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

REPLY TO
ATTENTION OF

CESAD-PDP

28 FEB 2013

MEMORANDUM FOR Commander, Wilmington District (CESAW-TSD-P/E. Gatwood)

SUBJECT: Approval of Review Plan for the Princeville, North Carolina Flood Risk Management Feasibility Study and Environmental Assessment

1. References:

a. Memorandum, CESAW-TS-P, subject as above, 12 December 2012.

b. EC 1165-2-209, Civil Works Review Policy, 31 January 2010.

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

2. The enclosed Review Plan update for the Princeville, North Carolina Flood Risk Management Feasibility Study and Environmental Assessment has been prepared in accordance with Engineer Circular (EC) 1165-2-209. The Review Plan has been coordinated with the National Flood Risk Management Planning Center of Expertise (FRM-PCX), which is the lead office to execute this plan. For further information, please contact the FRM-PCX at (314) 331-8404. The Review Plan includes independent external peer review.

3. I hereby approve this Review Plan, which is subject to change as circumstances require, consistent with study development under the Project Management Business Process. Subsequent revisions to this Review Plan or its execution will require new written approval from this office in accordance with EC 1165-2-214, Civil Works Review, as EC 1165-2-209 has expired. The District shall post the approved Review Plan and a copy of this approval memorandum to the District public internet website and provide a link to the FRM-PCX for their use. Before posting to the website, the names of Corps employees should be removed.

4. The point of contact for this action is Mr. Patrick O'Donnell at (404) 562-5226.

Encl

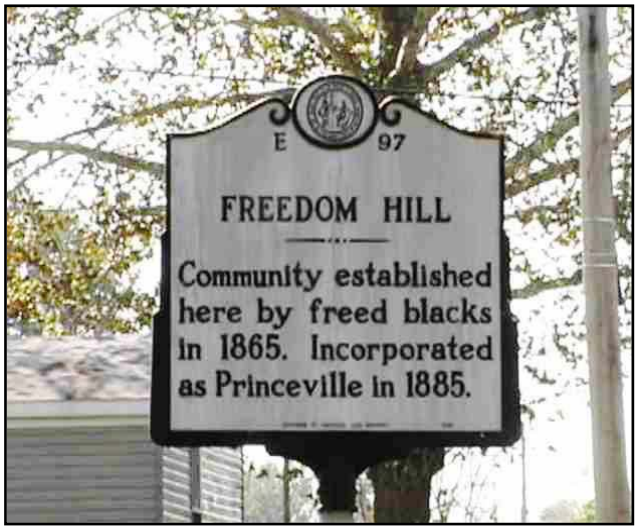
DONALD E. JACKSON, JR.
COL, EN
Commanding

REVIEW PLAN

Princeville, North Carolina
Flood Risk Management
Feasibility Study and Environmental Assessment

P2:113918

Wilmington District



MSC Approval Date: February 28, 2013
Last Revision Date: December 5, 2012

US Army Corps of Engineers ®

REVIEW PLAN

Princeville, North Carolina Flood Risk Management
Integrated Feasibility Study and Environmental Assessment

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the Princeville, North Carolina Flood Risk Management Integrated Feasibility Report and Environmental Assessment.

b. References

(1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010
(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) ER 1105-2-101, Risk Analysis for Flood Damage Reduction Studies

c. Requirements. This review plan was developed in accordance with EC 1165-2-209, 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 1165-2-209) and planning models are subject to certification/approval (per EC 1105-2-412).

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 Flood Risk Management Center of Expertise (FRM-PCX) located in South Pacific Division.

The RMO will coordinate with the Cost Engineering Directory of Expertise (DX) to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies. The RMO for Type II IEPR reviews is the U.S. Army Corps of Engineers (USACE) RMC. Panel members will be selected using the National Academies of Science (NAS) policy for selecting reviewers.

3. STUDY INFORMATION

a. Study Authority. The Princeville Flood Risk Management study is being conducted pursuant to the Military Construction Appropriations Act of 2001 (Public Law No. 106-246), dated July 13, 2000, which reads as follows:

For an additional amount for "General Investigations", $3,500,000, to remain available until expended, of which $1,500,000 shall be for a feasibility study and report of a project to provide flood damage reduction for the Town of Princeville, North Carolina, and of which $2,000,000 shall be for preconstruction engineering and design of an emergency outlet from Devils Lake, North Dakota, to the Sheyenne River: Provided, that the entire amount is designated by the Congress as an emergency requirement pursuant to section 251(b)(2) (A) of the Balanced Budget and Emergency Deficit Control Act of 1985, as amended.

b. Decision Document. The Princeville, North Carolina Flood Risk Management Feasibility Study will result in an integrated Feasibility Report and Environmental Assessment to assess Flood Risk Management for the Town of Princeville. It is expected that a Chief's Report will be prepared and Congressional authorization obtained.

c. Project Sponsor. The State of North Carolina is the Non-Federal sponsor, cost sharing this feasibility study 50-50 with USACE.

d. Study/Project Description. Princeville, North Carolina is the first municipality in America incorporated by and for former slaves (1885). Freed slaves were given low-lying land in the Tar River floodplain at the end of the Civil War and eventually incorporated the town. While Princeville was built on low ground, the Town of Tarboro is sited on the opposite side of the river on much higher ground. Because of its low-lying location, Princeville was repeatedly flooded for many years since its founding.

Today, Princeville remains over 97% African-American. Approximately 2,000 residents are currently exposed to public/ life safety issues associated with the existing threat level from floods. Approximately 40% of the population is over 55 years old. Per capita income for Princeville is approximately $12,600, which is 32.6% of the national average of $38,611. The average structure value is $56,600, which is 47% of the national average of $119,600.

In 1967, The Corps of Engineers built a dike (levee) along the Tar River to address the frequent and severe flooding. After construction of the levee the Town did not suffer from severe flooding again until Hurricane Floyd in 1999 when there was catastrophic flooding as a result of the storm (greater than 0.2% event), and a loss of nearly all 1,000 residential structures. Floodwaters initially entered Town through a number of ungated culverts under a section of U.S. Highway 64. As the flood event worsened, the existing project was then circumvented at its north end and the remaining portions of Town were inundated. Up to twenty feet of water stood in Princeville for nearly 10 days until river levels subsided enough that the floodwaters could be pumped from the town.

As a result of the catastrophic flooding and historical significance of the town, President Clinton issued *Executive Order 13146*, which established a "*President's Council on the Future of Princeville, North Carolina*." The executive order directed the President's Interagency Council to consider:

> In consideration of Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations", Federal agencies are also

required to consider potential disproportional adverse effects or denial of potential benefits of Federal policies and programs to communities such as Princeville.

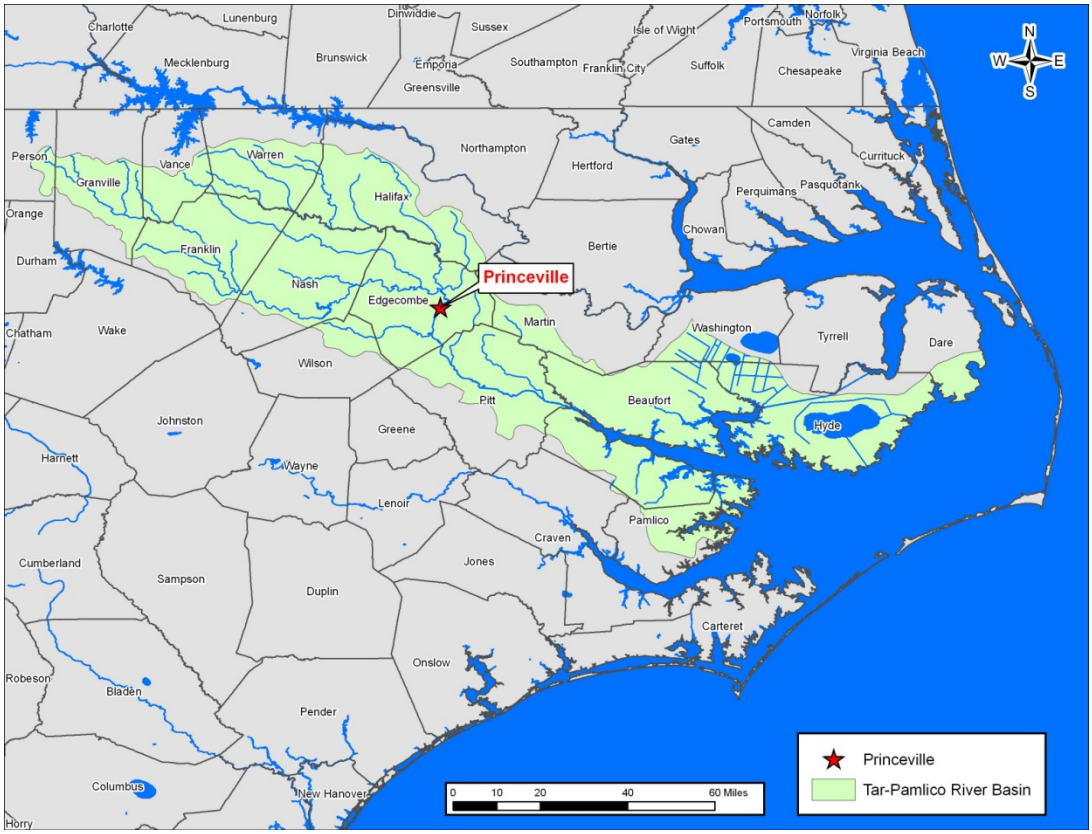
Numerous heavily-damaged structures of historical value were demolished under cleanup requirements and only four structures remain eligible for the National Register of Historic Places and one baptismal site is considered eligible as a Traditional Cultural Property. The Town turned down a buyout offer from the Federal Emergency Management Agency (FEMA) because of the adverse social, economic, and cultural impacts that would likely occur as a result. Many homeowners obtained second mortgages to rebuild.

Numerous Federal agencies including FEMA, HUD, SBA, USDA, and the Department of Labor provided millions of dollars for recovery and reconstruction of the town.

The Corps was authorized to prepare a feasibility study to address flood risk management issues and funds were provided in 2001. The Corps and the State of North Carolina signed a Feasibility Cost Sharing Agreement in July 2002, and the State has provided matching funding.

The Tentatively Selected Plan would include measures to extend the existing levee and raise U.S. Highway 258 and Shiloh Farm Road north of Princeville to create a barrier to circumvention of the existing levee, ramping residential, farm and commercial driveways and subdivision streets to meet the new elevation. An earthen "shoulder levee" would be added along the east side of U.S. Highway 64 on the southwest side of Princeville to prevent overtopping at that location, modification and raising of the U.S. Highway 64/N.C. Highway 33 interchange, installation of backflow devices (flap gates) to culverts through existing embankments, raising nine structures outside the proposed levee footprint, and implementing interior drainage improvements to ensure proper routing of flow on the back side of the levee system. It would also include non-structural measures consisting of an updated flood warning and evacuation plan, continued floodplain management and updating of local building and zoning codes, a flood risk management education and communication plan for both the community and local schools, and flood warning measures, all of which were ultimately deemed essential to an adequate flood risk management strategy for the Town of Princeville. The cost for the TSP is estimated to be $32 million.

e. Study Area. The Town of Princeville is located in the floodplain of the Tar River, opposite the Town of Tarboro, in the State of North Carolina (*Figure 1*).



f. Factors Affecting the Scope and Level of Review. Quality control will be conducted through DQC, ATR, and IEPR. Questions that must be considered in determining the scope and level of review are identified in column 1 of the following table. The Project Delivery Team's (PDT) assessment of these questions in relation to this study is listed in column 2 of the table.

Questions to Determine Scope	Princeville, North Carolina Study
Is the project cost estimate greater than $45 million?	No, it is anticipated that the project cost will be approximately $32 million.
Will parts of the Study be challenging?	The Study proposes to recommend a plan based on "Other Social Effects" rather than "National Economic Development" benefits. This may present a challenging for the PDT and reviewers as it is different than how we typically select a Flood Risk Reduction Plan.
What are the likely Study risks and the magnitude of the risks?	The most likely risk would be that the Level of Protection proposed in the Study may not be properly communicated or understood by the local communities. Other study risks are low.
Will the Study be justified by life safety or involve a significant treat to life safety?	Yes. The study is a Flood Risk Reduction Study and therefore may be justified by life safety.
Has there been a request by the	No. At this time there has been no request by the

Governor of N.C. for a peer review by independent experts?	Governor of N.C. for peer review by independent experts.
Significant public dispute as to size, nature or effects of the project	To date, there has been no public dispute as to the size, nature, or effects of the project, nor is there expected to be in the future.
Significant public dispute as to the economic or environmental cost or benefit of the project.	To date, there has been no public dispute as to economic or environmental cost of the project, nor is there expected to be in the future.
Will the study report contain influential scientific information or be a highly influential scientific assessment?	No. The study is not likely to contain influential scientific information or be a highly influential scientific assessment. Models used for planning and engineering are commonly used USACE certified models.
Will the information in the decision document be based on novel methods, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices?	No. Information in the decision document is not based on novel methods nor do they present complex challenges for interpretation. Models that were used are USACE certified models. Methodologies proposed for flood risk reduction are considered acceptable and are common practice.
Will the proposed project design require redundancy, resiliency, and/or robustness?	No, the proposed project design will not require any redundancy but it will require resiliency and robustness. (See section 6a (table)).
Will the project have significant economic, environmental, and/or social effects to the Nation?	Yes. The Study will have significant social effects to the Nation as Princeville is the first municipality in America incorporated by and for former slaves.

- Consistent with EC 1165-2-209, Dr. Greg Williams, Wilmington District, Chief, Engineering Branch, concurs with the assessment that there are life safety issues associated with the Princeville Flood Risk Management project.
    - The original levee project was completed in the late 1960s to prevent flood damages to the town of Princeville, NC, which was the first U.S. town incorporated by freed black slaves. The property lies in the floodplain of the Tar River and had experienced numerous flood issues.
    - Through the years, modifications to the original project have been made which include re-constructing US Highway 64 on top of the existing levee and addition of highway interchanges with culvert penetrations through the levee/highway embankment. These culverts do not have flap gates and thus serve as the first source of flooding for the community as the Tar River floods
    - Both the northern and southern terminus of the original levee has abrupt terminations that do not appear to tie into high ground. With increased development that has occurred beyond these locations, flood risk has increased to the community.

- After Hurricane Floyd, FEMA offered buyouts to the community, but because of the sense of community and financial constraints of the residents, the town decided not to take the buyouts. Therefore, the life safety issues associated with flooding remains.
- Due to the life safety issues, this study will undergo both a Type I and Type II IEPR.
- Non-performance of the proposed project would result in similar risks as currently exist now with no project or the Future Without Project scenario. The future risk to life and safety would continue, which is the primary concern for the community. For example, if the northern extension of the levee were breached or failed, then water from the Tar River would flow into the Town of Princeville, just as it would under the FWOP condition. If any of the proposed flap-gates failed, then backwater from the Tar River would flow into Princeville, just as it would under the FWOP condition. The health and safety of the residents of Princeville is jeopardized by high water each time floodwaters rise and engulf the town, which would occur if the proposed project would fail. Along with high waters comes the threat of disease-bearing waterborne substances and vectors, as well as the destructive force of flowing water and the debris it carries. The proposed project would not add risks that do not already exist.

g. In-Kind Contributions. Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. No in-kind products or analyses are anticipated for this Study.

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 will be in accordance with the Quality Manual of the District.

a. Documentation of DQC. Documentation of the technical and policy review of a specific product will be sufficient to allow both planning management and QC reviewers to determine that a comprehensive review was conducted in accordance with principles and guidelines established. Significant DQC comments will be placed in Dr. Checks and a will be report generated and provided to the ATR Lead prior to ATR. It is expected that all in-progress review actions, review team meetings, and other significant technical review related actions will be documented in the form of a written memorandum prepared by the review leader.

b. Products to Undergo DQC. All documents will be submitted for DQC prior to Agency Technical Review.

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 Major Subordinate Command (MSC).

a. Products to Undergo ATR. ATR was performed on the Alternative Formulation Briefing (AFB) package December 2010 in accordance with EC 1165-2-209. During this ATR, compliance with established policy, principles, and procedures utilizing justified and valid assumptions were verified. This included review of:

- Assumptions
- Methods, procedures, and material used in analyses
- Alternatives evaluated
- The appropriateness of data used and the level of data obtained
- Reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing USACE policy.

In-line with the new Corps planning modernization initiative (SMART Planning), a full ATR of the Integrated Report and Appendices will be conducted on the Draft Report at the Agency Decision Milestone. ATR of individual interim products may be performed, as needed, throughout the Feasibility Study. This will allow for issues to be identified and resolved earlier in the study process.

b. Required ATR Team Expertise. The following provides a list of ATR Team disciplines and expertise required for the Princeville, North Carolina Flood Risk Manaagement ATR team. The expertise represented on the ATR team reflects the significant expertise involved in the work effort, and in general, mirrors the expertise on the PDT. ATR Team members were determined by the RMO, in cooperation with the PDT, vertical team, and other centers of expertise. The names, organizations, contact information, credentials, and years of experience of the ATR members are included in Attachment 1.

ATR Team Disciplines	Expertise Required
ATR Lead	The ATR lead will 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).
Planning	The Planning reviewer will be a senior water resources planner with experience in planning flood risk management studies.
Economics	Team member will be experienced in in Economic analyses for Flood Risk Management studies and have a thorough understanding of requirements based on study objectives and proposed measures.
Environmental Resources	The reviewer must have knowledge of all applicable environmental laws and regulations. The reviewer should be particularly familiar with environmental issues related riverine habitats. Must be able to review for NEPA compliance.
Cultural Resources	The reviewer must have experience in the field of cultural resource evaluations. Specifically, the team member should be particularly familiar with all cultural resource requirements in accordance with National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA). Additionally, the team member shall be familariar with the Native American Graves Protection and Repatriation Act (NAGPRA) requirements related to the proposed study measures.
Hydrologic and Hydraulic Engineering	The hydraulic engineering reviewer will be an expert in the field of hydraulics and have a thorough understanding of riverine hydrology and hydraulics in a leveed system, knowledge of open channel dynamics, enclosed channel systems, application of detention/retention basins, application of levees and flood walls, non-structural solutions involving flood warning systems and flood proofing, etc and/or computer modeling techniques including HEC-RAS
Geotechnical Engineering	The geotechnical engineering reviewer should have an extensive experience in geotechnical evaluation of

	FRM structures such as static and dynamic slope stability evaluation, evaluation of the seepage through the foundation of the FRM structures, including debris basins, floodwalls, and in settlement evaluation of the structures.
Civil Engineering	This discipline may require a dedicated team member, or may be satisfied by structural or geotechnical reviewer, depending on individual qualifications. Team member will have experience in utility relocations, drainage channels, roads and sidewalk, detention ponds, and application of non-structural flood damage reduction. A certified professional engineer is suggested.
Structural Engineering	Team member will have a thorough understanding of levee, flood wall, and retaining wall design, box culverts, sheet piles, foundation shoring, and bridges. A certified professional engineer is recommended though not required.
Cost Engineering	Team member will be experienced in Cost Engineering analyses for Flood Risk Management studies and have a thorough understanding of requirements based on study objectives and proposed measures.
Real Estate	The Real Estate team member must be able to review the real estate plan and the real estate aspects of the planning documents, being familiar with and having expertise in the real estate planning process for cost shared and federal civil works projects, relocations, navigational servitude issues, report preparation and the reviewing and acquisition of real estate interests.
Risk Analysis	The risk analysis reviewer will be experienced with performing and presenting risk analyses in accordance with ER 1105-2-101 and other related guidance, including familiarity with how information from the various disciplines involved in the analysis interact and affect the results.

c. Documentation of ATR. DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited 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 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 AFB, draft report, and final report. A sample Statement of Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

Type I IEPR is required for all decision documents except where no mandatory triggers apply, criteria for exclusion are met, and a risk-informed recommendation justifies exclusion. 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 1165-2-209, 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 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 1165-2-209.

- 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. The Feasibility Report/EA will be subject to Type I IEPR, including Safety Assurance. Both Type I and Type II IEPRs are required.

This project meets the mandatory triggers for Type I IEPR described in Paragraph 11.d. (1) and Appendix D of EC 1165-2-209 (listed below). Safety Assurance will also be addressed during the Type I IEPR per Paragraph 2.c. (3) of Appendix D of EC 1165-2-209.

Triggers for Type I IEPR	**Princeville, North Carolina Study**
Significant threat to human life	There are substantial risks to life and safety. The study is a Flood Risk Reduction Study and therefore may be justified by life safety.
Total Project Cost > $45 million	It is anticipated that the project cost will be approximately $32 million.
Will parts of the Study be challenging?	Many aspects of the Princeville Study have/will be challenging for the PDT and reviewers. The Study proposes to recommend a plan based on “Other Social Effects” rather than “National Economic

	Development" benefits.
What are the likely Study risks and the magnitude of the risks?	The most likely risk would be that the Level of Protection proposed in the Study may not be properly communicated or understood by the local communities. Other study risks are low.
A request by a State Governor of an affected state	No request has been made by the Governor of North Carolina or any other State or Local Official for and Independent External Technical Review.
A request by the head of a Federal or state agency charged with reviewing the project study if he/she determines that the project is likely to have a significant adverse impact on environmental, cultural, or other resources under the jurisdiction of the agency after implementation of proposed mitigation plans.	At this time there has been no request by a head of a Federal or State agency for peer review by independent experts.
Significant public dispute as to size, nature or effects of the project	To date, there has been no public dispute as to the size, nature, or effects of the project, nor is there expected to be in the future.
Significant public dispute as to the economic or environmental cost or benefit of the project.	To date, there has been no public dispute as to economic or environmental cost of the project, nor is there expected to be in the future.
A case 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.	No. Information in the decision document is not based on novel methods nor do they present complex challenges for interpretation. Models that were used are USACE certified models.
Any other circumstance where the Chief of Engineers determines Type I IEPR is warranted.	Other than the risk and life safety issue associated with flooding, the Chief of Engineers has not determined that there are additional triggers that warrant a Type I IEPR.

A Type II IEPR is required for the design and follow-on project implementation. The Type II IEPR is required because the project addresses flood risk management and because failure of the project would pose a substantial threat to human life. Other factors that have been considered for a Type II IEPR are discussed in the table below:

Factors Considered for Type II IEPR	Princeville, North Carolina Study
The project involves the use of innovative materials or techniques where the engineering is based on novel methods, presents complex challenges for interpretations, contains precedent-setting methods or models, or presents conclusions that are likely to change prevailing practices	No. Widely-used, USACE Certified models have been used to develop the plan. No innovated materials or techniques have been proposed, nor is any part of the preliminary design based on novel methods or present complex challenges.
The project design requires redundancy	Duplication of critical components of the system in order to increase reliable is not being proposed.
The project design requires resiliency	The project will have resiliency so if the flood protection system becomes compromised, it could be repaired back to provide the design level of protection.
The project design requires robustness	The project is expected to be robust and should continue to operate correctly across a wide range of operational conditions with minimal damage, alteration, or loss of functionality.
The project has unique construction sequencing or a reduced or overlapping design construction schedule; for example, significant project features accomplished using the Design-Build or Early Contractor Involvement (ECI) delivery systems	No unique construction sequencing is being proposed. No reduced or overlapping design construction schedules are being proposed.

b. Products to Undergo Type I IEPR. The full IEPR panel will receive the entire Draft Report and Environmental Assessment and all technical appendices concurrent with public and agency review.

c. Required Type I IEPR Panel Expertise. The IEPR Team will be selected by a qualified Outside Eligible Organization (OEO). The FRM PCX will identify an IEPR manager, who will work with the PDT to write a scope of work for the OEO that includes developing a charge to reviewers that outlines the scope and requirements of the review, identifying potential reviewers, contracting them, managing the review, and documenting the review. Due to the nature of the study, it is expected that multiple team members will be needed for certain disciplines. The team will consist of approximately 6 reviewers.

IEPR Panel Disciplines	Expertise Required
Economics	The Economics Panel Member must be experienced in civil works and related flood risk management projects, including NED analysis. Must have a thorough understanding of HEC-FDA
Environmental	Team member must be experienced in NEPA/CEQA

	process and analysis, and have a biological or environmental background that is familiar with the project area.
Engineering – Civil/Structural	Team member must have experience in levee, floodwall, box culvert and drainage structure design, and utility relocations. Experience with design and construction of flood control structures in areas of karst geology is recommended. In addition, experience with traffic and transportation design is desired. A certified professional engineer is highly recommended.
Engineering – Hydrology and Hydraulic	Team member must be an expert in the field of urban hydrology & hydraulics, have a thorough understanding of the dynamics of the both open channel flow systems, enclosed systems, application of detention / retention basins, effects of best management practices and low impact development on hydrology, approaches that can benefit water quality, application of levees and flood walls in an urban environment with space constraints, non structural measures especially as related to multipurpose alternatives including ecosystem restoration, non-structural solutions involving flood warning systems, and non-structural alternatives related to flood proofing. The team member will have an understanding of computer modeling techniques that will be used for this project (HEC-FDA, HEC-RAS). A certified flood plain manager is recommended but not required.

d. Documentation of Type I IEPR. The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-209, Appendix D. 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. 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 OEO no later than 60 days following the close of the public comment period for the draft decision document. USACE shall consider all

recommendations contained in the Review Report and prepare a written response for all recommendations adopted or not adopted. The final decision document will summarize the Review Report and USACE response. The Review Report and USACE response will be 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 DIRECTORY OF EXPERTISE (DX) REVIEW AND CERTIFICATION

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

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 responsible use of well-known and proven USACE developed and commercial engineering software will continue and the professional practice of documenting the application of the software and modeling results will be followed. As part of the USACE Scientific and Engineering Technology (SET) Initiative, many engineering models have been identified as preferred or acceptable for use on Corps 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).

10. Planning Models. The following planning model will be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
HEC-FDA (Flood Damage Reduction Analysis Software)	The Flood Damage Reduction Analysis (HEC-FDA) software provides the capability to perform an integrated hydrologic engineering and economic analysis during the formulation and evaluation of flood risk management plans. HEC-FDA is designed to assist in using risk analysis procedures for formulating and evaluating flood risk management measures (EM 1110-2-1619, ER 1105-2-101). It can also assist USACE staff in analyzing the economics of flood risk management projects. The software, 1) stores hydrologic and economic data necessary for an analysis, 2) provides tools to visualize data and results, 3) computes expected annual damage (EAD) and equivalent annual damages, 4) computes annual exceedance probability (AEP) and conditional non-exceedance probability as required for levee certification, and, 5) implements the risk analysis procedures described in EM 1110-2-1619.	Certified

a. Engineering Models. The following engineering models are anticipated to be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
HEC-RAS 4.0 (River Analysis System)	The Hydrologic Engineering Center's River Analysis System (HEC-RAS) program provides the capability to perform one-dimensional steady and unsteady flow river hydraulics calculations. The program will be used for steady flow analysis to evaluate the future without- and with-project conditions.	HH&C CoP Preferred Model

11. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost. The PDT district shall provide labor funding by cross charge labor codes. Wilmington District will provide funding for travel, if needed. The project manager will work with the ATR Team Lead to ensure that adequate funding is available and is commensurate with the level of review needed. The current cost estimate for the final ATR review is $25,000. The team lead shall provide organization codes for each team members and a responsible financial point of contact (CEFMS responsible employee) for creation of labor codes. Reviewers

shall monitor individual labor code balances and alert the ATR Team Lead to any possible funding shortages.

ATR Milestone	Cost	Schedule
Draft Report	$25,000	February 2013

b. Type I IEPR Schedule and Cost. The FRM-PCX will identify someone independent from the PDT to scope the IEPR and develop an Independent Government Estimate. The Wilmington District will provide funding to the IEPR panel and for PCX support for the IEPR. The review for IEPR will occur concurrently with the release of the Draft Report for public, and policy review and is estimated to cost $240,000.

IEPR Milestone	Cost	Schedule
Independent External Peer Review of Draft Report	$240,000	June 2013

c. Model **Certification/Approval Schedule and Cost.** There is no model review anticipated. All the models anticipated to be used are already certified or approved for use.

12. PUBLIC PARTICIPATION

Public comments are solicited for the duration of the Study through initiatives such as the initial public scoping meeting, interagency coordination meetings, and the posting of study products and documents on the District website for public access and review. The Decision Milestone Report will be disseminated to resource agencies, interest groups, and the public as part of the National Environmental Policy Act (NEPA) environmental compliance review.

A summary of significant and relevant public comments will be provided to reviewers before they conduct their review. The final decision document, associated review reports, and USACE responses to IEPR comments (if applicable) will be made available to the public on the Wilmington District Website.

13. 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 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 re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the 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.

14. REVIEW PLAN POINTS OF CONTACT

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

- Lead Planner, Wilmington District, 910-251-4728
- Environmental Protection Specialist, South Atlantic Division, 404-562-5225
- Deputy Director, Flood Risk Management PCX, 415-503-6852

ATTACHMENT 1: TEAM ROSTERS

Names have been removed for posting per EC 1165-2-214 (December 15, 2012).

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 *<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 1165-2-209. 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
ATR Team Leader
Office Symbol/Company
Date

SIGNATURE _____ _____

Name
Project Manager
Office Symbol
Date

SIGNATURE _____ _____

Name
Architect Engineer Project Manager[1]
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 Date

Name
Chief, Engineering Division
Office Symbol

SIGNATURE Date

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