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

22 AUG 2013

CEPOD-PDC

MEMORANDUM FOR COMMANDER ALASKA ENGINEER DISTRICT (CEPOA-PM-C-PL/BRUCE SEXAUER), P.O. BOX 6898, JBER, AK 99506-0898

SUBJECT: Review Plan Approval for the Whittier Navigation Improvements Whittier, Alaska, Feasibility Study.

1. References:

a. Engineering Circular 1165-2-214, Civil Works Review, 15 December 2012.

b. Review Plan for the Whittier Navigation Improvements, Whittier, Alaska, Feasibility Study, Alaska District, U.S. Army Corps of Engineers.

2. This memorandum constitutes approval of the Whittier Navigation Improvements, Whittier, Alaska, Feasibility Study, Alaska District, U.S. Army Corps of Engineers Review Plan.

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

4. For further information or clarification about the review process, please contact the Pacific Ocean Division Small Boat Harbor Planning Sub-Center of Expertise (SBH-PSCX) at 907-753-5755.

5. POC is Mr. Russell Iwamura, Senior Economist, Civil Works Integration Division, 808-835-4625, or email, Russell.K.Iwamura@usace.army.mil.

Encl

RICHARD L. STEVENS
BG, USA
Commanding

REVIEW PLAN

WHITTIER NAVIGATION IMPROVEMENTS
WHITTIER, ALASKA
(General Investigation)

Alaska District

MSC Approval Date: Pending
Last Revision Date: None

US Army Corps
of Engineers ®

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REVIEW PLAN

WHITTIER NAVIGATION IMPROVEMENTS
WHITTIER, ALASKA
(General Investigation)

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the Whittier navigation improvements (General Investigation), Whittier, Alaska, feasibility report.

This Review Plan was developed using the Pacific Ocean Division (POD) version of the U.S. Army Corps of Engineers (USACE) National Planning Center of Expertise (PCX) Review Plan template dated 1 November 2012.

b. References.

(1) Engineer Circular (EC) 1165-2-214, Civil Works Review, 15 December 2012.

(2) EC 1105-2-412, Assuring Quality of Planning Models, 31 March 2011.

(3) Engineer Regulation (ER) 1110-1-12, Quality Management, 30 September 2006.

(4) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 November 2007.

(5) Whittier Navigation Improvements, Project Management Plan (PMP), Revised January 2010.

(6) POD Quality Management Plan, December 2010.

(7) Alaska District Quality Management Plan, CEPOA-QMP-001, January 2010.

(8) Project Management Business Process (PMBP) Reference 8023G and ER 11-1-321, Change 1.

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) and the Value Management Plan requirements in the Project Management Business Process (PMBP) Reference 8023G and ER 11-1-321, Change 1.

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO can be a PCX, the Risk Management Center (RMC), or POD depending on the purpose of the document. The RMO for the peer review effort described in this Review Plan is the Small Boat Harbor Planning Sub-Center of Expertise (SBH-PSCX) located in the Alaska District (Anchorage, Alaska). The SBH-PSCX, as the RMO, will coordinate with the Civil Works 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. Authority. This general investigation study is authorized by the U.S. House of Representatives Public Works Committee Resolution for Rivers and Harbors in Alaska, adopted 2 December 1970. The resolution states in part:

> *Resolved by the Committee on Public Works of the House of Representatives, United States, that the Board of Engineers for Rivers and Harbors is hereby requested to review the report of the Chief of Engineers on Rivers and Harbors in Alaska, published as House Document Number 414, 83d Congress, 2d Session; … and other pertinent reports with a view to determine whether any modifications of the recommendations contained therein are advisable at the present time.*

The project was authorized by Section 5007 of P.L. 119-114, the Water Resources Development Act of 2007. The authorizing language from this act is as follows.

> *Section 5007. Expedited Completion of Reports and Construction for Certain Projects.*
>
> *The Secretary shall expedite completion of the reports and, if the Secretary determines that the project is feasible, shall expedite completion of construction for the following projects:*
>
> *(1) Project for navigation, Whittier, Alaska*

Additional guidance was provided in a memorandum dated 19 December 2008 of subject Implementation Guidance for Section 5007 of the Water Resources Development Act of 2007 (WRDA 2007) – Expedited Completion of Reports and Construction of Certain Projects. The memorandum contained the following guidance specific to the feasibility study.

> *As study funds are available, the respective Districts should complete the feasibility report following report guidelines for projects authorized without a report as specified*

in Appendix H of ER 1105-2-100. The Districts will review the schedule for the proposed project to identify all opportunities to expedite study completion.

b. Decision Document. The decision document for this study will be an integrated feasibility report and NEPA document. The approval of this report will be at HQUSACE and will result in a Director of Civil Works report. At this time, the District is assuming an Environmental Assessment will be prepared along with the feasibility report. If the determination is made that an Environmental Impact Statement (EIS) is required, the Alaska District will update the review plan accordingly.

An Environmental Assessment (EA) or an Environmental Impact Statement (EIS) and associated National Environmental Policy Act (NEPA) decision document will be prepared by the Alaska District along with the feasibility report.

c. Project Sponsor. The City of Whittier is the non Federal sponsor.

d. Study/Project Description. Whittier is on the northeast shore of the Kenai Peninsula, at the head of Passage Canal. It is on the west side of Prince William Sound, 60 miles southeast of Anchorage. The study area for this project is Passage Canal bounded to the west by Shotgun Cove and to the east at the terminus of Passage Canal at an area known as the head of the bay. See Figure 1.

Whittier Harbor was originally constructed in 1970. The project was primarily funded by the State of Alaska. The harbor was designed with 100 berths and upon opening was immediately filled to capacity. A 225-foot sheet-pile breakwater extension and a 130-foot floating breakwater were added in 1972 and 1978, respectively. In 1980, the State of Alaska funded the expansion of the original harbor to contain 332 slips. This expansion also immediately filled to capacity upon opening also. The harbor accommodated recreational and commercial vessels. Support facilities include a harbormaster's office, a 30-ton boat lift and dock, two launching ramps, electric and water utilities, and marine fuel service facilities. In 1990 corroded pilings along the sheet-pile breakwater were replaced, and the concrete floating breakwater was replaced with rubble mound structure. A new float and access pier and ramp for loading passengers aboard day-tour excursion boats were completed in 1992. Space constraints limit dry storage, service areas and parking adjacent to the harbor. These areas are used to capacity during the peak boating season. Separate facilities adjacent to Whittier Harbor are maintained for cruise ship berthing and servicing, Alaska State ferry loading and unloading, and rail barge loading and unloading.

A private harbor, the Cliffside Marina, was constructed in 2004 providing moorage for 103 vessels. The harbor is located to the west of the City Harbor and Whittier Creek. The harbor is approximately 100 feet deep at the entrance and 25 feet deep at the shallowest point. The harbor is protected by a combination of sheet pile and floating breakwaters. Slips are acquired from the marina under a lease – ownership. The few slips that are currently available are selling for $150,000 - $175,000.

The report will document the feasibility of navigation improvements at Whittier, Alaska and assess potential environmental effects associated with a range of alternatives that could be implemented to address existing navigation problems. The primary focus of this report will be to describe the feasibility of providing additional protected moorage.

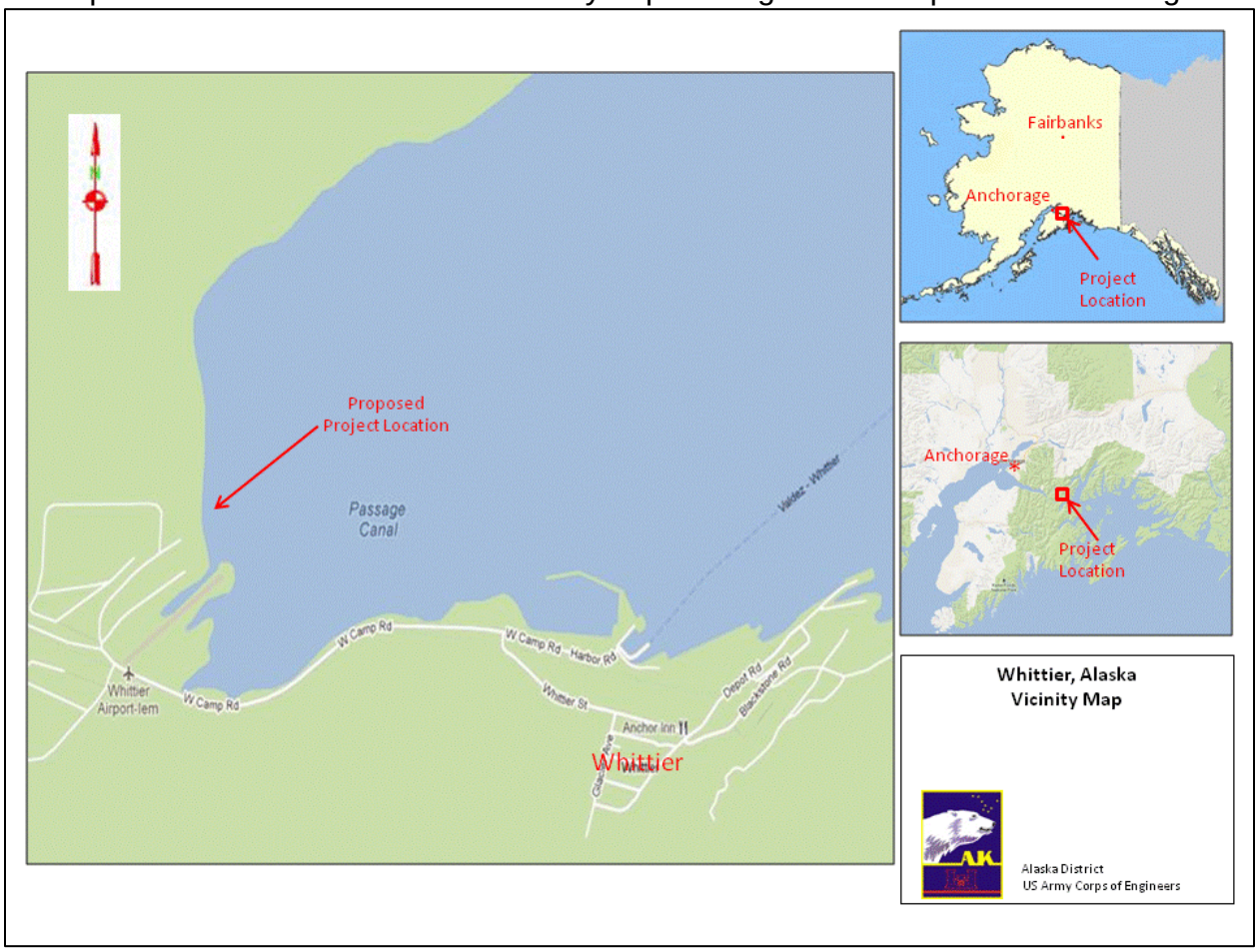

Figure 1: *Whittier, AK, Small Boat Harbor Project Vicinity*

e. Factors Affecting the Scope and Level of Review. This section discusses the factors affecting the risk informed decision on the appropriate scope and level of review. Assumptions are as follows:

- The project likely does not involve a significant threat to human life/safety; however it will likely provide some incidental safety benefits in the form of Harbor of Refuge. The POA Chief of Engineering concurs with this assessment.

- The estimated project cost is less than $45 million.

- There are no significant environmental issues identified at this time.

- The information in the decision document will likely not be based on novel methods, involve the use of innovative material or techniques, present complex

challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices.

- The project report is not likely to contain influential scientific information or be a highly influential scientific assessment.

- There is no request by the Governor of Alaska or an affected state for peer review by independent experts.

- The project is unlikely to involve significant public dispute as to the size, nature or effects of influence.

f. In-Kind Contributions. Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. The anticipated non-Federal sponsor's in-kind services for this study are discussed in the study PMP.

4. DISTRICT QUALITY CONTROL (DQC)

All 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 PMP. POA shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of POA and POD.

a. Documentation of DQC. Documentation of DQC activities is required and should be in accordance with the Quality Management plans of the Alaska District and POD.

b. Products to Undergo DQC. All draft and final documents, including cost estimates, are to be prepared in accordance with the Alaska District Quality Management Plan

c. Required DQC Expertise. The following expertise is needed for DQC.

DQC reviewers should have a minimum of 4 years experience in developing Small Boat Harbors.

Table 1: DQC Expertise

DQC Team Members/Disciplines	Expertise Required
DQC Lead	The DQC lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting DQC. The lead should also have the necessary skills and experience to lead a

	team through the DQC process. The DQC lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc).
Planning	The Planning reviewer should be a senior water resources planner with experience in the USACE planning process and be knowledgeable of current USACE policies and guidance. He/she should be familiar with navigation projects, in particular small boat harbor projects involving the use of breakwaters and other energy reduction measures.
Economics	The economics reviewer should be experienced in economic evaluation of civil works small boat harbor navigation projects.
Environmental Resources	The environmental reviewer will be experienced in coastal ecosystems, the influence of construction of breakwaters and other energy attenuation measures on aquatic plants and species and the NEPA process and analysis procedures. The reviewer should also be experienced in cultural and tribal aspects of USACE navigation projects. The reviewer should also have expertise in environmental compliance for USACE civil works navigation projects, Clean Water Act Section 404, Rivers and Harbors Act Section 10, and other associated environmental laws. Experience with ESA, EFH, or MMPA consultations may also be needed.
Hydraulic (Coastal) Engineering	The hydraulic engineering reviewer will be an expert in the field of coastal hydraulics and have a thorough understanding of analyses of winds, waves, currents, hydrodynamic-salinity, small boat harbor design, and breakwater construction. A registered professional engineer is recommended.
Geotechnical Engineer	The geotechnical reviewer will be experienced in the geotechnical investigation practices including soil classification, the design of breakwater foundations, and the classification of rip rap and core materials for suitability in use of breakwater construction. A registered professional engineer is recommended.
Real Estate	The real estate reviewer will be experienced in Federal civil works real estate law, policy and guidance, and development of Real Estate Plans for civil works studies.
Cost Engineering	The cost engineering reviewer will be familiar with cost estimating for small boat harbor projects 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. Coordination with the Cost Engineering MCX will be required for their approval of the selected cost engineering reviewer and to obtain Cost Engineering MCX certification.

The DQC team members for this study are in Attachment 1.

5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.). The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. ATR is managed within USACE by the SBH-PSCX and is conducted by a qualified team from outside POA that is not involved in the day-to-day production of the project/product. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside POD.

a. Products to Undergo ATR. The draft integrated feasibility report and NEPA document and supporting information (economics, design, cost, etc) will be subject to review.

b. Required ATR Team Expertise. The following ATR expertise is required for this project. Where possible ATR team members will address multiple disciplines and emphasis. The SBH-PSCX, as the RMO, will identify the final make-up of the ATR team and identify the ATR team lead in coordination with the Project Manager (PM), vertical team, and other appropriate centers of expertise.

The purpose of the ATR is to ensure the work product is consistent with established guidance, procedures, criteria, and policy. Members of the ATR team will be from outside the Alaska District, with the ATR Lead outside POD. Members of the ATR team will reflect expertise of Project Delivery Team (PDT) members. It is anticipated that the ATR team will consist of 5-8 persons, (depending upon actual availability of specific persons at the time of the review and how the Cost Engineering MCX is incorporated as part of the ATR). One reviewer can serve on the ATR team to cover more than one discipline, provided they have the appropriate expertise in their background.

Table 2: ATR Required Expertise

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. The ATR lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc). The ATR Lead will be from outside POD.
Planning	The Planning reviewer should be a senior water resources planner with experience in the USACE planning process and be knowledgeable of current USACE policies and guidance. He/she should be familiar with navigation projects, in particular small boat harbor projects involving the use of breakwaters and other energy reduction measures.
Economics	The economics reviewer should be experienced in economic evaluation of civil works small boat harbor navigation projects.
Environmental Resources	The environmental reviewer will be experienced in coastal ecosystems, the influence of construction of breakwaters and other energy attenuation measures on aquatic plants and species and the NEPA process and analysis procedures. The reviewer should also be experienced in cultural and tribal aspects of USACE navigation projects. The reviewer should also have expertise in environmental compliance for USACE civil works navigation projects, Clean Water Act Section 404, Rivers and Harbors Act Section 10, and other associated environmental laws. Experience with ESA, EFH, or MMPA consultations may also be needed.
Hydraulic (Coastal) Engineering	The hydraulic engineering reviewer will be an expert in the field of coastal hydraulics and have a thorough understanding of analyses of winds, waves, currents, hydrodynamic-salinity, small boat harbor design, and breakwater construction. A registered professional engineer is recommended.
Geotechnical Engineer	The geotechnical reviewer will be experienced in the geotechnical investigation practices including soil classification, the design of breakwater foundations, and the classification of rip rap and core materials for suitability in use of breakwater construction. A registered professional engineer is recommended.
Real Estate	The real estate reviewer will be experienced in Federal civil works real estate law, policy and guidance, and development of Real Estate Plans for civil works studies.
Cost Engineering	The cost engineering reviewer will be familiar with cost

	estimating using the MCACES MII model and preparation of an MII Cost Estimate. The reviewer will be Certified Cost Technician, Certified Cost Consultant, or Certified Cost Engineer. Coordination with the Cost Engineering MCX will be required for their approval of the selected cost engineering reviewer and to obtain Cost Engineering MCX certification of the cost estimate.

The ATR team members for this study and a brief description of their credentials are in Attachment 1.

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

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

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

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

(4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

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

The ATR documentation in DrChecks[sm] 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 SBH-PSCX, POD, 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[sm] with a notation that the concern has been 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 will be 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 (if any); and

- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

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

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

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 are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-214, is made as to whether IEPR is appropriate. IEPR panels will 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:

- Type I IEPR. Type I IEPR reviews are managed by an Outside Eligible Organization (OEO) external to the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address

all underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-214.

- Type II IEPR. Type II IEPR, or Safety Assurance Reviews (SAR), are managed by the RMC and are 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 will 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 shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.

a. Decision on IEPR. At this time, we lack sufficient information regarding the scope and impacts of the yet to be recommended plan. While it is unlikely that the project will be over $45 million, it is premature to rule that possibility out. Determination of whether to conduct a Type I IEPR will be made based upon the determination of the tentatively selected plan and the scope and magnitude of its costs and impacts. If the District determines that a Type I IEPR is not warranted, the District will follow appropriate procedures to request a waiver. Since this study does not entail addressing hurricane, storm, and flood risk management projects or other projects posing a significant threat to human life, a Type II IEPR is not warranted.

Information that will be looked at further to determine the need for Type I/II IEPR:

(1) A significant threat to human life;

(2) An estimated total cost of the project, including mitigation costs, greater than $45 million;

(3) Where the Governor of an affected State requests a peer review by independent experts;

(4) Where the Director of Civil Works or the Chief of Engineers determines that the project study is controversial due to significant public dispute over either the size, nature, or effects of the project or the economic or environmental costs or benefits of the project;

(5) Significant public dispute as to size, nature or effects of the project;

(6) Significant public dispute as to the economic or environmental cost or benefit of the project;

(7) Cases where information is based on novel methods, presents complex challenges for interpretation, contains precedent-setting methods or models, or presents conclusions that are likely to change prevailing practices;

(8) Any other circumstance where the Chief of Engineers determines Type I IEPR is warranted.

b. Products to Undergo Type I IEPR. The draft integrated feasibility report/NEPA document and support documents would be subject to IEPR if IEPR is deemed necessary.

c. Required Type I IEPR Panel Expertise. The IEPR panel would be expected to have expertise similar to that of the ATR team.

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 POD Commander. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published USACE 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, Type I IEPR team (if required), and in the development of the review charge(s). The MCX will also provide the Cost Engineering Certification. The SBH-PSCX is responsible for coordination with the Cost Engineering MCX.

9. MODEL CERTIFICATION AND APPROVAL

a. Planning Models. 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).

The following planning models are anticipated to be used in the development of the decision document:

- A single use Economics spreadsheet will be utilized which will be approved by the SBH PCX.

- If at any stage, the PDT anticipates mitigation is required for the project, the PDT will work with the RMO and ECO-PCX to determine/identify an appropriate model for mitigation analysis as early as possible.

b. Engineering Models. 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 Initiative, many engineering models have been identified as preferred or acceptable for use on USACE studies and these models should be used whenever appropriate. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

The following engineering models are anticipated to be, or have been used in the development of the decision document:

Table 3: Engineering Models

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
STWAVE	Steady State spectral WAVE (STWAVE) is an easy-to-apply, flexile, robust, half-plane model for near-shore wind-wave growth and propagation. STWAVE simulates depth-induced wave refraction and shoaling, current-induced refraction and shoaling, depth and steepness-induced wave breaking, diffraction, parametric wave growth because of wind input, and wave-wave interaction and white capping that redistribute and dissipate energy in a growing wave field.	HH&C CoP Preferred Model
Microcomputer Aided Cost Engineering System (MCACES) 2nd Generation (MII)	The MCACES MII construction cost estimating software is a tool used by cost engineers to develop and prepare all USACE Civil Works cost estimates. Using the features in this system, cost estimates are prepared uniformly allowing cost engineers throughout USACE to function as one virtual cost engineering team	Cost Engineering MCX Required Model

10. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost. The ATR of the draft integrated feasibility/NEPA document for this study will be accomplished in accordance with the cost and schedule in the PMP. As of the approval date of this Review Plan, the ATR of the various documents are scheduled as follows:

- In accordance with USACE SMART planning principles, the ATR will be conducted concurrent with policy and public reviews.

- The ATR of the feasibility report is currently scheduled for the 4th quarter of 2014.

- Estimated cost: $35,000 - $40,000.

b. Type I IEPR Schedule and Cost. The need for an IEPR cannot be ascertained at this time. The decision regarding IEPR will be made once the tentatively selected plan has been identified and the scope and magnitude of costs and impacts are known. If required, the IEPR will be accomplished in accordance with the cost and schedule in the PMP and conducted concurrently with the ATR, policy, and public reviews.

c. Model Certification/Approval Schedule and Cost. The economics model will be approved for one time use by the SBH-PCX at an estimated cost of $20,000.

11. PUBLIC PARTICIPATION

In the past the team has met numerous times with the Whittier Watershed Committee (WWC) in conjunction with visits to the project site or sponsor meeting. In addition, public meetings were held in Whittier and Anchorage to solicit input into the planning process and environmental coordination. The public will be given the opportunity to review the proposed project during the NEPA review period. Additional public meetings will be held at that time if deemed necessary.

12. REVIEW PLAN APPROVAL AND UPDATES

The POD Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving POA, POD, SBH-PSCX, 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. POA is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last POD 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 POD 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 POA webpage. The latest Review Plan should also be provided to the SBH-PSCX, and POD.

13. REVIEW PLAN POINTS OF CONTACT

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

Alaska District
Mr. Bruce R. Sexauer
Lead Planner (Chief of Planning)
U.S. Army Corp of Engineers, Pacific Ocean Alaska District
Bldg. 2204
Elmendorf AFB, AK 99506
Telephone: (907) 753-5619

Pacific Ocean Division
Mr. Russell Iwamura
Senior Economist, Civil Works Integration Division
U.S. Army Corps of Engineers, Pacific Ocean Division
Building 525
Ft. Shafter, HI 96858-5440
Telephone: (808) 835-4625

Review Management Organization:
Mr. Ronnie Barcak
Small Boat Harbor Center of Expertise
U.S. Army Corp of Engineers, Pacific Ocean Alaska District
Bldg. 2204
Elmendorf AFB, AK 99506
Telephone: (907) 753-5755

ATTACHMENT 1: TEAM ROSTERS

Table 4: Project Delivery Team

Team Member	Discipline	Office
Mr. Bruce Sexauer	Plan Formulation/Project Management	Alaska District
Mr. Mike Salyer	Environmental Resources	Alaska District
Ms. Emily Morrison	Economics	Alaska District
Mr. Merlin D. Peterson	Hydraulics/Hydrology/Coastal Engineering	Alaska District
Mr. Al Arruda	Cost Engineering	Alaska District
Mr. Phil Santerre	Office of Counsel	Alaska District
Mr. Don Tybus	Value Engineering Officer	Alaska District
Mr. John Smith	Real Estate	Alaska District

Table 5: DQC Review Team

Team Member Office Symbol	Discipline
CEPOA-PM-C-PL	Plan Formulation
CEPOA-PM-C-PL	Economics
CEPOA-EN-CW-ER	Environmental Resource
CEPOA-EN-CW-HH	Hydraulics/Hydrology/Coastal Engineering
CEPOA-EN-CE	Cost Engineering
CEPOA-RE	Real Estate

Table 6: ATR Review Team

Discipline	Office	Description of Credentials
ATR Lead / Plan Formulation	CELRB-PM-PB	-B.S., Biology, Springfield College, Springfield Massachusetts. -M.S., Biology, State University of New York (SUNY). Buffalo NY. -The ATR Lead has over 30 years Federal Government experience with the Corps of Engineers Planning and Project Evaluation, for navigation, flood risk management and ecosystem restoration
Economics	CENWP-PM-FE	The economics reviewer works in the Portland District office in the Project Management and Planning Branch. The reviewer has over 11 years of experience working in Small Boat Harbor and Breakwater design/reports. 1992 – 1998 the reviewer worked on Astoria boat basin breakwater major

		rehabilitation study; Yaquina north jetty major maintenance report; Initial evaluation, Brookings boat basin; and Columbia River Navigation Channel Improvement project study. 2009 – 2013 the reviewer worked on Kalama, WA Turning basin (107) Feasibility study; Lower Columbia Anchor Buoy (107) Feasibility study; and Contractor oversight for economic analysis for Coos Bay, Siuslaw and Port Orford jetty/breakwater major maintenance reports.
Environmental Resources	CELRB-PM-PA	The environmental reviewer has a B.S. in Biology, with a minor in Environmental Science and Chemistry, from SUNY College at Buffalo, and a M.S. in Environmental Science, from SUNY College at Buffalo; the reviewer is a Regional Technical Specialist, Ecosystem Restoration for the planning and formulation of complex ecosystem restoration projects. The reviewer has fourteen years of experience in water resource planning and management. The reviewer has expertise in watershed planning and stream and fisheries restoration, including invasive species management. Considerable experience working on Great Lakes habitat and related issues at the basin wide and project specific levels. Subject matter expert on USACE Civil Works Planning policies, procedures, and authorizations; particularly as they deal with ecosystem restoration.
Hydraulic (Coastal) Engineering	CELRB-TD-DC	The Hydraulic engineering reviewer is a Coastal Engineer with the Army Corps of Engineers. The reviewer received a B.S. in Civil Engineering from the New York State University in Buffalo in 1975 and a M.S. in Civil Engineering (Fluid Mechanics and Hydraulics) from the University of Connecticut in 1977. The reviewer has over 30 years of Hydrologic experience

		evaluating the river routing, unsteady flow analysis, reservoir regulation, hydropower evaluation, weekly regulation for Lake Ontario, small boat harbor design, commercial deep draft navigation, O&M repair, and beach projects. The reviewer has served as the Regional Technical Specialist in Coastal Engineering matters pertaining to the Great Lakes since May of 2002.
Cost Engineering	Contractor	-B.S.C.E. form University of Idaho in 1963. -Certified Professional Estimator and a Corps of Engineers Certified Cost Engineers. -Registered professional engineers in the state of Washington. -Member of American Society of Professional Estimators. -Has over 40 years of construction cost estimating experience including 13 years estimating for small business heavy construction and specialty contractors. From 1989 to his retirement at the end of 2004, the Cost Engineering reviewer served as the Division cost engineer for the US Army Corps of Engineers, Northwestern Division (NWD). At NWD was responsible for coordinating and oversight of the five NWD District cost estimating organizations located at Seattle, WA, Portland, OR, Walla Walla, WA, Omaha, NE and Kansas City, MO. NWD administered an annual billion dollars plus budget for engineering and construction of military, heavy civil works, dredging, O&M and HTRW projects throughout the region. -From 2005 to Present the reviewer as a Managing Member of Construction Estimating Services LLC, has performed consultant construction estimating. Also the reviewer, as a re-hired annuitant for the Corps of

		Engineer has performed Agency Technical Review (ATR) and other cost engineering services.
Real Estate	CELRC-RE	-B.A., Economics and Political Science, University of Michigan, 2005. -US Army Corps of Engineers Realty Specialist (2009-present) -Specialize in cost-shared civil works projects and real estate acquisitions. -Provides primary support to LRC Civil Works mission -Specialized experience in large complex real estate planning projects -Commercial Real Estate Appraiser and Consultant, Detroit, MI. 2005-2009
Geotechnical Engineering	CENWD-RBT	-B.S., Civil Engineering, Inha University, Korea. -M.S., Geotechnical Engineering, Asian Institute of Technology (AIT), Bangkok, Thailand. -Ph.D., Civil Engineering, Northwestern University. -The Geotechnical Engineering reviewer has over 30 years experience in Geotechnical Engineering with different engineering firms, has been with the Army Corps of Engineers since 2006 as a Sr. Geotechnical Engineer with both the Chicago District (Nov. 2006 – Aug. 2008), and the Portland Division office (Sep 2008 – present) -Dam Safety and Slope Stability Analysis experience: Willow Creek (RCC Dam), Howard Hanson, Howard Levee, Mud Mountain, John Day, Mill Creek, Chief Joseph, Bonneville, Topeka, Tuttle Creek, Wilson, Smithville, and Chatfield Creek. -Soft Ground Improvement: Ulsan, Korea and Cherry Island Landfill, Delaware. -Foundation design and renovation: North Pond Sheet Pile Design, Houston TX; Baltimore County Landfill, Baltimore MD; Fishing-Pond Design, Boonsboro, MD; Pleasant Company

		Distribution Center, Middletown, Wisconsin. -Environmental Investigation and Feasibility Study: Dry-cleaning Site Investigation and Remediation, Illinois; Groundwater Modeling for Monroe Automotive Plan, Cozad, Nebraska.

Table 7: IEPR Panel

Discipline	Organization	Description of Credentials
TBD		
TBD		
TBD		

ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECSION DOCUMENTS

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the General Investigation for Whittier Navigation Improvements (General Investigation), Whittier, Alaska. 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 DrChecks[sm].

SIGNATURE _____ _____

Philip E. Berkeley — Date
ATR Team Leader
CELRB-PM-PB

SIGNATURE _____ _____

Bruce R. Sexauer — Date
Project Manager
CEPOA-PM-C-PL

SIGNATURE _____ _____

Name — Date
Architect Engineer Project Manager[1]
Company, location

SIGNATURE _____ _____

Name — Date
Review Management Office
Representative
Office Symbol

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 Date
Chief, Engineering Division
Office Symbol

SIGNATURE _____ _____

Name Date
Chief, Planning Division
Office Symbol

[1] Only needed if some portion of the ATR was contracted

ATTACHMENT 3: REVIEW PLAN REVISIONS

Table 8: Review Plan Revisions

Revision Date	Description of Change	Page / Paragraph Number

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

Table 9: Standard Acronyms and Abbreviations

Term	Definition	Term	Definition
HH&C COP	Hydrology/Hydraulics and Community of Practice	STWAVE	Steady State spectral WAVE
MCACES	Micro-Computer Aided Cost Estimating System	NEPA	National Environmental Policy Act
ATR	Agency Technical Review		
DQC	District Quality Control/Quality Assurance	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
EA	Environmental Assessment	OEO	Outside Eligible Organization
EC	Engineer Circular	PDT	Project Delivery Team
EIS	Environmental Impact Statement	PMP	Project Management Plan
EO	Executive Order	POA	U.S. Army Corps of Engineers, Alaska District
ER	Engineer Regulation	POD	U.S. Army Corps of Engineers, Pacific Ocean Division
FDR	Flood Damage Reduction	POH	U.S. Army Corps of Engineers, Honolulu District
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		
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		
LRR	Limited Reevaluation Report	SAR	Safety Assurance Review
MCX	Mandatory Center of	USACE	U.S. Army Corps of

Term	Definition	Term	Definition
	Expertise		Engineers
MSC	Major Subordinate Command	NED	National Economic Development
		WRDA	Water Resources Development Act