by the non-Federal sponsor, the New York State Department of Environmental Conservation, include coordination in such matters as soliciting public involvement, public access dependent on the alternative selected, and local cost sharing support.

4. DISTRICT QUALITY CONTROL (DQC)

All decision documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). The home district manages DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC

a. Documentation of DQC. District Quality Control will be documented using a Quality Control Report, managed in the New York District and signed by those members performing the DQC and the Division Chiefs of the major technical offices responsible for producing this report.

b. Products to Undergo DQC. Interim and final products and ultimately the Feasibility Report and appendices and the EA.

c. Required DQC Expertise. The expertise of the DQC review team will consist of Section Chiefs and subject matter experts or regional technical specialists in the fields of Plan Formulation, NEPA compliance, and Engineering Design and Analysis, and Real Estate.

5. AGENCY TECHNICAL REVIEW (ATR)

a. ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.). The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The

ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. ATR is managed within USACE by the designated RMO and conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project product. ATR teams are comprised of senior USACE personnel and may be supplemented by outside experts, as appropriate. The ATR team lead will be from outside the home MSC.

b. Products to Undergo ATR. ATR is conducted on the Draft Report (including NEPA and supporting documentation). Additional ATR of key technical and interim products, MSC-specific milestone documentation, and In-Progress Review (IPR) documentation, if such documentation becomes necessary, should occur depending on the study needs and the requirements of MSC/District Quality Management Plans. Where practicable, technical products that support subsequent analyses will be reviewed prior to being used in the study and may include: surveys and mapping, hydrology and hydraulics, coastal engineering, geotechnical investigations, economic, environmental, cultural, and social inventories, annual damage and benefit estimates, cost estimates, and real estate requirements.

c. Required ATR Team Expertise. An ATR Team Leader and eight technical disciplines were determined appropriate for review of products leading to the feasibility report and EA including: plan formulation, economics, environmental resources, coastal engineering, geotechnical engineering, civil engineering, cost engineering and real estate. All members should be well versed in the conducting coastal storm damage risk reduction studies. Reviewers should be from outside the project district and the review lead should be from outside the project MSC.

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. Typically, the ATR lead will also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc).
Plan Formulation	The planning reviewer should be a senior water resources planner with experience in the plan formulation process. The reviewer should be familiar with evaluation of alternative plans for coastal storm damage reduction projects.
Economics	The economics reviewer should be a senior water resource economist with experience in coastal storm damage reduction projects.

Environmental Resources	The environmental resources reviewer should be a senior NEPA compliance specialist with experience in coastal storm damage reduction projects.
Coastal Engineering	The coastal engineering reviewer should be a senior engineer with experience with coastal storm damage reduction projects.
Geotechnical Engineering	The geotechnical reviewer should be a senior engineer experienced in geotechnical analyses for storm damage reduction projects.
Civil Engineering	The civil engineering reviewer should be a senior engineer with experience in storm damage reduction projects.
Cost Engineering	The cost engineering reviewer should be a senior engineer with experience in storm damage reduction projects. A separate process and coordination is also required through the Walla Walla District MCX for cost engineering and ATR.
Real Estate	The real estate reviewer should be a senior real estate specialist with experience in coastal storm damage reduction projects.
Risk Reviewer	The risk analysis reviewer will be experienced with performing and presenting risk analyses in accordance with ER 1105-2-101 and other related guidance, including familiarity with how information from the various disciplines involved in the analysis interact and affect the results. This review can be combined with either the Economics or H&H reviews.

d. Documentation of ATR. DrChecks review software will be used to document all ATR comments, responses, and associated resolutions accomplished throughout the review process. Comments should be limited that which is required to ensure adequacy of the product. The four key parts of a quality review comment will normally include:

(1) The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;

(2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that was not properly followed;

(3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and

(4) The probable specific action needed to resolve the concern – identify the

action that the reporting officers must take to resolve the concern.

(5) In some situations, especially addressing incomplete or unclear information, comments may seek clarification in to assess whether further specific concerns exist.

e. The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the district, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern was elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports are considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;
- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue; and
- Include a verbatim copy of each reviewer's comments (with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

f. The ATR may be certified when all concerns are resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team were resolved (or elevated to the vertical team). A Statement of Technical Review should be completed, based on work reviewed to date, for the draft report. A sample Statement of Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

a. 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 certain criteria where the risk and magnitude of the proposed project warrants a critical examination by a qualified team outside of USACE. A risk-informed decision, described in EC 1165-2-214, determines whether IEPR is appropriate. IEPR panels consist of independent, recognized experts from outside of the USACE in the appropriate

disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

(1) Type I IEPR. Type I IEPR reviews are managed outside 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. Type I IEPR covers the entire decision document or action and address all underlying engineering, economics, and environmental work. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall be addressed during the Type I IEPR per EC 1165-2-214.

(2) Type II IEPR. Type II IEPR, or Safety Assurance Reviews (SAR), are managed outside USACE and conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.

b. Decision on IEPR. The North Shore of Long Island, Bayville, New York coastal storms risk management feasibility study may involve public life safety and welfare. This project may benefit from Type I IEPR.

Risk Informed Decision:

- The project may meet the mandatory triggers for Type I IEPR described in Paragraph 11.d.(1) and Appendix D of EC 1165-2-214. Additionally:
- What are the consequences of non-performance on project economics, the environmental and social well-being (public safety and social justice)?

This project may reduce the present and future risk of coastal storm damages. If, in the future, such potential benefits are no longer considered viable, the project could be re-examined to modify the future investment of the nation's resources. Additionally, while adding hard structures and beach fill, and non-structural measures, will reduce the current risk to residents during storms, there is a residual risk from the non-performance of hard structures on project economics and life safety.

- Are the products likely to contain influential scientific information or be highly influential scientific assessment?

No. No innovative information is expected to result from the study or the potential project.

- Does the decision document meet any of the possible exclusions described in Paragraph 11.d.(3) and Appendix D of EC 1165-2-214, and if so, how?

No. See below.

- Is there a significant threat to human life?

There is a potential significant threat to human life. While adding hard structures and beach fill, and non-structural measures, will reduce the current risk to residents during storms, there is a residual risk from the non-performance of hard structures on project economics and life safety.

- Does the estimated cost of the project, including mitigation costs, exceed \$45 million?

No.

- Has the Governor of the affected State (New York) requested a peer review by independent experts?

No.

- Has the head of a Federal or state agency charged with reviewing the project study determined 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 has he/she requested IEPR?

No. An EIS is not required for this project. Although the project might affect certain species identified in the Environmental Assessment, the appropriate coordination will be completed under the Endangered Species Act.

- Is there significant public dispute as to size, nature or effects of the project?

Yes, the potential for significant public dispute over impacts to public access and impacts to visual impacts could arise.

- Is there significant public dispute as to economic or environmental cost or benefit of the project?

No. Significant public dispute is not anticipated.

- Is information based on novel methods, or does the study present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices?

No. This project is not complex and the study is not expected to present challenges for interpretation, set precedents, etc.

- Has the Chief of Engineers identified any other circumstances to determine that Type I IEPR is warranted?

No.

In summary a Type I IEPR may be warranted.

A Type I IEPR is currently planned and a Type II IEPR/SAR may be warranted. At this time we anticipate the project would produce potential hazards which pose a significant if residual threat to human life. However, the Type II IEPR/SAR will be revisited in a follow-on, implementation phase review plan.

c. Products to Undergo Type I IEPR. Draft Feasibility Report including NEPA and supporting documentation.

d. Required Type I IEPR Panel Expertise. Six technical disciplines were determined appropriate for Type I IEPR of the products leading to the feasibility report and EA including: plan formulation, economics, environmental resources, coastal engineering, geotechnical engineering, and civil engineering. All members should be well versed in conducting Coastal Storms Risk Management studies.

Type I IEPR Team Members/Disciplines	Expertise Required
Plan Formulation	The planning reviewer should be a senior water resources planner with experience in the plan formulation process. The reviewer should be familiar with evaluation of alternative plans for coastal storm risk management projects.
Economics	The economics reviewer should be a senior water resource economist with experience in coastal storm risk management projects.
Environmental Resources	The environmental resources reviewer should be a senior NEPA compliance specialist with experience in coastal storm risk management projects.

Coastal Engineering	The coastal engineering reviewer should be a senior engineer with experience with coastal storm risk management projects.
Geotechnical Engineering	The geotechnical reviewer should be a senior engineer experienced in geotechnical analyses for storm risk management projects.
Civil Engineering	The civil engineering reviewer should be a senior engineer with experience in coastal storm risk management projects.

e. Documentation of Type I IEPR. The IEPR panel is selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-214, Appendix D. Panel comments are compiled by the OEO and will address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. IEPR comments will generally include the same four key parts described for ATR comments in Section 4.d. The OEO prepares a final Review Report to accompany the publication of the final decision document and shall:

- (1) Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on the credentials and relevant experiences of each reviewer;
- (2) Include the charge to the reviewers;
- (3) Describe the nature of their review and findings, and conclusions; and
- (4) Include a verbatim copy of each reviewer's comments (with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

f. The final Review Report will be submitted by the OEO no later than 60 days following the close of the public comment period for the draft decision document. USACE shall consider all recommendations contained in the Review Report and prepare a written response for all recommendations adopted or not adopted. The final decision document will summarize the Review Report and USACE response. The Review Report and USACE response will be available to the public, and include through electronic means on the internet.

7. POLICY AND LEGAL COMPLIANCE REVIEW

All decision documents will be reviewed throughout the study process for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the home MSC Commander. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army

policies, particularly policies on analytical methods and the presentation of findings in decision documents.

8. COST ENGINEERING AND ATR MANDATORY CENTER OF EXPERTISE (MCX) REVIEW AND CERTIFICATION

All decision documents shall be coordinated with the Cost Engineering and ATR MCX, located in the Walla Walla District. The MCX will assist in determining the expertise needed on the ATR team and Type I IEPR team (if required) and in the development of the review charge(s). The MCX will also provide the Cost Engineering and ATR MCX certification. The RMO is responsible for coordination with the Cost Engineering and ATR MCX.

9. MODEL CERTIFICATION AND APPROVAL

a. 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, for the purposes of the EC, are defined as any models and analytical tools that planners use to define water resources management problems and opportunities, to formulate potential alternatives to address the problems and take advantage of the opportunities, to evaluate potential effects of alternatives and to support decision making. The use of a certified/approved planning model does not constitute technical review of the planning product. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

b. 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 and the professional practice of documenting the application of the software and modeling results will be followed. As part of the USACE Scientific and Engineering Technology (SET) Initiative, many engineering models have been identified as preferred or acceptable for Corps studies and will be used whenever appropriate. The selection and application of the model and the input and output data is still the responsibility of the users and subject to DQC, ATR, and IEPR (if required).

c. Planning Models. We anticipate using the following planning models in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
HEC-FDA	Application that calculates inundation and damages to an inventory of structures; modified inundation curves will be used to account for wave attack to the most shoreward structures	Certified

d. Engineering Models. We anticipate using the following engineering models are anticipated to be in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
ADCIRC	Finite element numerical advanced circulation model	Certified
WISWave	Directional spectral time-stepping wave model	Certified
spreadsheet model for storm damages on bulkheads and structures behind them	This is widely used by New York District. This model uses wave equations and assumptions of wave scour from the USACE Shore Protection Model, and wave overtopping equations recommended in USACE EM-1110-2-1614 "Design of Coastal Revetments, Seawalls, and Bulkheads" to simulate failure conditions for bulkheads and wave undermining of roads.	Not certified and not CoP-listed, referenced in Shore Protection Manual
EDUNE	This is widely used by New York District. This model calculates erosion and wave climate prediction, and is based on the equilibrium profile theory, as is the Corps model, SBEACH. The erosion prediction is utilized in simulating structure undermining.	Not certified and not CoP-listed; developed after the Shore Protection Manual

10. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost. *The estimated schedule for ATR is 30 October to 15 December 2015. The ATR budget of \$50,000 includes participation of the ATR Lead in milestone conferences to address the ATR process and any significant and/or unresolved ATR concerns.*

b. Type I IEPR Schedule and Cost. The estimated schedule for Type I IEPR on the draft report is 30 October to 15 December 2015. The Type I IEPR budget of \$150,000 includes participation of the Type I IEPR Lead in milestone conferences to address the Type I IEPR process and any significant and unresolved Type I IEPR concerns.

11. PUBLIC PARTICIPATION

There will be continued opportunities for public comment. Public comments and questions will be made available in the final EA, which will be scoped in accordance with regulation.

12. REVIEW PLAN APPROVAL AND UPDATES

The CENAD Commander is responsible for approving this Review Plan. The

Commander's approval reflects vertical team input (involving district, MSC, RMO, and HQUSACE members) as to the appropriate scope and level of review for the decision document. Like the PMP, the Review Plan is a living document and may change as the study progresses. The home district is responsible for keeping the Review Plan up dated. Minor changes to the Review Plan, since the last MSC Commander approval, are documented in Attachment 3. Significant changes to the Review Plan (such as changes to the scope and/or level of review) will be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commander's approval memorandum, will be posted on the Home District's webpage. The latest Review Plan will be provided to the RMO and home MSC.

13. REVIEW PLAN POINTS OF CONTACT

Public questions or comments on this Review Plan can be directed to the following points of contact:

- Nathanael Wales, Plan Formulator, 917-790-8731
- Hibba Wahbeh, NAD, 347-370-4779
- Lawrence Cocchieri, PCX-CSR, 347-370-4571

ATTACHMENT 1: TEAM ROSTERS

Project Manager	Ronald Pinzon	Ronald.R.Pinzon@usace.army.mil	917-790-8627
Chief, Coastal Section	Steve Couch	Stephen.Couch@usace.army.mil	917-790-8707
Project Planner	Nate Wales	Nathanael.T.Wales@usace.army.mil	917-790-8731
Coastal Engineer	Christina Rasmussen	Christina.Rasmussen@usace.army.mil	917-790-8264
Technical Manager	Seth Greenwald	Seth.Greenwald@usace.army.mil	917-790-8030
Economist	Johnny Chan	Johnny.c.chan@usace.army.mil	917-790-8706
Biologist	Howard Ruben	Howard.Ruben@usace.army.mil	917 790-8723
Chief, Environmental Section	Pete Wepler	Peter.M.Wepler@usace.army.mil	917-790-8634
Cultural Specialist	Nancy Brighton	Nancy.J.Brighton@usace.army.mil	917-790-8703
Real Estate Specialist	David Andersen	David.C.Andersen@usace.army.mil	917-790-8456

ATR Team Members to be designated by the PCX - CSR

ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the <type of product> for <project name and location>. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-214. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrCheckssm.

SIGNATURE

Name

ATR Team Leader

Office Symbol/Company

Date

SIGNATURE

Name

Project Manager

Office Symbol

Date

SIGNATURE

Name

Architect Engineer Project Manager¹

Company, location

Date

SIGNATURE

Name

Review Management Office

Representative

Office Symbol

Date

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: Describe the major technical concerns and their resolution.

As noted above, all concerns resulting from the ATR of the project have been fully resolved.

SIGNATURE

Name

Chief, Engineering Division

Office Symbol

Date

SIGNATURE

Name

Chief, Planning Division

Office Symbol

Date

¹ Only needed if some portion of the ATR was contracted

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

<u>Term</u>	<u>Definition</u>	<u>Term</u>	<u>Definition</u>
AFB	Alternative Formulation Briefing	NED	National Economic Development
ASA(CW)	Assistant Secretary of the Army for Civil Works	NER	National Ecosystem Restoration
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
CSDR	Coastal Storm Damage Reduction	O&M	Operation and maintenance
DPR	Detailed Project Report	OMB	Office and Management and Budget
DQC	District Quality Control/Quality Assurance	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DX	Directory of Expertise	OEO	Outside Eligible Organization
EA	Environmental Assessment	OSE	Other Social Effects
EC	Engineer Circular	PCX	Planning Center of Expertise
EIS	Environmental Impact Statement	PDT	Project Delivery Team
EO	Executive Order	PAC	Post Authorization Change
ER	Ecosystem Restoration	PMP	Project Management Plan
FDR	Flood Damage Reduction	PL	Public Law
FEMA	Federal Emergency Management Agency	QMP	Quality Management Plan
FRM	Flood Risk Management	QA	Quality Assurance
FSM	Feasibility Scoping Meeting	QC	Quality Control
GRR	General Reevaluation Report	RED	Regional Economic Development
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMC	Risk Management Center
IEPR	Independent External Peer Review	RMO	Review Management Organization
ITR	Independent Technical Review	RTS	Regional Technical Specialist
LRR	Limited Reevaluation Report	SAR	Safety Assurance Review
MSC	Major Subordinate Command	USACE	U.S. Army Corps of Engineers
		WRDA	Water Resources Development Act