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

08 MAY 2014

MEMORANDUM FOR Commander, Savannah District (CESAS-PD/W. Bailey)

SUBJECT: Rocky Creek, Augusta Georgia, Flood Risk Management, Section 205 Feasibility Study, Review Plan

1. References:

a. Memorandum, CESAS-PD, 01 April 2014, subject as above.

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

2. The enclosed Review Plan has been prepared in accordance with Engineer Circular (EC) 1165-2-214. The Review Plan has been coordinated with the South Atlantic Division, which is the Review Management Organization for this Section 205 of the Continuing Authorities Program Feasibility Report. This decision document is so limited in scope or impact that it would not significantly benefit from a Type I Independent External Peer Review (IEPR). I approve the exclusion from the Type I IEPR based upon the risk informed decision presented in this Review Plan. The timing and the appropriate expertise requirements for a Type II IEPR Panel for the Design and Construction of the proposed project must be assessed and submitted for my approval in an updated Review Plan prior to initiation of the design and implementation phase of this project.

3. This Review Plan 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. 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 South Atlantic Division for our 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 L. WALKER
Colonel, EN
Commanding

DEPARTMENT OF THE ARMY
SAVANNAH DISTRICT, CORPS OF ENGINEERS
100 W. OGLETHORPE AVENUE
SAVANNAH, GEORGIA 31401-3640

RECEIVED
4/4/14

REPLY TO
ATTENTION OF:

APR 01 2014

CESAS-PD

MEMORANDUM FOR Commander, South Atlantic Division, (ATTN: Wilbert Paynes, CESAD-PDP) 60 Forsyth Street, RM 10M15, Atlanta, Georgia 30303

SUBJECT: Rocky Creek, Augusta Georgia, Flood Risk Management, Section 205 Feasibility Study, Review Plan.

1. Enclosed for your review and approval is the Review Plan (RP) for the Rocky Creek, Augusta, Georgia, Flood Risk Management Section 205 Feasibility Study. The RP defines the scope and level of the peer review for the Feasibility Report and addresses the SAD February 2014 comments, which are also included.

2. Please direct any questions or comments related to this work effort to Monica Simon-Dodd, Plan Formulator, at (912) 652-5375.

William G. Bailey

Encl

WILLIAM G. BAILEY
Chief, Planning Division

STAFF ACTION SUMMARY HQSAD Protect/Unprotect	Control #: 20140507-005	Suspense Date: 2-May-14

Subject: Review Plan Approval for Augusta Rocky Creek CAP Section 205 Study Review Plan

Office Symbol: PDP	Action Officer: O'Donnell	Telephone: -25226
Routing: ☒ RIS	☒ DE ☒ DC	☒ CO
For: Information ☐	Decision ☐	Resource Impact ☐	Approval ☒	Signature ☒

Purpose: Approval of Review Plan

Background: Savannah District has requested approval of the attached Review Plan for the Augusta Rocky Creek Feasibility Study. This is a Continuing Authorities Program (CAP) Section 205 flood risk management project. For CAP decision documents, the MSC Commander has delegated approval to provide exclusion from Type I Independent External Peer Review (IEPR), and the MSC can be the Review Management Organization in lieu of a Planning Center Expertise (PCX) per EC 1165-2-214.

Releaser: O'DONNELL, Patrick, released 28 April 2014

Recommendation: Sign and return to originator for dispatch

Action:	Approved: ☒ DLW	See Me: ☐	Other: ☐

Coordination

Staff Element	Name	Concur/Nonconcur	Date
PDM	~~Epps~~ B. Epps	Concur	4/30/14
PDP	O'Donnell	Concur	4/30/14
PDP	Paynes	Concur	4/30/14
PDR	Thompson FOR	O.K.	5/5/14
RBT	Smith	Concur	5 May 14
OC	Purcell		
PDC	McCarthy	Concur	5 May 14
PDO	~~Whittington~~	Concur	5/5/14
PD	Bridges		
PD	for LEE	Concur	5/7/14

REVIEW PLAN

Rocky Creek, Augusta Georgia, Flood Risk Management, Section 205 Feasibility Study

Savannah District

Project Number: 321406

MSC Approval Date: May 8, 2014
Last Revision Date: May 8, 2014

US Army Corps of Engineers ®

REVIEW PLAN

Rocky Creek, Augusta Georgia, Flood Risk Management, Section 205 Feasibility Study

TABLE OF CONTENTS

1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the Rocky Creek, Augusta Georgia, Flood Risk Management, Section 205 Feasibility Study.

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) PMP for study
(6) District Quality Control 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 (per EC 1105-2-412).

d. Attachments. Attachment 1 includes the Project Delivery Team (PDT) members and the Agency Technical Review (ATR) team members. Attachment 2 includes samples of the Completion of Agency Review and also the Certification of the Agency Technical Review. Attachment 3 includes a table of the review plan revisions. Attachment 4 includes a list of acronyms and abbreviations.

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. Since this study would be conducted under the Continuing Authorities Program (CAP), South Atlantic Division (SAD) is the appropriate RMO. Also, in accordance with EC1165-2-214, p. G-2, section 5, “The Review Management Organization (RMO) for ATR for CAP projects may be the home MSC in lieu of a National Planning Center of Expertise (PCX).” SAD will coordinate with the Civil Works Cost Engineering and Agency Technical Review Mandatory Center of Expertise (Cost Engineering MCX) to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules

and contingencies. The Cost MCX will be responsible for final cost certification but this responsibility may be delegated at the Cost MCX's discretion.

Savannah District will assist SAD with management of the ATR and development of the ATR charge to reviewers. The ATR charge to reviewers shall as a minimum address the following questions for the selected alternative:

a. In accordance with ER 1110-2-1150, is the quality and quantity of the surveys, investigations, and engineering sufficient for a concept design?
b. Are the models used to assess hazards appropriate?
c. Are the assumptions made for the hazards appropriate?
d. Does the analysis adequately address the uncertainty and residual risk given the consequences associated with failure of this type of project?

3. STUDY INFORMATION

a. Decision Document

The Rocky Creek, Augusta, Georgia, decision document will be prepared in accordance with ER 1105-2-100, Appendix F. The approval level of the decision document (if policy compliant) is the home MSC, South Atlantic Division. An Environmental Assessment (EA) will be prepared along with the decision document.

b. Study/Project Description

As a result of information in Savannah District's 2006 Rocky Creek Investigation Study Draft Report, two alternatives will be evaluated: (1) Rosedale Detention Pond and (2) Evacuation and Relocation of homes along Kissingbower Road.

History of Rosedale Pond

The original construction date of Rosedale Dam appears to be between 1943 and 1948. The property with the existing dam was purchased by Dr. John Martin in approximately 1949. In 1980, the dam was inspected by Law Engineering Testing Company, under contract to the Savannah District Corps of Engineers, as part of the National Dam Safety Program. A Phase I Inspection Report was approved by the Corps of Engineers in December 1980 and submitted to Georgia Governor George Busbee by Col. Tilford Creel.

The report found the dam to be seriously unsafe, due to inadequate spillway capacity. They also noted concerns/deficiencies with the steep downstream embankment slope, erosion around the left wingwall of the spillway, poor spillway condition with cracked, broken and displaced concrete, trees growing on the dam, a wooden spillway bridge that had rotted and collapsed into the spillway, and no warning system. The owner was apparently unable to afford the extensive required repairs and therefore the dam was breached to prevent storage of water.
Rosedale Dam was categorized as high hazard due to the presence of a car dealership on the left bank within 800 feet of the dam. The dam was required to have the capability to pass the Probable Maximum Flood (PMF) event, but calculations showed it could only pass 19% of the PMF before overtopping. A PMF event was estimated by hydrologic rainfall-runoff model to

overtop the dam by more than 3 feet. The maximum dam height was 26 feet, with a storage capacity of 246 acre-feet at the dam crest.

From inspection of historic aerial photographs, in 1980 there was also an existing mobile home park on the right bank, from 0.2 to 0.6 mile downstream, which was not noted in the report. The mobile home park on Carmell Way remains in use today, and a commercial park has been developed on the left bank, along Commerce Drive. The distance across the Rocky Creek channel from the mobile homes to the commercial park on the opposite bank varies from 100 to 150 feet. The car dealership was converted to a mobile home dealership in the 1990's, then abandoned about 2005. In 2013 the structure was demolished and the site now appears to be used as a construction material staging area.

Relevancy to Current Proposed Project

Of the deficiencies noted in the 1980 report, all will be corrected by the proposed construction project. The former spillway was removed during the dam breaching. Trees will be removed from the embankment and the slopes will be graded to meet current standards. The spillway will be replaced by a box culvert, such that the dam will not hold water except during flood events. Articulated concrete block mattress (ACB) protection will be installed to minimize embankment erosion during overtopping. A high water warning system will be incorporated into the design of the proposed Rosedale Detention Pond.

There will be no hazard during normal streamflow conditions because the culvert will maintain the dam in a "dry" condition. Thus there is no potential for what is sometimes referred to as a "sunny-day" failure, which is an embankment failure with a static pool level during a non-flood period. These are often the most deadly dam failures because there is usually no opportunity for warning the downstream population at risk of impending failure. Since there is no permanent pool proposed to be stored in Rosedale Pond, this most dangerous dam failure mode can be discounted.

Summary

Factors potentially increasing the risk from Rosedale Detention Pond:

- Short distance downstream (¼ to ½ mile) to inhabited structures
- Narrow downstream channel

Factors potentially decreasing the risk from Rosedale Detention Pond:

- Maintained in a "dry" condition (no permanent pool)
- Designed with a protected crest to resist erosion during overtopping events
- Embankment to be reconstructed to current standards
- Flood warning system will be included in the design
- A dambreak flood routing in accordance with current dam safety standards will be performed during PED phase
- Event large enough to pose risk of dam overtopping and potential failure would trigger evacuation of mobile home park due to impacts from flooding exceeding channel capacity prior to dam overtopping.

The Non-Structural portion of the tentatively selected plan in the 2006 Rocky Creek Investigation Draft Report is located north of Gordon Highway on Kissingbower Road and Haynie Street, across from the Regency Mall. The plan consists of purchasing 5 properties, demolishing 5 structures, and developing a recreational park on the site of the purchased structures.

c. Factors Affecting the Scope and Level of Review.

This study is focused on assessing and recommending solutions to current flooding problems along the Rocky Creek basin. It is anticipated that the total project cost will be less than $5 million.

- The PDT does not anticipate significant project-related risks to life safety. This is due to the design features making the Rosedale Detention Pond less of a risk.
- There has not been a request to study this project by a State Governor or an affected state.
- It is not anticipated that there will be any public disputes concerning this project.
- It is not anticipated that there will be any public disputes concerning economic and environmental costs and benefits.
- This project will not involve novel methods, innovative materials or techniques, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices, and
- It is not anticipated that this project will require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design construction schedule

d. In-Kind Contributions.

The study includes no in-kind products from the non-Federal sponsor.

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.

A DQC review is a standard requirement for all studies. All DQC comments will be formally answered in a normal comment/response format and compiled together in Dr. Checks. The DQC comments and responses and the back-check will be provided to the ATR team and will become a permanent part of the study documentation. The DQC will be conducted by senior SAS personnel.

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 (Savannah 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 SAD.

a. Products to Undergo ATR.

Certification of the ATRs will be provided prior to the District Commander signing the final report. Products to undergo ATR are the Draft EA and feasibility report and the Final EA and feasibility report. Additionally, the cost estimate will undergo an ATR.

b. Required ATR Expertise

ATR Team Members/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 Planner will be a senior planner, preferably one who has had experience in Flood Risk Management. Additionally, the Planner must have a minimum of 5 years experience.
Economics	The ATR team member must be an Economist and have recent experience in Flood Risk Management and risk analysis and the HEC-FDA model, and will be certified to review FRM projects.
Environmental Resources	The ATR team member must be a senior biologist and have recent experience in Flood Risk Management studies. This person must have recent experience in compliance with environmental laws (NEPA, Clean Water Act, Endangered Species Act, National Historic Preservation Act, etc.) and must have a minimum of 5 years of experience.

Cultural Resources	The archaeologist/cultural resources reviewer must be on the list of certified reviewers that was released by HQ.
Hydrology and Hydraulics	This ATR member must have a minimum of 10 years relevant experience in Flood Risk Management projects, be a registered professional engineer, and have a good understanding of applications of the Corps of Engineers Hydrologic Engineering Center models HEC-HMS and HEC-RAS. This team member will also work on the risk analysis, as required for FRM studies to ensure compliance with ER 1105-2-101. 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.
Geotechnical Engineering	The reviewer should have extensive experience in the field of geotechnical engineering, analysis, design, and construction of flood risk management structures, particularly earthen dams and levees. Experience shall include the following: subsurface investigations, earthwork construction, static and dynamic slope stability evaluation, evaluation of seepage through earthen embankments and underseepage through the foundation of flood risk management structures, particularly related to dam embankments and water control / outfall structures, settlement evaluation, and slope protection design. Earthwork construction experience shall include diversion and control of water, borrow operations, and compaction and moisture conditioning methods. The ATR team member must be a registered professional engineer with at least 10 years of experience.
Cost Estimating	The ATR Team member should be familiar with the most recent version of MII software and total project cost summary. This ATR member must be able to review the cost estimates and have recent experience with cost estimating for Flood Risk Management projects. The cost engineer will review Rough Order Magnitudes (ROM) of the alternatives and also the final costs for the selected plan. SAD, through coordinate with the Civil Works Cost Engineering and Agency Technical Review Mandatory Center of Expertise (Cost Engineering MCX) located in the USACE Walla Walla District (NWW), will ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies. The

	Cost MCX will be responsible for final cost certification but this responsibility may be delegated at the Cost MCX's discretion.
Real Estate	The Real Estate reviewer is to have expertise in the real estate planning process for cost shared and full federal civil works projects, relocations, report preparation and acquisition of real estate interests including Flood Risk Management projects. The reviewer must have a full working knowledge of EC 405-2-12, Real Estate Planning and Acquisition Responsibilities for Civil Works Projects and Public Law 91-646. The reviewer must be able to identify areas of the Real Estate Plan that are not in compliance with the guidance set forth in EC 405-2-12 and will make recommendations for bringing the report into compliance. All estates suggested for use will be reviewed to assure they are sufficient to allow project construction and the real estate cost estimate will be validated as being adequate to allow for real estate acquisition.

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, 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, and MSC), 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 will be completed prior to the District Commander signing off the final report.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

An IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-214, is made as to whether IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

- Type I IEPR. A Type I IEPR is required for all decision documents unless one of the criteria for five mandatory triggers is met, and a risk-informed recommendation justifies exclusion. For the Rocky Creek study, the triggers requiring a Type I IEPR were not met. Because we are proposing a design that incorporates features that will reduce risks, the Rosedale Detention Pond poses little threat to life or damage to homes. Thus, a type I IEPR is not needed, nor recommended. 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. The 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 Exclusion.

This decision document is limited in scope or impact and would not significantly benefit from an independent peer review. The criteria, consisting of five mandatory triggers that warrant a Type I IEPR, were reviewed and the following conclusions were reached:

1. Significant threat to human life. Very low risk to human life has been determined at this time but will be confirmed with a risk analysis performed during the PED phase.
2. Total Project Cost> $45 M. The total project cost is anticipated to be < $5 M.
3. A request by a State Governor of an affected state. There is no request by the Governor of an affected state for a peer review by independent experts;
4. Where the Department of Civil Works (DCW) or the Chief of Engineers determines that the project study is controversial due to significant public dispute over either the size, nature, or effects of the project or the economic or environmental costs or benefits of the project. This project is not likely to involve significant public disputes as to size, nature, or effects of the project and is not likely to involve significant public disputes as to the economic or environmental costs and benefits of this project;
5. Cases where information is based on novel methods, presents complex challenges for interpretation, contains precedent-setting methods, or presents conclusions that are likely to change prevailing practices. The information in the decision document or anticipated project design is not likely to be based on novel methods, involve the use of innovative materials or techniques, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices. The project design is not anticipated to require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design construction schedule:

In conclusion, because none of the triggers for an IEPR are met and the decision document would be so limited in scope and impact, it would not significantly benefit from a Type I IEPR. Additionally, 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 this project at this time. A risk-informed decision concerning the timing and the appropriate level of reviews for the project implementation phase will be prepared and submitted for approval in an updated Review Plan prior to initiation of the design/implementation phase of this project.

a. Products to Undergo Type I IEPR. None
b. Required Type I IEPR Panel Expertise. Not Applicable
c. Documentation of Type I IEPR. Not Applicable. Per EC 1165-2-214.
d. Documentation of Type II IEPR. Not Applicable. "A Type II IEPR (SAR) shall be conducted during the PED phase for any project where potential hazards pose a significant threat to human life (public safety)." Per EC 1165-2-214

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 MANDATORY CENTER OF EXPERTISE (MCX) REVIEW AND CERTIFICATION

All decision documents shall be coordinated with the Civil Works Cost Engineering and Agency Technical Review Mandatory Center of Expertise (Cost Engineering MCX), located in the Walla Walla District. The MCX will assist in determining the expertise needed on the ATR team and in the development of the review charge(s). The MCX will also provide the Cost Engineering certification. The RMO is responsible for coordination with the Cost Engineering MCX.

9. MODEL CERTIFICATION AND APPROVAL

a. Planning Models.

The CECW-P Memorandum “Continuing Authority Program Planning Process Improvements”, 19 January 2011, states that approval of planning models under EC 1105-2-412 is not required for CAP projects.

It is anticipated that the Hydrologic Engineering Center’s Flood Damage Analysis (HEC-FDA) model will be used to derive reduced damages. The HEC-FDA program provides the capability for integrated hydrologic engineering and economic analysis for formulating and evaluating flood risk management plans using risk-based analysis methods. The program will be used to evaluate and compare the future without- and with-project in the Rocky Creek Basin to aid in the selection of a recommended plan to manage flood risk. The HEC-FDA is a Corps certified model.

b. Engineering Models.

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).

The Hydrology and Hydraulics Branch plans to provide the Planning Division (PD) the water surface profile output from HEC-RAS in the appropriate format for input to the HEC-FDA economics model. The HEC-RAS model takes input of cross-section topography; bridge, culvert and roughness data; and steady flow discharge and uses that information to compute a water surface elevation at each cross-section and for each flow rate specified. The input requested by PD for economic analysis is: (1) existing conditions, (2) future land use conditions without project, and (3) future land use conditions with the proposed project. The with-project condition consists of the proposed Rosedale Dam as per the 2006 Rocky Creek Investigation Draft Feasibility Report concept design. No attempt will be made to model a larger or smaller structure for optimization. The reason for this is that the Rosedale Pond was previously made as large as reasonably possible without major impacts to existing homes, roadways and infrastructure, thus a larger dam is not feasible. No smaller dam was examined because much of the dam structure is already in place, and the proposed dam already provides less flood flow storage than needed, therefore building a lower dam would cost more to lower the dam than to keep it at its current height.

Water surface profiles will be developed for 8 (2-, 5-, 10-, 25-, 50-, 100-, 200-, and 500-year) hypothetical events. We have previously developed existing and future without-project models for the 2006 Rocky Creek Investigation Draft Feasibility Report. The HEC-HMS model will be run for the with-project simulation in order to develop regulated outflows from Rosedale Dam to be input to the HEC-RAS model.

10. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost. The cost for the ATRs is estimated to be $45,000. The documents to be reviewed and scheduled dates for review are as follows:

Draft Feasibility Report and EA **–** ATR – 4th quarter 2015 - $20,000
Cost Estimate – ATR – 4th quarter 2015 - $5,000
Final Report and EA – ATR- 4th quarter 2016 - $20,000

b. Type I IEPR Schedule and Cost. Not Applicable.

c. Model Certification/Approval Schedule and Cost. Use of existing certified or approved planning models is encouraged. However, approval of planning models under EC 1105-2-412 is not required for CAP projects. The ATR team will apply the principles of EC 1105-2-412 during the ATR to ensure the model is theoretically and computationally sound, consistent with USACE policies, and adequately documented.

11. PUBLIC PARTICIPATION

State and Federal natural resource agencies may be invited to participate in the study as partner agencies or as technical members of the PDT, as appropriate. Agencies with regulatory review responsibilities will be contacted for coordination as required by applicable laws and procedures. The ATR team will be provided copies of public and agency comments.

12. REVIEW PLAN APPROVAL AND UPDATES

The SAD Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input as to the appropriate scope and level of review for the decision document. 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.

13. REVIEW PLAN POINTS OF CONTACT

Public questions and/or comments on this review plan can be directed to the following points of contact: SAS Project Manager, 912-652-5804 and SAD Point of contact 404-562-5229.

ATTACHMENT 1: TEAM ROSTERS

Table 1 – Project Delivery Team

Discipline	Office/Agency
Project manager	CESAS-PM-C
Plan formulator	CESAD-PD
Environmental	CESAS-PD
Economics	CESAS-PD
Cultural Resources	CESAS-PD
Real Estate	CESAS-RE-AP
Hydraulics	CESAS-EN-H
Geotechnical	CESAS-EN-GS
Cost Estimating	CESAS-EN-ET
RMO – SAD	CESAD-PDP

Table 2 – Agency Technical Review Team Members

TBD			
TBD			
TBD			
TBD			
TBD			

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
ACB	Articulated Concrete Block mattress	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
ATR	Agency Technical Review	PCX	Planning Center of Expertise
CAP	Continuing Authorities Program	PDT	Project Delivery Team
DQC	District Quality Control/Quality Assurance	PED	Pre-Construction Engineering and Design
EA	Environmental Assessment	PMF	Probable Maximum Flood
EC	Engineer Circular	PMP	Project Management Plan
ER	Ecosystem Restoration	PL	Public Law
FRM	Flood Risk Management	QA	Quality Assurance
GI	General Investigation	QC	Quality Control
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	RTS	Regional Technical Specialist
MCX	Mandatory Center of Expertise	SAR	Safety Assurance Review
		SAD	South Atlantic Division
MSC	Major Subordinate Command	SAS	South Atlantic Savannah
NEPA	National Environmental Policy Act	USACE	United States Army Corps of Engineers