



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

CESAD-RBT

05 OCT 2015

MEMORANDUM FOR COMMANDER, CHARLESTON DISTRICT

SUBJECT: Approval of the Review Plan for the Initial Set of Plans and Specifications and the Design Documentation Report for the Charleston Harbor Post 45 Entrance Channel Design, Charleston County, SC

1. References:

a. Memorandum, CESAC-DE, 18 September 2015, subject: Review and Approval of Revised Review Plan for the Charleston Harbor Post 45 Pre-Construction Engineering and Design (PED) Phase, Charleston County, SC (Encl).

b. EC 1165-2-214, Civil Works Review, 15 December 2012.

2. The Review Plan (RP) for the Initial Set of Plans and Specifications (P&S) and the Design Documentation Report for the Charleston Harbor Post 45 Pre-Construction Engineering and Design Phase submitted by the Charleston District via reference 1.a has been reviewed by this office. Some minor edits to the RP were coordinated with Mr. Brian Williams of your organization. The enclosed RP, with the coordinated edits incorporated, is hereby approved in accordance with reference 1.b above.

3. South Atlantic Division concurs with the conclusion of the District Chief of Engineering that a Type II Independent External Peer Review (IEPR) is not required on this effort. The primary basis for this concurrence is the determination that failure or loss of the navigation channel associated with these P&S does not create a significant threat to human life.

4. The District should take steps to post the approved RP to its web site and provide a link to CESAD-RBT. Before posting to the web site, the names of Corps/Army employees should be removed. Subsequent significant changes, such as scope changes or level of review, to this RP, should they become necessary, will require new written approval from this office.

CESAD-RBT

SUBJECT: Approval of the Review Plan for the Initial Set of Plans and Specifications and the Design Documentation Report for the Charleston Harbor Post 45 Entrance Channel Design, Charleston County, SC

5. The SAD point of contact is [REDACTED], CESAD-RBT, 404-562-5121.

Encl



C. DAVID TURNER  
Brigadier General, USA  
Commanding

CF:

CESAC-PM-P/[REDACTED]

CESAC-EN/[REDACTED]

CESAC-PM-PL/[REDACTED]

# **REVIEW PLAN**

**Charleston Harbor Post 45, Charleston, South Carolina  
Preconstruction Engineering and Design  
(Initial Plans, Specifications and Design Documentation Report)  
Entrance Channel Plans, Specifications and Design Documentation Report**

**Charleston District**

**P2: 137921**

**MSC Approval Date: October 5, 2015  
Last Revision Date: TBD**



**US Army Corps  
of Engineers®**

**REVIEW PLAN**

**Charleston Harbor Post 45 Phase II, Charleston, South Carolina  
Preconstruction Engineering and Design  
(Initial Plans, Specifications and Design Documentation Report)**

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## 1. PURPOSE AND REQUIREMENTS

- a. Purpose.** This Review Plan (RP) defines the scope and level of peer review for the Charleston Harbor Post 45 Preconstruction Engineering and Design Phase (PED), Charleston, South Carolina. The related documents are Implementation Documents that consist of the initial set of Plans and Specifications (P&S) and the Design Documentation Report (DDR) for deepening and extending the Entrance Channel.
- b. References**
- (1) Engineering Regulation (ER) 1110-2-1150, Engineering and Design for Civil Works Projects, 31 Aug 1999
  - (2) ER 1110-1-12, Engineering and Design Quality Management, 21 Jul 2006
  - (3) Engineering Circular (EC) 1165-2-214, Civil Works Review, 15 Dec 2012
  - (4) ER 415-1-11, Biddability, Constructability, Operability, Environmental and Sustainability (BCOES) Review, 1 Jan 2013
  - (5) Final Integrated Feasibility Report and Environmental Impact Statement, Charleston Harbor Post 45, Charleston County, South Carolina, TBD
  - (6) Chief of Engineers Report, Charleston Harbor Post 45, Charleston County, South Carolina, 8 Sep 2015
  - (7) Charleston Harbor Preconstruction Engineering and Design Project Management Plan (PMP)
- c. Requirements.** This RP 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 three general levels of review applicable to the Implementation Documents addressed by this Review Plan: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and states that a Biddability, Constructability, Operability, Environmental and Sustainability Review shall be included in the Review Plan.
- d. Review Plan Approval and Updates.** The South Atlantic Division (SAD) Commander is responsible for approving this RP. The Commander's approval reflects vertical team input (involving District, Division, and HQUSACE members) as to the appropriate scope and level of review. Like the Project Management Plan (PMP), the Review Plan is a living document and may change as the project progresses. The Charleston District is responsible for keeping the Review Plan up to date. Minor changes to the Review Plan since the last Major Subordinate Command (MSC) Commander approval will be documented in an attachment. Significant changes to the Review Plan (such as changes to the scope and/or level of review) shall 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 Commander's approval memorandum, will be posted on the Charleston District's webpage. The latest Review Plan will be provided to the home MSC.
- e. Review Management Organization (RMO).** SAD is designated as the RMO. The RMO, in cooperation with the vertical team, will determine/select/approve the ATR team members. Charleston District may assist SAD with management of the ATR and development of the "charge to reviewers."

## 2. PROJECT INFORMATION

- a. **Project Location and Name.** Charleston Harbor is situated at the confluence of the Ashley, Wando, and Cooper Rivers. It is 14 square miles in area and lies approximately at the midpoint along the South Carolina Coast. Adjacent municipalities include the Cities of Charleston, North Charleston, and Mount Pleasant, as well as Sullivan's, James, and Morris Islands. The harbor entrance is protected by two jetties constructed in 1878.

The Charleston Harbor Federal navigation project currently provides limited 2-way traffic and consists of channels, turning basins, an anchorage basin, contraction dikes, jetties, and dredged material placement areas. The channels have been enlarged through the past 160 years, and the authorized depth supporting the major terminals is currently 45 feet Mean Lower Low Water (MLLW). The existing channel dimensions place constraints on deeper-drafting containerships, which result in reduced efficiency and increased costs. Channel improvements will extend and deepen the entrance channel in combination with deepening and widening the inner harbor channels that primarily serve containerships.

- b. **Project Authorization.** Over the past 40 years, there has been a succession of feasibility-related reports concerning deepening projects for the Charleston Harbor. Congress authorized deepening of the Federal channels in Charleston Harbor from a depth of 40 feet MLLW to 45 feet MLLW based upon *The Charleston Harbor Deepening/Widening, South Carolina, Report of the Chief of Engineers, 16 July 1996*. That Report was based upon a 1996 Feasibility Study and Environmental Assessment. USACE initiated a feasibility study in 2011 at the request of the South Carolina State Ports Authority (SCSPA), the project's non-Federal Sponsor (NFS), under the authorization provided by Section 216 of the Flood Control Act of 1970 (Public Law 91-611). The authorization allows USACE to review completed projects to adapt to changing conditions.

- c. **Current Project Description.** The Recommended Plan is the Locally Preferred Plan (LPP), which proposes to extend and deepen the entrance channel in combination with deepening and widening the inner harbor channels that primarily serve containerships. The proposed navigation improvements are described in more detail in the bullets and text that follow:

- Deepen the existing entrance channel from a project depth of -47 feet to -54 feet MLLW over the existing 800-foot bottom width, while reducing the existing stepped 1,000-foot width to 944 feet from an existing depth of -42 feet to a depth of -49 feet MLLW. The proposed deepening of the entrance channel also includes 1 to 2 feet of required overdepth dredging for Entrance Channel Segment 2 and advanced maintenance for Entrance Channel Segment 1 and up to 2 feet of allowable overdepth dredging as shown on Figure 4-1.
- Extend the entrance channel approximately three miles seaward to about the -57 foot MLLW contour.
- Deepen the inner harbor from an existing project depth of -45 feet to -52 feet MLLW to the Wando Welch Terminal on the Wando River and the new SCSPA Navy Base Terminal on the Cooper River, and from -45 feet to -48 feet MLLW for the reaches above that facility to the North Charleston Terminal (over varying expanded bottom widths ranging from 400 to 1,800

feet). The proposed deepening of the inner harbor also includes overdepth dredging and advance maintenance dredging as outlined in Appendix A (Engineering).

- Enlarge the existing turning basins to a 1,800-foot diameter at the Wando Welch and new Navy Base Terminals to accommodate Post-Panamax Generation II and III containerships and widen selected reaches as shown in the Recommended Plan: Section 4 Reference Aid at the end of this section.
- Enlarge the North Charleston Terminal turning basin to a 1,650-foot diameter to accommodate Post-Panamax Generation II and Generation III containerships. A turning basin at the new Navy Base Terminal will be part of the existing condition prior to the base year of the study (2022).
- Raise dikes and place dredged material from the upper harbor at the existing upland confined placement facilities at Clouter Creek, Yellow House Creek, and/or Daniel Island; place material dredged from the lower harbor and sediment from the entrance channel at the expanded Ocean Dredged Material Disposal Site (ODMDS). Place some of the rock dredged from the entrance channel along the outside of the entrance channel and along the edges of the ODMDS to create hardbottom habitat.

Construction of the Recommended Plan involves dredging approximately 40 million cubic yards of material. Material dredged for construction is expected to go to the ODMDS and several confined upland placement areas, including Clouter Creek, Daniel Island, and Yellowhouse Creek.

The Recommended Plan would indirectly impact up to about 324 acres of wetlands due to changes in salinity and approximately 29 acres of hardbottom habitat in the footprint of the entrance channel. Mitigation for wetland impacts includes the preservation of approximately 665 acres of wetlands. While some impacts to hardbottom habitat were avoided, a beneficial use plan for placement of rock involves constructing two (2) mitigation reefs to mitigate for hardbottom areas impacted within portions of the entrance channel not previously dredged. Rock dredged from the entrance channel would also be used to construct six (6) additional new 33-acre reefs as a part of the least cost disposal plan. All eight (8) reef sites would be located outside and parallel to the entrance channel.

A monitoring plan will be designed and implemented to allow for clear and meaningful comparisons (1) between hardbottom habitat at the mitigation area and that which will be directly impacted due to the proposed action, and (2) between hardbottom habitats in the indirect impact area (for both dredging and ocean disposal sites) and control sites. The monitoring plan will also include two types of monitoring for wetlands. The first is a characterization of the percent change in the vegetative community. The second is verification of the salinity isopleth changes in the harbor.

Based on the uncertainties inherent in the forecasts and the significance of the natural and historical resources within Charleston Harbor, a monitoring plan will be designed and implemented in order to validate the assumptions and information used in the wave effects analysis and attempt to confirm the associated results.

This Review Plan addresses the P&S and the DDR for deepening and extending the Entrance Channel only.

- d. **Public Participation.** The Charleston District Corporate Communications Office continually keeps the affected public informed on Charleston District projects and activities. There are no planned activities, public participation meetings or workshops that are expected to generate issues to be addressed by the review teams. The project review plan will be posted on the Charleston District Internet. Any comments or questions regarding the review plan will be addressed by the Charleston District.
- e. **In-Kind Contributions.** Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC and ATR. To date, the NFS has not identified any in-kind sponsor contributions that could affect this review plan or related reviews.

### 3. DISTRICT QUALITY CONTROL (DQC)

District Quality Control and Quality Assurance activities for the project implementations documents are stipulated in ER 1110-1-12, Engineering & Design Quality Management. The P&S and DDR will be prepared by the Charleston District using ER 1110-1-12 procedures and will undergo District Quality Control.

- a. **Documentation of DQC.** In compliance with EC 1165-2-214, the Charleston District will conduct a full district quality control assessment. The DQC will include quality checks and reviews, and PDT reviews. All work products and reports, evaluations, and assessments shall undergo necessary and appropriate District Quality Control/Quality Assurance (DQC). The DQC will cover all contract products and any in-kind services provided by the local sponsor.
- b. **Required DQC Expertise.** The desired expertise for the DQC will be determined by the District Engineering and Planning Chiefs and may be augmented from District staff outside of the Charleston District. The Chiefs will ensure personnel have adequate experience to complete the DQC.

### 4. AGENCY TECHNICAL REVIEW (ATR)

The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. 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.

- a. **Risk Informed Decision on Appropriate Level of Review.** The project is new construction widening and deepening from 45- to 52-ft. PED phase implementation documents are being prepared in accordance with EC 1165-2-214. An ATR of the P&S and DDR will be required.
- b. **ATR Scope.** ATR comments will be documented in the DrChecks<sup>sm</sup> model review documentation database. DrChecks<sup>sm</sup> is a module in the ProjNet<sup>sm</sup> suite of tools developed and operated at ERDC-CERL ([www.projnet.org](http://www.projnet.org)). At the conclusion of ATR, the ATR Team Leader will prepare a Review Report that summarizes the review. The report will include at a minimum the Charge to Reviewers, ATR Certification Form from EC 1165-2-214, and the DrChecks<sup>sm</sup> printout of the comments, evaluations, and backchecks.

c. **ATR Disciplines.** As stipulated in ER 1110-1-12, ATR Team members will be sought from the following sources: regional technical specialists (RTS); subject matter experts (SME) certified in CERCAP; senior level experts from other districts; Center of Expertise staff; experts from other USACE commands; contractors; academic or other technical experts; or a combination of the above. The ATR will be comprised of the following disciplines, knowledge, skills and abilities, and experience levels. Civil Engineering and Construction team members may be combined if a qualified individual is available.

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR Lead will be from outside the MSC and should have a minimum of 10 years of experience with Navigation and have previously performed ATR Team Leader duties. ATR Team Leader can also serve as a co-duty to one of the review disciplines.
Civil Engineering/Dredging Operations	The team member should have at least 7 years of civil/site work project experience that includes dredging and disposal operations and navigation project features.
Construction Management	The team member should have at least 7 years of construction management experience with dredging and disposal operations, channels and navigation project features.
Geotechnical Engineering - Geology	The team member should have at least 7 years of experience in geologic and geotechnical analysis used to support the development of P&S for navigation projects.
Environmental and NEPA Compliance	The reviewer should be a senior environmental resources specialist with 7 years of experience activities associated with navigation, beneficial use of dredged material and marine ecology and mitigation projects. Draft or Final Environmental documents will be submitted to the ATR team with the P&S to aid in performing ATR.

d. **Documentation of ATR.** DrChecks<sup>sm</sup> review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be organized according to the nature of the comment, not the reviewer’s field of expertise. 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; 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 where there appears to be incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist.

The ATR documentation in DrChecks<sup>sm</sup> 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 ER 1110-1-12. 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 Lead 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 either been resolved, or elevated to the vertical team for resolution within appropriate timeframes. The ATR Lead will be provided with notification of the implementation of any follow-up measures necessary to achieve issue resolution. A Statement of Technical Review will be completed, based on work reviewed to date, for the draft report and final report.

## **5. BIDDABILITY, CONSTRUCTABILITY, OPERABILITY, ENVIRONMENTAL, AND SUSTAINABILITY (BCOES) REVIEW.**

The value of a BCOES review is based on minimizing problems during the construction phase through effective checks performed by knowledgeable, experienced personnel prior to advertising for a contract. BCOES requirements must be emphasized throughout the planning and design processes for all programs and projects, including during planning and design. It will also help ensure that the construction will be done efficiently and in an environmentally sound manner, and that the construction activities and documents will reduce risks of cost and time growth, unnecessary changes and claims, as well as support safe, efficient, sustainable operations and maintenance by the facility users and maintenance organization after construction is complete. A BCOES Review will be conducted for this project. Requirements and further details are stipulated in ER 1110-1-12 and ER 415-1-11.

## 6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

- a. **General.** EC 1165-2-214 provides implementation guidance for both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 [Public Law (P.L.) 110-114]. The EC addresses review procedures for both the Planning and the Design and Construction Phases (also referred to in USACE guidance as the Feasibility and the Preconstruction Engineering and Design Phases). The EC defines Section 2035 Safety Assurance Review (SAR), Type II Independent External Peer Review (IEPR). The EC also requires Type II IEPR be managed and conducted outside USACE.
- b. **Decision on Type I IEPR.** A Type I IEPR is typically associated with decision documents. A Type I IEPR is not applicable to the implementation documents (P&S and DDR) covered by this Review Plan.
- c. **Decision on Type II IEPR.** This navigation project does not trigger WRDA 2007 Section 2035 factors for Safety Assurance Review (termed Type II IEPR in EC 1165-2-214); therefore, a review under Section 2035 is not required. The factors in determining whether a Type II IEPR review of design and construction activities of a project is necessary are based on the EC 1165-2-214 Type II IEPR Risk Informed Decision Process. The following EC 1165-2-214 risk decision criteria are followed by a statement that forms the basis for the Type II IEPR determination.

- (1) The failure of the project would pose a significant threat to human life.

*This project consists of channel dredging and failure of the navigation channel will not pose a significant threat to human life.*

- (2) The project involves the use of innovative materials or techniques.

*This project will utilize methods and procedures used by the Corps of Engineers on other similar works.*

- (3) The project design lacks redundancy.

*The concept of redundancy does not apply to channel dredging projects.*

- (4) The project has unique construction sequencing or a reduced or overlapping design construction schedule.

*The construction sequence and schedule for this project have been used successfully by the Corps of Engineers on other similar works. Construction schedules do not have unique sequencing and activities are not reduced or overlapped.*

Therefore, the District Chief of Engineering, as the Engineer-In-Responsible-Charge, does not recommend a Type II IEPR Safety Assurance Review of these P&S and DDR.

**7. POLICY AND LEGAL COMPLIANCE REVIEW**

The Charleston District Office of Counsel reviews all contract actions for legal sufficiency in accordance with Engineer Federal Acquisition Regulation Supplement 1.602-2 responsibilities. The subject implementation documents and any will be reviewed for legal sufficiency prior to advertisement.

**8. MODEL CERTIFICATION AND APPROVAL**

The project does not propose the use of any engineering or planning models that have not been certified or approved for use by USACE.

**9. PROJECT DELIVERY TEAM DISCIPLINES**

<b>Discipline/Expertise</b>
Project Manager
Planning
Navigation/Dredging
Construction Management
Engineering, Hydraulics & Hydrology
Engineering, Coastal
Environmental, NEPA
GIS/ODMDS Coordinator
Contracting
Counsel
Engineering, Geotechnical
Real Estate

**10. REVIEW SCHEDULES AND COSTS**

**a. Project Milestones.**

Task	Estimated Finish
Entrance Channel Deepening and Extension	
Draft P&S and DDR	AUG-2016
DQC Review	SEP-2016
BCOE & ATR Review	NOV-2016
Evaluate ATR Comments	DEC-2016
ATR Review Certification	JAN-2016
Contract Advertised	APR-2017

**b. ATR Cost.** Funds will be budgeted to execute ATR and schedule, as outlined above. Each reviewer will be afforded a projected 20 hours for review and 8 hours for coordination. The ATR Leader will be funded for a minimum of 20 hours, depending on whether the ATR Lead has a co-duty. The estimated cost range is \$25,000 - \$40,000.

## **11. REVIEW PLAN POINTS OF CONTACT**

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

- Charleston District Project Manager, (843) 329-8153
- Charleston District Chief, Engineering Division, (843) 329-8024
- Charleston District Chief, Planning and Environmental Branch, (843) 329-8050
- South Atlantic Division Engineering, (404) 562-5121

**ATTACHMENT 1: SAMPLE STATEMENT OF TECHNICAL REVIEW**

**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<sup>sm</sup>.

*SIGNATURE*

Name  
ATR Team Leader  
Office Symbol/Company

\_\_\_\_\_  
Date

*SIGNATURE*

Name  
Project Manager  
Office Symbol

\_\_\_\_\_  
Date

*SIGNATURE*

Name  
Architect Engineer Project Manager<sup>1</sup>  
Company, location

\_\_\_\_\_  
Date

*SIGNATURE*

Name  
Review Management Office Representative  
Office Symbol

\_\_\_\_\_  
Date

**CERTIFICATION OF AGENCY TECHNICAL REVIEW**

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

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

*SIGNATURE*

Name  
Chief, Engineering Division  
Office Symbol

\_\_\_\_\_  
Date

*SIGNATURE*

Name  
Chief, Planning Division  
Office Symbol

\_\_\_\_\_  
Date

<sup>1</sup> Only needed if some portion of the ATR was contracted