



REPLY TO
ATTENTION OF

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

CESAD-PDS-P

21 June 2011

MEMORANDUM FOR Commander, Jacksonville District (CESAJ-PD / Stuart Appelbaum)

SUBJECT: Review Plan, Big Fishweir Creek, Jacksonville, Florida, Aquatic Ecosystem Restoration Project, Section 206, Water Resources Development Act of 1996, as Amended

1. References:

- a. Memorandum, CESAJ-PD, 09 September 2010, subject as above.
- b. EC 1165-2-209, Civil Works Review Policy, 31 January 2010; and
- c. Memorandum, CECW, 19 January 2011, Subject: Continuing Authority Program Planning Improvement.

2. In accordance with EC 1165-2-209, Civil Works Review Policy, 31 January 2010, the Review Plan (RP) dated September 2010, revised April and June 2011, for Big Fishweir Creek, Jacksonville Florida, Aquatic Ecosystem Restoration Project (enclosure), has been reviewed by this office and is approved. We specifically concur with the Agency Technical Review Team lead being from within the South Atlantic Division, but outside of Jacksonville District.

3. The District should take steps to post the SAD-approved Final Revised RP and a copy of this approval memorandum to the SAJ District public internet website and provide a link to the Ecosystem Planning Center of Expertise (ECOPCX) website for their use. Before posting to the web site, the names of Corps/Army employees should be removed.

4. The SAD point of contact for this action is Ms. Karen Dove-Jackson, CESAD-PDS-P, (404) 562-5225.

FOR THE COMMANDER:

WILBERT V. PAYNES
Chief, Planning and Policy
Community of Practice

Encl

**Continuing Authorities Program
Section 206, Water Resources Development Act of 1996, as Amended
Aquatic Ecosystem Restoration Projects**

DECISION DOCUMENT REVIEW PLAN

**Big Fishweir Creek, Jacksonville, Florida
Integrated Detailed Project Report and Environmental Assessment**

Jacksonville District

June 2011

MSC Approval Date: June 2011

Last Revision Date: June 2011



**US Army Corps
of Engineers®**

DECISION DOCUMENT REVIEW PLAN

**Section 206, Water Resources Development Act of 1996, as amended
Aquatic Ecosystem Restoration Decision Documents**

TABLE OF CONTENTS

1. PURPOSE AND REQUIREMENTS..... 1

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION 4

3. STUDY INFORMATION..... 5

4. DISTRICT QUALITY CONTROL (DQC)..... 6

5. AGENCY TECHNICAL REVIEW (ATR) 6

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)..... 8

7. MODEL CERTIFICATION AND APPROVAL..... 9

8. REVIEW SCHEDULES AND COSTS 10

9. PUBLIC PARTICIPATION..... 11

10. REVIEW PLAN APPROVAL AND UPDATES..... 11

11. REVIEW PLAN POINTS OF CONTACT 11

ATTACHMENT 1: TEAM ROSTERS..... 12

ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS..... 13

ATTACHMENT 3: REVIEW PLAN REVISIONS..... 14

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS 15

1. PURPOSE AND REQUIREMENTS

- a. **Purpose.** This Review Plan defines the scope and level of peer review for the Big Fishweir Creek, Jacksonville, Florida Integrated Detailed Project Report and Environmental Assessment, developed under Section 206, Water Resources Development Act of 1996, as amended.

Section 206 of the Water Resources Development Act of 1996, Public Law 104-305, authorizes the Secretary of the Army to carry out a program of aquatic ecosystem restoration with the objective of restoring degraded ecosystem structure, function, and dynamic processes to a less degraded, more natural condition considering the ecosystem's natural integrity, productivity, stability and biological diversity. This authority is primarily used for manipulation of the hydrology in and along bodies of water, including wetlands and riparian areas. This authority also allows for dam removal. It is a Continuing Authorities Program (CAP) which focuses on water resource related projects of relatively smaller scope, cost and complexity. Traditional USACE civil works projects are of wider scope and complexity and are specifically authorized by Congress. The Continuing Authorities Program is a delegated authority to plan, design, and construct certain types of water resource and environmental restoration projects without specific Congressional authorization. The Federal share of costs for any one Section 206 project may not exceed \$5,000,000.

- b. **Applicability.** This review plan is for project decision documents, which is applicable to projects that do not require Independent External Peer Review (IEPR), as defined in ER 1165-2-209 Civil Works Review Policy. A Section 206 project does not require IEPR if ALL of the following specific criteria are met:

- The project does not involve a significant threat to human life/safety assurance;
- The total project cost is less than \$45 million;
- There is no request by the Governor of an affected state for a peer review by independent experts;
- The project does not require an Environmental Impact Statement (EIS),
- The project is not likely to have significant economic, environmental, and/or social effects to the Nation;
- The project/study is not likely to have significant interagency interest;
- The project/study is not likely highly controversial;
- The decision document is not likely to contain influential scientific information or be a highly influential scientific;
- The information in the decision document or proposed 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; and
- The project has not been deemed by the USACE Director of Civil Works or Chief of Engineers to be controversial nature.

If any of the above criteria are not met, a study specific review plan must be prepared by the home district, , coordinated with the National Ecosystem Planning Center of Expertise (ECO-PCX) and approved by the home Major Subordinate Command (MSC) in accordance with EC 1165-2-209.

Applicability of the Review Plan for a specific project is determined by the home MSC. If the MSC determines that the model plan is applicable for a specific study, the MSC Commander may approve the plan (including exclusion from IEPR) without additional coordination with the ECO-PCX or Headquarters, USACE. The initial decision as to the applicability of the model plan should be made no later than the Federal Interest Determination milestone (as defined in Appendix F of ER 1105-2-100, F-10.e.1) during the feasibility phase of the project. In addition, the home district and MSC should assess at the Alternatives Formulation Briefing (AFB) whether the initial decision on the use of the model plan is still valid or if a project specific review plan should be developed based on new information. If a project specific review plan is required, it must be approved prior to execution of the Feasibility Cost Sharing Agreement (FCSA) for the study.

This review plan does not cover implementation products. A review plan for the design and implementation phase of the project will be developed prior to approval of the final decision document in accordance with EC 1165-2-209.

c. 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, xxx 2010
- (3) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
- (4) ER 1105-2-100, Planning Guidance Notebook, Appendix F, Continuing Authorities Program, Amendment #2, 31 Jan 2007
- (5) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007

- d. **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 model certification/approval (per EC 1105-2-412).

- (1) District Quality Control/Quality Assurance (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 Major Subordinate Command (MSC).
- (2) 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 US Army Corps of Engineers (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 a designated Review Management Organization (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. The RMO is the South Atlantic Division. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate.

- (3) Independent External Peer Review (IEPR). IEPR may be required for **decision documents** under certain circumstances. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-209, 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 is generally for decision documents and Type II is generally for implementation products.
- (a) 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.

Based on the information and analysis provided in this review plan, the project covered under this plan is excluded from Type I IEPR because it does not meet the mandatory IEPR triggers and does not warrant IEPR based on a risk-informed analysis. If any of the criteria outlined for IEPR exclusion are not met, the Review Plan is not applicable and a study specific review plan must be prepared by the home district, coordinated with the National Ecosystem Planning Center of Expertise and approved by the home MSC in accordance with EC 1165-2-209.

- (b) 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.

Based on the information and analysis provided in this review plan, the project covered under this plan is excluded from Types I and II IEPR because it does not meet the

mandatory IEPR triggers and does not warrant IEPR based on a risk-informed analysis. If any of the criteria outlined for IEPR exclusion are not met, the Review Plan is not applicable and a study specific review plan must be prepared by the home district, coordinated with the National Ecosystem Planning Center of Expertise and approved by the home MSC in accordance with EC 1165-2-209.

- (4) 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.
- (5) Cost Engineering DX Review and Certification. All **decision documents** shall be coordinated with the Cost Engineering Directory of Expertise (DX), located in the Walla Walla District.

Regional cost personnel that are pre-certified by the DX will conduct the cost estimate ATR. The DX will provide the Cost Engineering DX certification.

- (6) Model Certification/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. The use of engineering models is also subject to DQC, ATR, and IEPR (if required).

For decision documents prepared under this Review Plan, use of existing certified or approved planning models is encouraged. Where uncertified or unapproved model are used, approval of the model for use will be accomplished through the ATR process. 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. If specific uncertified models are identified for repetitive use within a specific district or region, the appropriate PCX, MSC(s), and home District(s) will identify a unified approach to seek certification of these models.

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 Section 206 decision documents is the home MSC. The MSC will coordinate and approve the review plan and manage the ATR. The home District will post the approved review plan on its public website. A copy of the approved review plan (and any updates) will be provided to the National Ecosystem Planning Center of Expertise (ECO-PCX) to keep the PCX apprised of requirements and review schedules.

3. STUDY INFORMATION

a. Decision Document. The Big Fishweir Creek, Jacksonville, Florida Integrated Detailed Project Report and Environmental Assessment will be prepared in accordance with ER 1105-2-100, Appendix F. The approval level of decision documents (if policy compliant) is the home MSC. An Environmental Assessment (EA) will be prepared along with the decision document.

b. Study/Project Description. Big Fishweir Creek is a small tributary on the west side of the St. Johns River approximately 4 miles south of downtown Jacksonville, Florida. The length of the creek is approximately one mile. Upstream the width of the corridor is narrow – approximately 50 feet. Downstream at the mouth, the creek widens out to approximately 1000 feet. Big Fishweir Creek enters the St. Johns River just north of the Ortega River. This portion of the St. Johns River is tidal; therefore, Big Fishweir is tidally affected. Little Fishweir Creek discharges to the north side of Big Fishweir Creek approximately 1,500 feet from the mouth of Big Fishweir Creek. The watershed sub-basin containing Big Fishweir Creek has been urbanized predominantly with residential land use that occurred primarily before the promulgation of storm water regulations. This has resulted in sediments and contaminants from urban runoff to be deposited in the creek. These sediments and contaminants have degraded the natural habitat. Management measures considered for this project include to remove sediment, stabilize stream banks, plant submerged aquatic vegetation, plant emergent vegetation, remove exotic plant species, re-contour the streambed, construct manatee corridors, install trash collectors, and create marsh habitat. The recommended plan is not anticipated to cost more than approximately \$5,000,000. The non-federal sponsor is the City of Jacksonville. There are no existing or anticipated policy waivers for this project.

b. Factors Affecting the Scope and Level of Review. Big Fishweir Creek is a small scope/cost/complexity water resource related project, consistent with the Section 206 authority. It meets all of the applicability factors listed in Section 1.b, above and, therefore, does not require IEPR. Pertinent characteristics of the project follow:

- There are not expected to be significant challenges for this small project. Management measures considered include to remove sediment, stabilize stream banks, plant submerged aquatic vegetation, plant emergent vegetation, remove exotic plant species, re-contour the streambed, construct manatee corridors, install trash collectors, and create marsh habitat. Approximately forty-five acres, representing approximately one mile of stream would be restored.
- Risks are associated with the long-term viability of the restoration due to unforeseen occurrences that cannot be predicted. However, all measures that can be taken to ensure the long term viability of the project have been considered. The local sponsor has put in place

various measures to ensure that sediment transport into the watershed has been reduced as much as possible and similar sediment deposition is not likely to occur again. Sediment traps have been incorporated into the project to prevent siltation of the stream bed and the hydrology has been altered to prevent build up of sediments in the stream.

- The project is not likely to have significant economic, environmental, and/or social effects to the Nation due to the small scope and cost.
- The project does not likely involve a significant threat to human life/safety assurance because no structures will be built that would pose risks.
- The project/study is not likely to have significant negative interagency interest due to the small scope and cost.
- The project/study will not be highly controversial because effects will be beneficial.
- The project report is not likely to contain influential scientific information or be a highly influential scientific assessment because the associated scientific information the agency reasonably can determine will not have a clear and substantial impact on important public policies or private sector decisions.
- The information in the decision document or proposed project design will not likely 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 because it proposes simple measures such as removal of sediment, removal of exotic vegetation and planting of vegetation.

c. **In-Kind Contributions.** None.

4. DISTRICT QUALITY CONTROL (DQC)

DQC will consist of review of the complete report by all PDT members for appropriate incorporation of their individual technical area material, plus review by section supervisors. Completion of DQC will be documented with a Memorandum for Record in the project files.

5. AGENCY TECHNICAL REVIEW (ATR)

a. **Products to Undergo ATR.** ATR will be performed throughout the study in accordance with the District and MSC Quality Management Plans. The ATR shall be documented and discussed at the AFB milestone. Certification of the ATR will be provided prior to the District Commander signing the final report. Products to undergo ATR include the Draft and Final Integrated Detailed Project Report and Environmental Assessment.

b. **Required ATR Team Expertise.** The team, at a minimum, will consist of the following disciplines: Plan Formulation, Biology/NEPA/Ecosystem Output Evaluation, Hydraulics and Hydrology, Geotechnical Engineering, Real Estate, Economics (CE/ICA) and Cost Estimating. The RMO, in cooperation with the PDT and vertical team, will determine the final make-up of the ATR team. The following table provides descriptions of the ATR Team disciplines.

ATR Team Members/Disciplines	Expertise Required
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ATR Lead	The ATR lead should be a senior professional with experience in preparing Section 206 decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. Typically, the ATR lead will also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc).
Planning	The Planning reviewer should be a senior water resources planner with experience in Section 206 ecosystem restoration Continuing Authorities Program (CAP) projects. Also, either separately, or in combination with other disciplines, should be able to evaluate the benefits assessment methodology that will produce habitat unit benefits for selected ecosystem resources.
Economics	The Economics reviewer should be a senior economist with experience in Section 206 ecosystem restoration Continuing Authorities Program (CAP) projects. Also, either separately, or in combination with other disciplines, should be able to determine computational accuracy of the benefit analysis spreadsheet.
Environmental Analysis	The environmental resources reviewer should be a senior environmental professional with experience in Section 206 ecosystem restoration Continuing Authorities Program (CAP) projects. Also, either separately, or in combination with other disciplines, should be able to evaluate the benefits assessment methodology that will produce habitat unit benefits for selected ecosystem resources.
Hydrology	
Hydraulic Engineering	The hydraulic engineering reviewer will be an expert in the field of hydraulics and have a thorough understanding of small stream dynamics.
Geotechnical Engineering	The geotechnical engineering reviewer should have knowledge of the issues associated with disturbance, removal and disposal of sediments.
Cost Engineering	Cost Engineering reviewer will be selected by the Cost Directory of Expertise.
Real Estate	The real estate reviewer will be experienced in the real estate issues inherent to Corps civil works projects.

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 1110-2-12 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 prior to the District Commander signing the final report. A sample Statement of Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

- a. **Decision on IEPR.** Based on the information and analysis provided in paragraph 3(b) of this review plan, the project covered under this plan is excluded from IEPR because it does not meet the mandatory IEPR triggers and does not warrant IEPR based on a risk-informed analysis.
- b. **Products to Undergo Type I IEPR.** Not applicable.
- c. **Required Type I IEPR Panel Expertise.** Not Applicable.

d. **Documentation of Type I IEPR.** Not Applicable.

7. MODEL CERTIFICATION AND APPROVAL

a. **Planning Models.** A project-specific aquatic ecosystem restoration benefit analysis methodology was employed to predict project benefits. The benefit analysis that was employed to assess the habitat value and function of the Big Fishweir Creek was derived using habitat units based upon land use and plant communities collectively referred to as habitat types. The focus of the habitat benefits was directed to the use of each habitat type by targeted wildlife such as manatee, fish, macro-invertebrate species, migratory birds (including wood stork, a Federally listed species), and small to moderate mammals that could potentially occur in the project area. Additionally, desirable native flora species contributing to the biodiversity within plant communities found throughout the region were also considered to benefit from the restoration within the target areas of the project, such as the freshwater/brackish water marsh. The purpose of the benefit analysis is to demonstrate that as restoration activities occur within each area of the project, measurable benefit will increase to the habitat types within the areas. The metric used to define the increase in benefit to each identified target is the habitat unit.

The Habitat Unit Benefit Analysis was created as a team effort within the US Army Corps of Engineers Planning Division Environmental Coastal Section of the Jacksonville District. Senior direction and oversight was provided by Paul Stodola, who has over 20 years of professional experience as a federal and state wildlife biologist. Mr. Stodola received a Bachelor of Science degree acquired from Purdue University, Indiana, and a Master of Science degree from the University of Tennessee, Knoxville, TN. The Habitat Unit Benefit Analysis was created and compiled by Ms. Kathleen McConnell, also with the US Army Corps of Engineers Planning Division Environmental Coastal Section. Ms. McConnell, a Botanist with a Bachelor of Science degree from the University of Wisconsin- Eau Claire, Wisconsin, has over 20 years of professional experience as a field biologist, wetland scientist, and habitat mapping specialist. This experience includes private sector as well as federal and state agencies.

Mapping for this model was provided by Dr. Kelly Legault, Ph. D. of the US Army Corps of Engineers Engineering Division Coastal Design Section of the Jacksonville District. Dr. Legault received a Bachelor of Science degree from Rutgers University, New Jersey, and a Masters of Engineering and Ph. D from Stevens Institute of Technology, New Jersey. Emphasis of study was on sediment transport. Dr. Legault has provided professional engineering services for eight years, and has been employed with the US Army Corps of Engineers for the past three years.

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
Study specific spreadsheet model	Big Fishweir Creek Aquatic Restoration Benefit Analysis Model/ Methodology	ATR –review of application.
IWR Planning Suite	Was used to combine management measures into potential alternatives.	Certified

b. **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
RMA	<p>RMA2 is a two-dimensional depth averaged finite element hydrodynamic numerical model. It computes water surface elevations and horizontal velocity components for subcritical, free-surface flow in two-dimensional flow fields. RMA2 computes a finite element solution of the Reynolds form of the Navier-Stokes equations for turbulent flows. Friction is calculated with the Manning's or Chezy equation, and eddy viscosity coefficients are used to define turbulence characteristics. Both steady and unsteady state (dynamic) problems can be analyzed.</p> <p>Origin Of RMA2</p> <p>The original RMA2 was developed by Norton, King and Orlob (1973), of Water Resources Engineers, for the Walla Walla District, Corps of Engineers, and delivered in 1973. Further development, particularly of the marsh porosity option, was carried out by King and Roig at the University of California. Subsequent enhancements have been made by King and Norton, of Resource Management Associates (RMA), and by the Waterways Experiment Station (WES) Hydraulics Laboratory, culminating in the current version of the code supported in TABS-MD.</p> <p>Applications For RMA2</p> <p>RMA2 has been applied to calculate water levels and flow distribution around islands; flow at bridges having one or more relief openings, in contracting and expanding reaches, into and out of off-channel hydropower plants, at river junctions, and into and out of pumping plant channels; circulation and transport in water bodies with wetlands; and general water levels and flow patterns in rivers, reservoirs, and estuaries.</p> <p>Application of RMA2 for BFWC:</p> <p>RMA2 was used to calculate water levels, flows, velocities and water parcel residence time for project alternatives for Big Fishweir Creek to determine the optimal dredging scenario for mitigating siltation in the Creek.</p> <p>RMA is a "COE Preferred" engineering model.</p>

8. REVIEW SCHEDULES AND COSTS

- a. **ATR Schedule and Cost.** Two reviews will be conducted: prior to the AFB and to the Final DPR. The two reviews are scheduled for October 2010 (completed) and July 2011, respectively. Cost of the two is estimated at \$25,000 and \$10,000, respectively, or a total of \$35,000.
- b. **Type I IEPR Schedule and Cost.** Not applicable.

- c. **Model Certification/Approval Schedule and Cost.** Approval of the model for use will be accomplished through the ATR process. 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. Schedule and cost is factored in the above ATR schedule and cost estimate.

9. PUBLIC PARTICIPATION

State and Federal resource agencies may be invited to participate in the study covered by this review plan 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. A public meeting will be held prior to finalization of the draft DPR to solicit input from the public.

10. REVIEW PLAN APPROVAL AND UPDATES

The home MSC Commander is responsible for approving this review plan and ensuring that use of the Review Plan is appropriate for the specific project covered by the plan. 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) should be re-approved by the MSC Commander following the process used for initially approving the plan. Significant changes may result in the MSC Commander determining that use of the Review Plan is no longer appropriate. In these cases, a project specific review plan will be prepared and approved in accordance with EC 1165-2-209. The latest version of the review plan, along with the Commanders' approval memorandum, will be posted on the home district's webpage.

11. REVIEW PLAN POINTS OF CONTACT

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

- Jacksonville District Project Manager, 904-232-1108
- RMO, Home MSC, South Atlantic Division, 404-562-5228

ATTACHMENT 1: TEAM ROSTERS

Project Delivery Team

Role	Org Code
Project Manager	CESAJ-DP-S
Planning Technical Lead	CESAJ-PD-PW
Environmental Lead	CESAJ-PD-EC
Engineering Lead	CESAJ-EN-DL
Environmental Water Quality	CESAJ-PD-EQ
Geotech – HTRW	CESAJ-EN-GE
Cost Engineering	CESAJ-EN-C
H&H Engineering	CESAJ-EN-WD
Economics	CESAJ-PD-D
Geotech	CESAJ-EN-GG
Office of Counsel	CESAJ-OC
Archaeologist	CESAJ-PD-EC
Archaeologist	CESAJ-PD-EC
Real Estate	CESAJ-RE-A
Invasive Species Management	CESAJ-OD-A
Environmental	CESAJ-PD-EC
City of Jacksonville (non-federal sponsor)	City of Jacksonville

Agency Technical Review Team

Discipline	Agency
ATR Team Leader	CESAC
Plan Formulation	CESAC
Economic Analysis	CESAC
Environmental Analysis	CESAC
Hydraulic Engineering	CESAC
Geotechnical Engineering	CESAW
Cost Engineering	CESAC
Cost Directory of Expertise	CENWW
Real Estate	CESAS

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 1165-2-209. 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 DrCheckssm.

SIGNATURE _____ Date _____
Name
ATR Team Leader
Office Symbol/Company

SIGNATURE _____ Date _____
Name
Project Manager
Office Symbol

SIGNATURE _____ Date _____
Name
Architect Engineer Project Manager¹
Company, location

SIGNATURE _____ Date _____
Name
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 _____ 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
CAP	Continuing Authorities Program	O&M	Operation and maintenance
CSDR	Coastal Storm Damage Reduction	OMB	Office and Management and Budget
DPR	Detailed Project Report	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DQC	District Quality Control/Quality Assurance	OEO	Outside Eligible Organization
DX	Directory of Expertise	OSE	Other Social Effects
EA	Environmental Assessment	PCX	Planning Center of Expertise
EC	Engineer Circular	PDT	Project Delivery Team
EIS	Environmental Impact Statement	PAC	Post Authorization Change
EO	Executive Order	PMP	Project Management Plan
ER	Ecosystem Restoration	PL	Public Law
FDR	Flood Damage Reduction	QMP	Quality Management Plan
FEMA	Federal Emergency Management Agency	QA	Quality Assurance
FRM	Flood Risk Management	QC	Quality Control
FSM	Feasibility Scoping Meeting	RED	Regional Economic Development
GRR	General Reevaluation Report	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