DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SOUTH ATLANTIC DIVISION
60 FORSYTH STREET SW, ROOM 10M15
ATLANTA GA 30303-8801

CESAD-CG 1 April 2016

MEMORANDUM FOR COMMANDER, US Army Corps of Engineers, Jacksonville District (Eric Summa) 701 San Marco Blvd, Jacksonville FL 32207-8175

SUBJECT: CESAJ-PD Review Plan Approval Request for San Juan Harbor Improvement Study, San Juan, Puerto Rico

1. Reference Memorandum, CESAJ-PD, 16 Mar 2016, subject as above.

2. The South Atlantic Division (SAD) reviewed the Review Plan (encl) for the San Juan Harbor Improvement Study, San Juan, Puerto Rico and approves it.

3. The point of contact for this action is [redacted]

Encl

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
701 San Marco Boulevard
JACKSONVILLE, FLORIDA 32207-8175

REPLY TO
ATTENTION OF

CESAJ-PD

MAR 16 2016

MEMORANDUM FOR Chief, Planning and Policy Community of Practice (CESAD-PDP)

SUBJECT: CESAJ-PD Review Plan Approval Request for San Juan Harbor Improvement Study, San Juan, Puerto Rico

1. References:

a. EC1165-2-214, "Civil Works Review Policy", dated 15 December 2012.

b. MEMORANDUM FOR Mr. Richard Powell (CESAJ-PD-PN), USACE, Jacksonville District, 109 San Marco Boulevard, Jacksonville, FL 32207, 10 March 2016, SUBJECT: Review Plan (RP) Approval, San Juan Harbor Improvement Study, San Juan, Puerto Rico, Integrated Feasibility Report and Environmental Impact Statement

2. I request approval of the attached subject Review Plan, consistent with the intent of EC1165-2-214.

3. The Deep Draft Navigation Planning Center of Expertise (DDNPCX) endorsed the attached Review Plan for the San Juan Harbor Improvement Study, San Juan, Puerto Rico on 10 March 2016.

4. POC for this memorandum is, [redacted] or Planning Technical Leader, [redacted] if you should have any questions relating to the documentation provided.

[redacted]

Encl.

[redacted]

REVIEW PLAN

San Juan Harbor Improvement Study
San Juan, Puerto Rico
Integrated Feasibility Report and Environmental Impact Statement

Jacksonville District
Project #: 443841

MSC Approval Date: April 01, 2016
Last Revision Date: April 01, 2016

US Army Corps
of Engineers ®

REVIEW PLAN

San Juan Harbor Improvement Study
San Juan Harbor, Puerto Rico
Integrated Feasibility Report and Environmental Impact Statement

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the San Juan Harbor Improvement Study, Integrated Feasibility Report and Environmental Impact Statement.

b. References

(1) Engineering Circular (EC) 1165-2-214, Civil Works Review, 15 December 2012
(2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011
(3) Engineering Regulation (ER) 1110-1-12, Quality Management, 21 Jul 2006
(4) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
(5) Feasibility Cost Sharing Agreement, San Juan Harbor Improvement Study, 16 September 2015
(6) Certified USACE Letter to Sponsor, Section 1002 of the Water Resources Reform and Development Act of 2014 – Draft Project Schedule, received 1-7-16
(7) San Juan Harbor Improvement Study, Project Management Plan
(8) SAJ 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 models are subject to certification/approval.

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for decision documents is typically either 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 National Deep Draft Navigation Planning Center of Expertise (DDNPCX). The DDNPCX will coordinate approval for use of environmental mitigation models with the National Ecosystem Restoration Planning Center of Expertise (ECO-PCX).

The RMO will coordinate with the Civil Works Cost Engineering and Agency Technical Review 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 single purpose project decision document is the San Juan Harbor Improvement Study Integrated Feasibility Report/ Environmental Impact Statement (Report). The Report's purpose is to determine the feasibility of widening and deepening San Juan Harbor in order to improve navigational efficiency of the harbor. The study area was determined in cooperation

with the non-federal sponsor, the Puerto Rico Ports Authority (Port Authority), and with evaluation of preliminary cost and benefit evaluation. Documentation of the Environmental (EIS) will be integrated within the decision document, approved at the Headquarters level, and Congressionally Authorized.

b. Study/Project Description.

The San Juan Harbor study area encompasses the bar (entrance) channel, offshore and inland beneficial use dredged material disposal sites, inner harbor channels, and any extension of the water bodies and shorelines that could be impacted by proposed improvements (Figure 1). Navigation concerns include three main types of problems: difficult wind and wave conditions, limited channel and turning basin widths, and insufficient Federal channel depths. Alternative plans combine multiple structural and nonstructural measures to improve the safety and efficiency of the existing navigation system. For incremental analysis the study area contains four segments, Figure 2. Segment one (1) includes Bar (Entrance) Channel to Anegado Channel, San Antonio Channel, Cruise Ship Turning Basins, Anchorage Area "E", and Anchorage Area "F" or the blue area shown in Figure 2. Segment two (2) consists of Army Terminal Channel, Sanbana Approach Channel, and Army Terminal Turning Basin or the orange area of Figure 2. Segment three (3) includes Puerto Nuevo Channel and Puerto Nuevo Turning Basin. Segment four (4) contains Graving Dock Channel, and Graving Dock Turning Basin or the gray area in Figure 2. The PDT combined the segments containing widening and deepening measures to form alternatives: Alternative 1 (Bar Channel to Army Terminal Turning Basin or Segments 1 + 2), Alternative 2 (Segments 1 + 2+ 3), Alternative 3 (Segments 1 + 2+ 3+ 4), Alternative 4 (Segments 1 + 4 + 3), Alternative 5 (Segment 1), and Alternative 6 (Segments 1 + 4) Army Terminal Channel and Turning Basin, Segment 3) Puerto Nuevo Channel and Turning Basin, and Segment 4) Graving Dock Channel. Estimated project costs could range from $150,000,000 to $300,000,000.

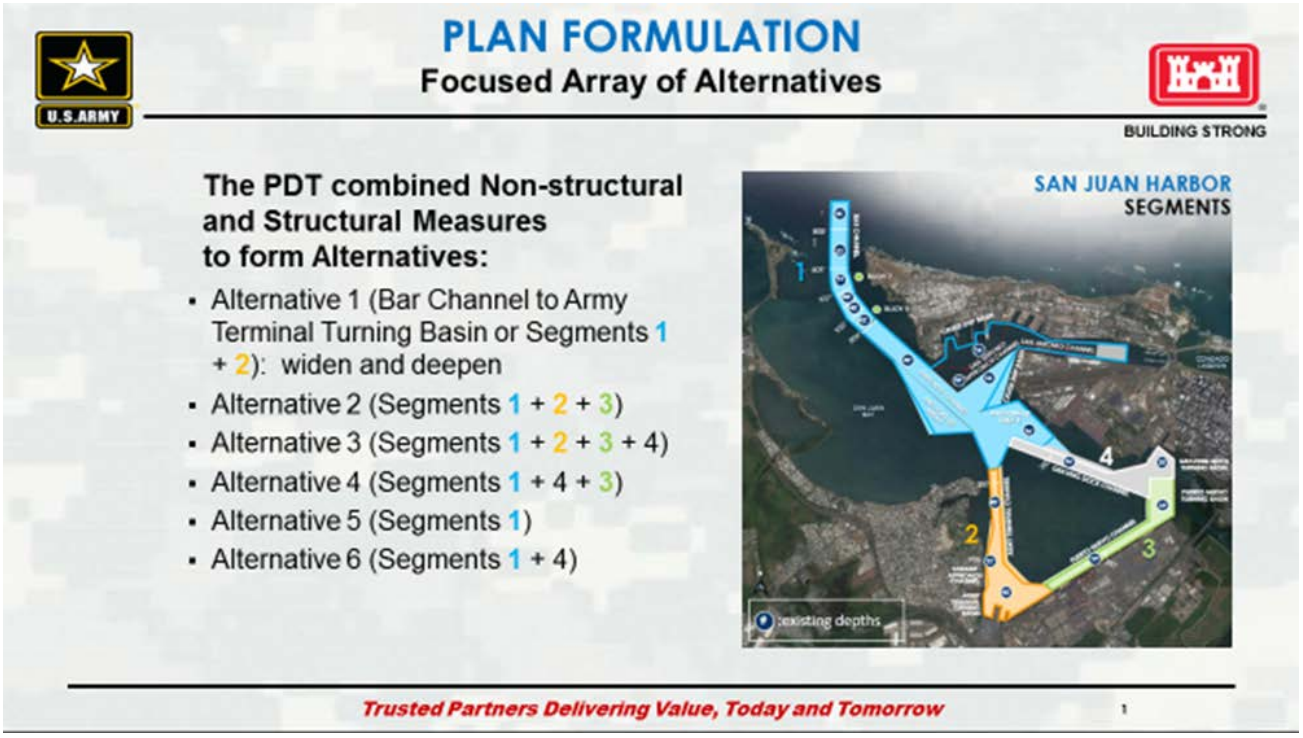
Study Authority:
House Report 109-738, 109th Congress (2005-2006) December 29, 2006, as reported by the Transportation and Infrastructure Committee contains the study authority for the San Juan Harbor Improvements study (https://www.congress.gov/109/crpt/hrpt738/CRPT-109hrpt738.pdf). On page 210 of the pdf (or page 156 of the report), it states:

WATER RESOURCES SURVEY RESOLUTIONS APPROVED BY THE
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

Specifically, on page 172/210 of the pdf (or page 158 of the report), the report has a line item for San Juan Harbor that states:

Mr. Fortuno: San Juan Harbor, PR, Docket number: 2764, Date filed: February 23, 2006 (navigation project). September 20, 2006. Resolution adopted by the Committee on Transportation and Infrastructure.

Project Location, Figure 1



Focused Array of Alternatives, Figure 2

c. Factors Affecting the Scope and Level of Review. The costs for the construction of potential deepening and widening alternatives are expected to exceed the mandatory IEPR threshold cost and the study will require an Environmental Impact Statement (EIS). Accordingly, the project will undergo both Agency Technical Review (ATR) and Independent External Peer Review (IEPR).

The factors affecting the risk informed decisions on the appropriate scope and level of review are included below with the assessment (*in italicized font)* of the applicability of that factor to the San Juan Harbor Improvement Feasibility Study:

(1) Whether the project will have significant economic, environmental, and social affects to the nation. ***The project will have a positive significant effect to all of these in that the channel will be able to handle deeper draft commercial vessels in the existing fleet and cargo in a safe manner.*** *Additionally, placement for dredged material as a beneficial use will ensure that maintenance dredging activities are performed in an environmentally acceptable manner, use sound engineering techniques that are economically justified, and allow continued use of the Ocean Dredge Material Disposal Site, which has sufficient capacity for the existing maintenance and new work construction material.*

(2) Will the project be justified by life safety or is the project likely to involve significant threat to human life/safety assurance. ***The project poses no significant threat to human life.*** *It is anticipated that any channel deepening, widening, or construction of placement areas (including any beneficial use or BU areas) would follow established design and construction methods. Expectations are that dredging, placement, and/or construction of new PAs would fall under standard dredging and disposal operations and would not include technologies new to industry.*

(3) Total Project Cost > $45M. In considering the $45 million cost trigger, the term "total cost", means the cost of construction (including planning and designing) of the project and includes lands, easements, rights of way, relocations, and disposal areas (LERRDs): *The Water Resources Reform and Development Act of 2014 (WRRDA 2014), Section 1044 (Independent Peer Review) increased the $45M threshold for IEPR to $200M. The tentatively selected plan for this study has not been identified at this time.* ***Considering the likelihood that mitigation for potential affects to environmental resources from deepening and widening will be required along with the Sponsor's costs for bulkhead improvements to handle the additional deepening, it is possible the cost of the project might exceed $200M. As such, the District has included IEPR in the schedule.***

(4) A request by a Commonwealth Governor of an affected state for a peer review by independent experts. ***It is not anticipated that the office of the Governor of the Commonwealth of Puerto Rico will request a peer review by independent expert.***

(5) Significant public dispute as to size, nature, or effects of the project: ***It is possible, but not likely, there could be significant public dispute as to the size, nature, or effects of the project.*** *It is anticipated that potential environmental mitigation by filling holes in Cando Lagoon or Puerto Nuevo Bay as beneficial use of dredged material would follow*

established design or construction methods. Dredging methodologies follow standard construction practices for San Juan Harbor; however, the locations of any beneficial use sites or widening efforts could result in public dispute and significant interagency interest, but initial indications at the Planning Charrette and Public Workshops on 4 and 5 Nov 2015 indicate support for the proposed navigation improvements from both the resource agencies and the public.

(6) Significant public dispute as to the economic or environmental cost or benefit of the project. ***It is not anticipated that any significant public dispute as to the economic or benefit of the project would occur; however, environmental impacts, mitigation, and/or mitigation costs may require sensitive negotiations with environmental resource agencies.*** *Environmental considerations are taken into account through the National Environmental Policy Act (NEPA) EIS. Environmental cost would be in light of adverse effects on environmentally sensitive areas. Depending on location, widening and deepening of the San Juan Harbor Federal channels, could affect submerged aquatic vegetation, seagrasses, and mangroves. Currently no structural widening or dredging is anticipated to occur in the area of the Entrance (Bar) Channel Dredging to affect corals or hardbottoms. Blasting for rock removal is not anticipated at this time.*

(7) Information is based on novel methods, innovative materials or techniques, presents complex challenges for interpretation, contains precedence-setting methods or models, or presents conclusions that are likely to change prevailing practices: ***The decision document is not likely to contain influential scientific information or be a highly influential scientific project.*** The project is a typical navigation channel improvement project involving traditional methods of dredging, traditional placement of dredged material, and beneficial use of dredged material where possible. Therefore, it is anticipated that there is a minimal risk involved with the project. The final Feasibility Report and supporting documentation will contain standard engineering, economic, and environmental analyses and information. Novel methods will not be utilized and methods, models or conclusions will not be precedence setting or likely to change policy decisions.

(8) The project design will be typical to normal dredging, placement area construction, beneficial use construction and placement methodologies conducted by the district for navigation projects. As such the project design is not anticipated to require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design construction schedules.

d. In-Kind Contributions. Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. The in-kind products and analyses to be provided by the non-Federal sponsor potentially include bulkhead surveys, public meeting facilities, or airline tickets for San Juan Bay Pilots to participate in the ship simulation. Bulkhead surveys to determine the structural integrity of the existing Puerto Nuevo Bulkheads to handle additional deepening will be provided by a licensed structural engineer selected by the Sponsor for DQC by a District structural engineer.

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 shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC. When policy and/or legal concerns arise during DQC efforts that are not readily and mutually resolved by the PDT and the reviewers, the district will seek immediate issue resolution support from the MSC and HQUSACE in accordance with the procedures outlined in Appendix H, Amendment #1, ER 1105-2-100 or other appropriate guidance.

a. Documentation of DQC. District Quality Control will be conducted at the district level where each of the DQC team members will review the documents for accuracy of content related to their field. DQC, using DrChecks^{SM}, will be conducted on the draft and final documents prior to submittal to ATR. The DQC team will be composed of persons independent of the PDT conducting the Report and shall consist of at a minimum of engineering, plan formulation, environmental, real estate, operations, and legal disciplines. DQC team member for the economics will be provided by the Deep Draft Navigation Planning Center of Expertise (DDN-PCX) as their role as an Economic production center. A DQC certification sheet and documentation of the DQC reviews including documentation of all comments and responses will be provided to the ATR team to reflect that the district is satisfied with the quality of the document. The certification shall include a statement from each reviewer confirming they have reviewed the document, provided comments and comments were satisfactorily resolved, and shall be signed by each reviewer using DrChecks^{SM}.

b. Products to Undergo DQC. The draft and final versions of the subject Integrated Feasibility Report and Environmental Impact Statement will undergo DQC.

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 designated RMO and is 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 will be 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.

a. Products to Undergo ATR.
The Draft Report will undergo ATR. The Final Report will undergo an ATR consisting of backchecks to previous comments received to ensure appropriate revisions have been made to the report. The cost estimate associated with the Report will undergo ATR through the Cost MCX.

b. Required ATR Team Expertise. The ATR team will be made up of personnel determined by the DDNPCX. The expertise represented on the ATR team should reflect the significant expertise involved in the work effort and will generally mirror the expertise on the PDT. Based on the factors

affecting the scope and level of review outlined in Section 3 it is suggested that the review team include the disciplines listed in the below table.

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. They should be a senior water resources planner with experience in navigation projects and associated planning reports and documents. The ATR Lead will be from outside the MSC. The ATR Lead can serve as one of the required disciplines.
Plan Formulator	The Plan Formulator will be a senior water resources planner with experience in reviewing Plan Formulation processes for multi-objective studies and be able to draw on lessons learned in advising the PDT of best practices.
Economics	The economist will be an expert in the economic assessment of deep draft navigation projects, including commodity and fleet projections, to assess the economic analyses for appropriateness of assumptions, analytical methods, and overall application of both. Experience in HarborSym required. Person will be secured through the DDNPCX.
Environmental Resources	The environmental reviewer will be an expert in the field of environmental resources and have a thorough understanding of NEPA, as related to inland and marine navigation and waterways to assess whether or not all NEPA requirements were, or will be met. The environmental reviewer will also have a thorough understanding of ESA and the Habitat Equivalency Analysis (HEA) model.
Cultural Resources	The cultural resources reviewer will be knowledgeable in submerged cultural resources.
Hydraulics and Hydrology	The hydraulic engineer will be an expert in conducting hydrodynamic model studies of navigable waterways to assess whether or not hydrodynamic modeling analyses and conclusions are reasonable. The hydraulic engineer should have a minimum of 7 years' experience with hydrodynamic modeling for navigation studies and/or related experience. The reviewer should be experienced with EFDC, ADH, CMS, ADCIRC, CE-QUAL-ICM and/or similar models.
Real Estate	The Real Estate Reviewer will be an expert in land acquisition and valuation to assess whether or not real estate analyses and conclusions are reasonable. Experience in preparation of Real Estate Plans and knowledge of EC 405-2-12 (Real Estate Planning and Acquisition Responsibilities for Civil Works Projects) and ER 405-1-12 (Chapter 12 – Real Estate Roles and

	Responsibilities for Civil Works: Cost Shared and Full Federal Projects), should be considered
Operations	The Operations reviewer should have expertise with a minimum of 10 years' experience in Deep Draft Navigation new construction and O&M dredging and/or related experience.
Geotechnical Engineering	The geotechnical engineer should have a minimum of 10 years of expertise in geotechnical soils and construction to review upland and offshore disposal sites and materials assessment and/or related experience.
Cost Engineering	The Cost Engineering reviewer must be from the Civil Works Cost Engineering and Agency Technical Review Mandatory Center of Expertise (Cost MCX/TCX) in Walla Walla District, or must be on the Cost MCX/TCX approved list of delegated Cost ATR reviewers.

c. Documentation of ATR. DrChecks review software will be used to document all DQC and 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 when addressing incomplete or unclear information, ATR team members may seek clarification in order to then assess whether further specific concerns may exist.

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 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 and final report. A sample Statement of Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR).

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. Decision documents must undergo a Type I IEPR unless HQUSACE grants an exclusion. Type I IEPR reviews are managed outside the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. 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 Review (SAR), are managed outside the USACE 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.

- **Type I IEPR.** The estimated total cost of the project, including mitigation costs, could range from $150,000,000 to $300,000,000 and may exceed the $200,000,000 limit. Furthermore, an EIS is

being prepared and there may be controversy associated with the proposed environmental impacts. Therefore, a Type I IEPR would be required per EC 1165-2-214.

- **Type II IEPR.** Based on the project as currently envisioned, the District Chief of Engineering, as the Engineer-In-Responsible-Charge, does not recommend a Type II IEPR Safety Assurance Review of the project at this time. A risk-informed decision concerning the timing and appropriate level of reviews for project implementation phase will be prepared and submitted for approval in an updated Review Plan prior to initiation of the PED/Design/implementation phase of this project. The need for a Type II IEPR will be re-evaluated in that Review Plan. Currently no known life safety issues exist related to the deepening, widening, and disposal of dredged material associated with this project.

b. Products to Undergo Type I IEPR. Products to undergo Type I IEPR include the draft report and supporting Appendices (Engineering, Environmental, Economics, and Real Estate).

c. Required Type I IEPR Panel Expertise

IEPR Panel Members/Disciplines	Expertise Required
Biologist or Environmental Engineer	This individual should be a scientist from academia, a public agency, a non-governmental entity, or an Architect-Engineer or Consulting Firm with a minimum 10 years demonstrated experience in environmental, estuarine, and coastal and estuarine processes and an understanding of ecological responses to shoreline erosion The Panel Member should have a minimum MS degree or higher in an appropriate field of study. Experience should include an understanding of environmental impacts associated with dredging and use of the Habitat Equivalency Analysis (HEA) model. Active participation in related professional societies is encouraged.
Engineering (Dredging/Navigation Expert, H&H, and Geotechnical Engineer)	Civil Engineering Panel Member(s) will have dredging/navigation, H&H, and geotechnical experience. The Engineering Panel Member should be a registered professional engineer with a minimum of 10 years' experience from academia or an Architect-Engineer or Consulting Firm. The Panel Member should have demonstrated experience in deep draft navigation channels, dredged material disposal, confined disposal areas, erosion, coastal currents, channel modifications, with a minimum MS degree or higher in Civil, Hydraulic or related Engineering field. Active participation in related professional societies is encouraged.
Economist	One Economics Panel Member will be provided. The Economics Panel Member should be a scientist from academia, a public agency, a non-governmental entity,

	or an Architect-Engineer or Consulting Firm with at least a Bachelor's degree. Member must have at least 10 years' experience in economic analysis. The Economics Panel Member should have extensive experience related to economic analysis for deep-draft navigation projects with knowledge of tools employed for economic analysis including HarborSym, risk analysis, and trade forecasts, as well as Cost Effectiveness / Incremental Cost Analysis
Plan Formulation	This individual should be a scientist from academia, public agency, non-governmental entity, or an Architect-Engineer or Consulting Firm with a minimum 10 years demonstrated experience in public works planning with a Master's degree in a related field. The reviewer should be familiar with USACE civil works planning policies, methodologies and procedures for evaluating and comparing alternative plans for USACE deep draft navigation projects.

d. Documentation of Type I IEPR

The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-214, Appendix D; USACE will not nominate candidates. Panel comments will be compiled by the OEO and should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. DrChecks^{SM} review software will be used to document IEPR comments and aid in the preparation of the Review Report. IEPR comments should generally include the same four key parts as described for ATR comments in Section 4.d above. The OEO will prepare a final Review Report that will accompany the publication of the final decision document and shall:

- 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; 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.

The final Review Report will be submitted by the IEPR panel 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 made available to the public, including 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/TCX) REVIEW AND CERTIFICATION

All decision documents shall be coordinated with the Cost Engineering and ATR MCX/TCX, located in the Walla Walla District. The MCX/TCX 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/TCX will also provide the Cost Engineering certification. The RMO is responsible for coordination with the Cost Engineering MCX/TCX.

9. MODEL CERTIFICATION AND APPROVAL

EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. Planning models, 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).

EC 1105-2-412 does not cover engineering models used in planning. The process the Hydrology, Hydraulics and Coastal Community of Practice (HH&C CoP) of USACE follows to validate engineering software for use in planning studies and to satisfy the requirements of the Corps' Scientific and Engineering Technology (SET) initiative is provided in Enterprise Standard (ES)-08101 Software Validation for the Hydrology, Hydraulics and Coastal Community of Practice. 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).

a. Economic Models.

The economic evaluation for improved efficiency will use the HarborSym model. HarborSym is a certified Corps model and the model itself will not need a review. However, there will be an ATR for input/output verification and for any spreadsheet calculations used to derive model inputs (i.e.,

loading factors, commodity growth rates, fleet growth, etc.). Verification of proper application will be conducted by the DDNPCX as part of the DQC and ATR process.

b. Environmental Models. The Commonwealth of Puerto Rico does not have an approved environmental model or functional assessment methodology for project related impacts or quantify the necessary compensation or mitigation. The Jacksonville District received conditional concurrence from the ECO-PCX on 29 February 2016 to use the Habitat Equivalency Analysis (HEA) Model to calculate potential mitigation requirements for the San Juan Harbor Improvement Feasibility Study. The ECO-PCX has started the process for approval of the HEA model for use in San Juan Harbor, Puerto Rico, and plans to complete the process, cost to be determined, prior to the Tentatively Selected Plan (TSP) milestone in December 2016.

c. Engineering Models.
To be determined. Any engineering and cost models needed for the study will be identified at the end of the scoping period. After determination of the engineering and cost models to be used, this review plan will be assessed to determine if an update of the ATR Team and its expertise is needed. If no review plan update is required, a MFR will be placed in the project file to document that review plan assessment and determination.

10. REVIEW SCHEDULES AND COSTS

Review	Start Date	Duration
DQC Draft Report	January 2017	21 days
ATR Draft Report	March 2017	45 days
Policy Review (SAD/HQ) and Legal Review of Draft Report	March 2017	45 days
Public Review (NEPA) Draft Report	March 2017	45 days
IEPR Draft Report	March 2017	TBD (typically 6-9 months)
DQC Final Report	January 2018	21 days
ATR Final Report	February 2018	30 days

a. ATR Schedule and Cost. An ATR will take place following Jacksonville District's completion and DQC of the Draft Report/EIS and Final Report/EIS, respectively. ATR of the draft documents is scheduled to begin March 2017, and ATR of the final documents is scheduled for February 2018. ATR of the draft report is estimated to take 45 days and cost $55,000. ATR of the final report is estimated to take 30 days and cost $35,000. ATR of the HarborSym economic analysis modeling (inputs/outputs) will occur prior to the TSP Milestone Meeting, cost to be determined. ATR of the cost estimates for the final array of alternatives and the TSP will occur through the Cost Engineering MCX over a period of two weeks prior to the TSP Milestone Meeting and submission of read ahead materials for the TSP Milestone Meeting.

b. Type I IEPR Schedule and Cost. The IEPR will occur concurrently with the ATR of the Draft (March 2017. The IEPR for the Draft Report is estimated to take between 6 to 9 months and cost between $150,000 to $180,000.

c. Model Certification/Approval Schedule and Cost. The certified HarborSym model will be used for the economic analysis. The Habitat Equivalency Analysis (HEA) environmental model (previously certified for use on specific projects in the continental United States) will undergo Eco-PCX and HQ approvals for use in San Juan, Puerto Rico.

11. PUBLIC PARTICIPATION

Public involvement is anticipated throughout the preparation of the Decision Document. Public information meetings are conducted to inform the general public, other federal and state agencies and interested stakeholders of the status of the project and alternatives being considered. At a minimum, public meetings have, or will be conducted as part of the National Environment Policy Act (NEPA) compliance process, including: Public scoping meetings and the public review period of the Draft Feasibility Report and Environmental Impact Statement, anticipated to conclude April 2017.

Public comments will be provided to the IEPR panel for its consideration prior to the IEPR panel's final report. The public including scientific or professional societies will not be asked to nominate potential peer reviewers. The final decision document and IEPR report and USACE responses to the IEPR comments will be made available to the public on the District/Project Website: http://www.saj.usace.army.mil/Missions/CivilWorks/Navigation/NavigationProjects/SanJuanHarbor.aspx

12. REVIEW PLAN APPROVAL AND UPDATES

The South Atlantic Division Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving district, MSC, RMO, and HQUSACE members, as applicable) 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 to date. 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 approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, will be posted on the Home District's webpage. The latest Review Plan will also be provided to the RMO and home MSC.

13. REVIEW PLAN POINTS OF CONTACT

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

Jacksonville District Project Manager (904)232-1454
Jacksonville District Planning Technical Lead (904)232-1694
Jacksonville District Review Coordinator (904)232-1818
DDNPCX Review Manager (251)694-3842
ECO-PCX POC (309)794-5448
South Atlantic Division POC (404)562-5228

ATTACHMENT 1: TEAM ROSTERS

PROJECT DELIVERY TEAM (PDT) ROSTER

PDT Members	**Organization / Discipline**	**Email**	**Phone**
	CESAJ-PM-WN / Project Manager		
	CESAJ-PD-PN / Planning Tech. Lead		
	CESAJ-PD-PN / Plan Formulation		
	CESAJ-PD-EC / Environmental T. Lead		
	CESAJ-PD / Chief, Coastal/Navigation		
	CESAJ-EN-GS / Engin'rg Geology		
	CESAJ-PD-ES / Planning Archeologist		
	CESAJ-RD-SA / Environmental Engin'r		
	CESAJ-EN-G / Engin'rg Geology		
	CESAJ-EN-GG / Engin'rg Geology		
	CESAJ-PD-D / Planning Economics		
	CESAJ-PD-D / Planning Economics		
	CESAJ-DS-CD-N / Construction/O&M		
	CESAJ-EN-DW / Engineering Tech Lead		
	CESAJ-EN-WM Engin'rg Ship Simulation		
	CESAJ-EN-DW / Engin'rg Design		
	CESAJ-DS-RE / Real Estate		
	CESAJ-OC-C		
Cooperating Agencies			
	USCG Sector San Juan / Waterways Managemt		
	NOAA, NMFS		

	NOAA Fisheries, Caribbean Field Office		
	USFWS, Caribbean Eco Services Field Office		
	USEPA, Chief Environmental Review		

District Quality Control Team

Name	Organization / Discipline	Title
TBD	Economics-DDNPCX	
TBD	SAJ, Plan Formulation	
TBD	SAJ, Environmental	
TBD	SAJ, Engineering H&H	
TBD	SAJ, Engineering Geotechnical	
TBD	SAJ, Engineering Cost	
TBD	SAJ, Real Estate	
TBD	SAJ, Legal	
TBD	SAJ, Construction/Operations	

AGENCY TECHNICAL REVIEW (ATR) TEAM

To be determined by the DDNPCX.

Name	Organization / Discipline	Title
TBD	, Economics	
TBD	, Plan Formulation	
TBD	, Environmental	
TBD	, Engineering H&H	
TBD	, Engineering Geotechnical	
TBD	, Engineering Cost	
TBD	, Real Estate	
TBD	,Operations	
TBD	, Cultural Resources	

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 DrChecks[sm].

SIGNATURE _____ _____

Name *Date*
ATR Team Leader
Office Symbol/Company

SIGNATURE _____ _____

Name *Date*
Project Manager
Office Symbol

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

Revision Date	Description of Change	Page / Paragraph Number

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

Term	Definition	Term	Definition
ASA(CW)	Assistant Secretary of the Army for Civil Works	NEPA	National Environmental Policy Act
ATR	Agency Technical Review	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
CSDR	Coastal Storm Damage Reduction	PCX	Planning Center of Expertise
DQC	District Quality Control/Quality Assurance	PDT	Project Delivery Team
EC	Engineer Circular	PMP	Project Management Plan
EIS	Environmental Impact Statement	PL	Public Law
Home District/MSC	The District or Major Subordinate Command responsible for the preparation of the decision document	RMC	Risk Management Center
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMO	Review Management Organization
IEPR	Independent External Peer Review	SAR	Safety Assurance Review
MCX	Mandatory Center of Expertise	USACE	U.S. Army Corps of Engineers
MSC	Major Subordinate Command	WRDA	Water Resources Development Act
NED	National Economic Development		