



**DEPARTMENT OF THE ARMY**  
US ARMY ENGINEER DIVISION, SOUTHWESTERN  
1100 COMMERCE STREET, SUITE 831  
DALLAS TX 75242-1317

REPLY TO  
ATTENTION OF

CESWD-PDS-P (1105)

0 2 NOV 2009

MEMORANDUM FOR Commander, Galveston District

SUBJECT: Review Plan for Resacas at Brownsville, Texas, Ecosystem Restoration Feasibility Study

1. References:

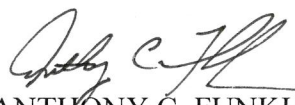
- a. EC 1105-2-410, 22 August 2008, Review of Decision Documents.
- b. Memorandum, CECW-CP, 30 March 2007, subject: Peer Review Process.
- c. Addendum to Reference 1.b., CECW-CP, September 2008, subject: Supplemental Information for the Peer Review Process.

2. The review plan for the subject study, enclosed, has been reviewed and cleared for approval by the Ecosystem Restoration Planning Center of Expertise. It has been prepared in accordance with the referenced guidance, and public comments received will be incorporated into the plan as the study progresses. It does not require Independent External Peer Review.

3. I hereby approve this review plan, which is subject to change as study circumstances require, consistent with study development under the Project Management Business Process. Subsequent substantial revisions to this plan or its execution will require new written approval from this office.

4. If you have questions or need further information, please contact Jo Ann M. Duman, CESWD-PDS-P, at (469) 487-7065.

Encl

  
ANTHONY C. FUNKHOUSER  
Colonel, EN  
Commanding

CF:  
CESWG-PE-PL (Laird)

**PROJECT REVIEW PLAN**

**RESACAS AT BROWNSVILLE, TEXAS  
ECOSYSTEM RESTORATION  
DRAFT FEASIBILITY STUDY**

**U.S. Army Corps of Engineers  
Galveston District**

**April 2009**

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**RESACAS AT BROWNSVILLE, TEXAS  
ECOSYSTEM RESTORATION  
DRAFT FEASIBILITY STUDY**

**PROJECT REVIEW PLAN**

**1. PURPOSE**

Pursuant to Engineering Circular (EC) 1105-2-410, "Review of Decision Documents, EC 1105-2-408, "Peer Review of Decision Documents," Office of Management and Budget's "Final Information Quality Bulletin for Peer Review," and the 30 May 2007 memorandum from Major General Don Riley, USACE Director of Civil Works, a Project Review Plan (PRP) has been updated from the originally approved PRP dated September 2007.

This PRP presents the process for District Quality Control (DQC), and Agency Technical Review (ATR) that will be implemented as part of the Resacas at Brownsville, Texas, Ecosystem Restoration Feasibility Study. These processes are essential to improving the quality of the products that we produce. The Project Management Plan (PMP) for the Resacas at Brownsville, Texas, Ecosystem Restoration Study will be amended to include this PRP since the PRP is considered a component of the PMP.

**2. APPLICABILITY**

The document provides the PRP for the Resacas Ecosystem Restoration Feasibility Study. It identifies the ATR process for all work conducted as part of the study, including in-house, non-Federal sponsor, and contract work efforts.

**3. REFERENCES**

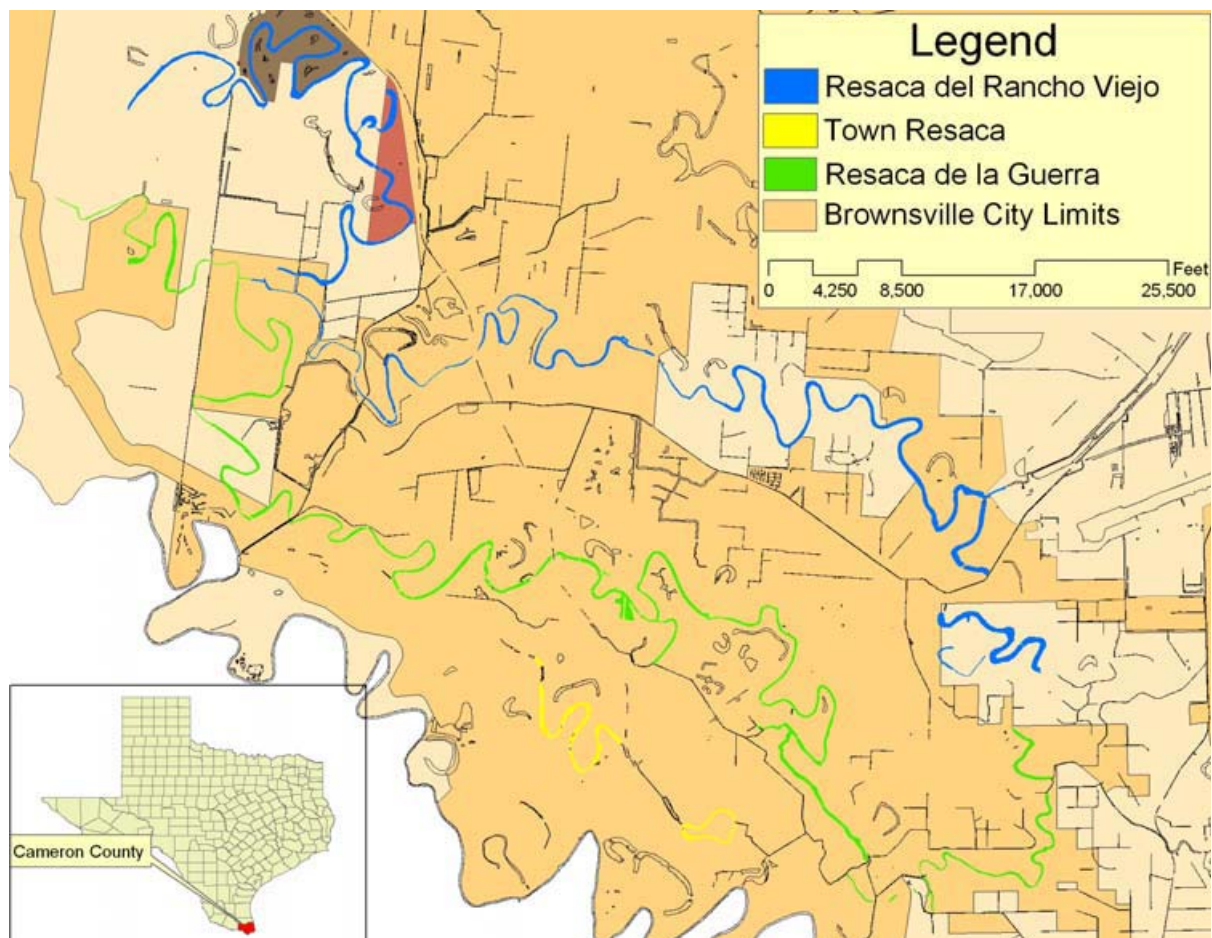
EC 1105-2-410 "Review of Decisions Documents" dated 22 August 2008  
EC 1105-2-408 "Peer Review of Decision Documents" dated 31 May 2005  
EC 1105-2-407 "Planning Models Improvement Program: Model Certification" dated 31 May 2005  
ER 1105-2-100 "Planning Guidance Notebook," dated April 2000  
Major General Riley Memorandum on Peer Review Process, dated 30 May 2007

**4. GENERAL**

**A. Project Description**

The project is located just north of the Rio Grande in Cameron County, Texas, 140 miles south of Corpus Christi. The project area is approximately 53,000 acres (105 square miles)

and is a mixture of urban residential, commercial, industrial, agricultural, and open space land uses.



**Figure 1. Location of the City of Brownsville, Texas, Resacas Restoration project.**

For purposes of this study, the area has been divided among the three predominant resaca systems (Figure 1): Resaca del Rancho Viejo, Resaca de la Guerra, and Town Resaca. The study area varies in width from three to 20 miles over its 21-mile length. In terms of existing resaca habitat within each of these divisions, Resaca del Rancho Viejo has the most remaining acres of native resaca habitat topping out at almost 6,000 acres or 60 percent of the available habitat in the area. The next largest site, Ranch de la Guerra currently has almost 3,800 acres (38 percent) of the study area's available resaca habitat. Town Resaca has a mere 200 acres (2 percent) of the study area's surviving resaca habitat.

Resacas are former channels of the Rio Grande River that have been cut off from the river, having no inlet or outlet. Before land development and water control, floodwaters from the Rio Grande drained into resacas from the surrounding terrain. The primary hydrologic function of a resaca was diversion and dissipation of floodwater from the river. Over the years, portions of the resacas silted in and became bottomland. The remaining stretches of channel formed into a series of unconnected horseshoe bends.

Construction of dams and levees has virtually eliminated the flooding of resacas from the Rio Grande. Today, resacas are typically filled by pumping Rio Grande water, rainfall, or input of irrigation return flows. Resacas serve as conveyance channels for transportation of water from the Rio Grande: the water is used for drinking water and for irrigation by agricultural and residential users. Development of resacas as reservoirs and channels for irrigation water started in 1906 when a canal was excavated to connect Resaca de los Fresnos with a pumping station on the Rio Grande at Los Indios.

The carrying capacity of the resacas has been compromised by this modified flow into the system. Rainfall runoff carries a large amount of suspended solids that quickly settle out in the low flow resacas. This has created a shallow water environment throughout the resacas, and the condition of the resacas is deteriorating.

Cultural resource sites present or potentially present in the project area consist of both historic and prehistoric types. Historic sites include houses and homesteads, ranches and farmsteads, battlefields, military installations, shipwrecks, cemeteries, churches, courthouses, businesses, industrial areas, and even dumps. Prehistoric sites are locations typically associated with aboriginal activities that are several hundred to several thousands years old. Prehistoric sites in the Lower Rio Grande Valley include campsites, cemeteries, and shell production areas. Aboriginal campsites in the region generally consist of sparse artifact scatters and possibly burnt clay hearths, while shell production areas consist of scatters of shell fragments that represent the byproduct of implements such as shell tinklers that were produced for exchange purposes.

In general upland areas adjacent to stream channels or waterways are typically considered to be high-probability areas for cultural materials. As such, the entire project area would have been considered a high-probability area at one time. However, modern urbanization and development have encroached on the majority of the resacas within the Brownsville Corporate Boundary. As such, only a few areas would be determined to have a high probability to contain intact cultural deposits. Due to urbanization, most of the project area has a low potential to contain intact cultural deposits.

Thirteen threatened and endangered species listed by the US Fish and Wildlife Service as potentially occurring within Cameron County. It is expected that of these, the sea turtles, manatee, brown pelican, and piping plover would normally be found along the coast. The remaining five species (Gulf Coast jaguarundi, northern aplomado falcon, ocelot, south Texas ambrosia, and Texas ayenia) the jaguarundi, falcon, and ocelot would be the species most likely to occur in the project area. Currently, no known populations of the plant species Texas ayenia and south Texas ambrosia have been relocated in Cameron County. The northern aplomado falcon prefers areas of widely scattered trees and large expanses of grasslands. Of the two felid species, only the ocelot has been regularly documented in the United States and the only confirmed jaguarundi sighting since 1969 was a road-kill specimen in 1986. Both ocelots and jaguarundi are found in areas of thick brush and restoration activities proposed in the project area are expected to improve the native habitats

along the resacas. No significant affects to threatened and endangered species are anticipated.

The goal of the study is to identify and recommend an effective, affordable and environmentally sensitive restoration project for the City of Brownsville resacas system, and in turn, conduct the necessary engineering, economic and environmental studies to establish a viable project that is acceptable to the public, local sponsors and USACE. The study objectives include:

- 1) Restoring fish and wildlife habitat within the resacas given the urban and rural/agricultural environments;
- 2) Enhance the city's ability to store and transport freshwater during drought or periods of low water levels;
- 3) Improve water quality in the resacas; and
- 4) Increase flood control and storm water storage

The purpose of the decision document is to:

- 1) Identify and define the extent and magnitude of ecosystem degradation, potential impacts due to flood events, and other damages related to land and water resource problems;
- 2) Evaluate problems and identify opportunities, constraints, and potential solutions;
- 3) Develop and evaluate a comprehensive array of measures, elements, and alternatives on the basis of established planning criteria;
- 4) Identify an "National Ecosystem Restoration Plan"(NER Plan);
- 5) Identify a "Locally Preferred Plan" (LPP) for implementation, should that plan differ from the NER plan; and,
- 6) Recommend a plan for implementation, should Federal interest and local support for the plan be demonstrated

The Resacas at Brownsville, Texas, Ecosystem Restoration Feasibility Study will result in a decision document that will require congressional authorization. The proposed study will address the feasibility of restoring the resacas natural habitats and functions.

## **B. Project Delivery Team**

The Project Delivery Team (PDT) is comprised of those individuals directly involved in the development of the decision document. The individual contact information and disciplines of the District PDT are included in Appendix A of this document. Currently, it is not anticipated that the non-Federal sponsor will contribute in-kind services. If, however in the future the non-Federal sponsor does contribute in-kind services, all work-in-kind products will undergo review by the PDT for adequacy and undergo DQC. All products will undergo ATR.

### **C. Model Certification**

EC 1105-2-407, Planning Models Improvement Program: Model Certification establishes the process and requirements for certification of planning models. This circular is specifically directed to software used in Corps' planning studies, to ensure that only high quality software is being used for key planning decisions. Planning models 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. It includes all models used for planning, regardless of their scope or source. This Circular does not cover engineering models used in planning studies, which will be certified under a separate process to be established in the future.

The computational models to be used in the Resacas at Brownsville, Texas, Ecosystem Restoration Feasibility Study have been developed by or for the USACE specifically for application on this project. In accordance with CECW-CP Memorandum 13 August 2008, the review of this single application model will be assessed through Agency Technical Review and the model application would be approved for the specific project rather than certifying the model for inclusion in a "model toolbox". Prior to conducting ATR of the Alternatives Formulation Briefing package, a preliminary ATR of the restoration model and its application for Baseline and future without project (FWOP) conditions will be conducted. The purpose of this preliminary model review is to identify potential issues prior to completing modeling efforts and review by the full ATR team. The ATR team reviewing the model may include USACE and external reviewers. Approval for all identified planning models will be coordinated through the PCX as needed. Project schedules and resources will be adjusted to address this process for certification and PCX coordination. The planning models used are:

- 1) Habitat Evaluation Procedures (HEP) analysis – Community-based index model used to predict the increase in habitat value for resacas in the Brownsville, Texas area. The community-based index model is designed to measure changes in biodiversity (increase or decrease in number of species in the resacas community) resulting from project restoration activities including the increase or reduction of non-native / invasive species. The model does capture changes to limiting life requisites of individual species.

The following are considered engineering models and undergo a different review and approval process for usage. Their certification is not addressed in this Review Plan. These models include:

- 1) Mii - cost estimating models
- 2) Risk-based analysis for cost estimating

## **5. REVIEW REQUIREMENTS**



### **A. District Quality Control (DQC)**

DQC is the review of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Resacas at Brownsville, Texas, Ecosystem Restoration Feasibility Study PMP. It is managed by the Galveston District and may be conducted by staff in the home district as long as they are not doing the work involved in the study, including contracted work that is being reviewed. Basic quality control tools include a Quality Management Plan (QMP) providing for seamless review, quality checks and reviews, supervisory reviews, PDT reviews, etc. Additionally, the PDT is responsible for a complete reading of the report to assure the overall integrity of the report, technical appendices and the recommendations before approval by the District Commander. For the Resacas Restoration Feasibility Study, non-PDT members and/or supervisory staff will conduct this review for major draft and final products, including products provided by the non-Federal sponsors as in-kind services following review of those products by the PDT. It is expected that the Major Subordinate Command (MSC)/District QMP addresses the conduct and documentation of this fundamental level of review. A Quality Control Plan (QCP) is included in the PMP for this study and addresses DQC, which is required for this study. DQC is not addressed further in the Review Plan.

### **B. Agency Technical Review (ATR)**

ATR (which replaces the level of review formerly known as Independent Technical Review [ITR]) is an in-depth review, managed within USACE, and conducted by a qualified team outside of the home district that is not involved in the day-to-day production of a project/product. The purpose of this review is to ensure the proper application of clearly established criteria, regulations, laws, codes, principles and professional practices. The ATR team review the various work products and assure that all the parts fit together in a coherent whole. ATR teams will be comprised of senior USACE personnel (Regional Technical Specialists (RTS), etc.), and may be supplemented by outside experts as appropriate. To assure independence, the ATR team leader shall be from outside the home MSC. EC 1105-2-408 requires that DrChecks (<https://www.projnet.org/projnet/>) be used to document all ATR comments, responses, and associated resolution accomplished. This PRP outlines the planned approach for meeting this requirement for the Resacas at Brownsville Ecosystem Restoration Feasibility Study. ATR is required for this study.

### **C. Independent External Peer Review (IEPR)**

This 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. IEPR is generally for feasibility and reevaluation studies and modification reports with EISs. IEPR is managed by an outside eligible organization (OEO) that is described in Internal Revenue Code Section 501(c) (3), is exempt from Federal tax under section 501(a), of the Internal Revenue Code of 1986; is independent; is free from conflicts of interest; does not carry out or advocate for or against Federal water resources projects; and has experience in establishing and administering IEPR

panels. The scope of review will address all the underlying planning, engineering, including safety assurance, economics, and environmental analyses performed, not just one aspect of the project. An environmental assessment (EA) addressing the effects of the Resacas at Brownsville Ecosystem Restoration project is being prepared in conjunction with the feasibility report. This resacas ecosystem restoration project is not expected to result in significant adverse economic, environmental, or social impacts. The final feasibility report (and supporting documentation) is anticipated to contain standard engineering, environmental and economic analysis and information; therefore no influential scientific information is likely to be contained in any of the documentation. The final cost of the project could potentially trigger IEPR by exceeding 45 million dollars (the current projected cost estimate range is 25 – 40 million). At this time, it is anticipated that IEPR is not necessary for this study.

#### **D. Policy and Legal Compliance Review**

In addition to the technical reviews described above, decision documents will be reviewed throughout the study process for their compliance with law and policy. These reviews culminate in Washington-level 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 Chief of Engineers. Guidance for policy and legal compliance reviews is addressed further in Appendix H, ER 1105-2-100. The technical review efforts addressed in this Circular are to augment and complement the policy review processes by addressing compliance with published Army policies pertinent to planning products, particularly policies on analytical methods and the presentation of findings in decision documents. DQC and ATR efforts are to include the necessary expertise to address compliance with published planning policy. Counsel will generally not participate on ATR teams, but may at the discretion of the district or as directed by higher authority. When policy and/or legal concerns arise during DQC or ATR efforts that are not readily and mutually resolved by the PDT and the reviewers, the district will seek issue resolution support from the MSC and HQUSACE in accordance with the procedures outlined in Appendix H, ER 1105-2-100. IEPR teams are not expected to be knowledgeable of Army and administration policies, nor are they expected to address such concerns. An IEPR team should be given the flexibility to bring important issues to the attention of decision makers. Legal reviews will be conducted concurrent with ATR of the preliminary, draft, and final feasibility report and EA.

#### **E. Safety Assurance Review**

WRDA 2007, Section 2035, Safety Assurance Review, requires all projects addressing flooding or storm damage reduction to undergo a safety assurance review during design and construction activities. This safety assurance review will address the adequacy, appropriateness, and acceptability of the design and construction activities for the purpose of assuring public health, safety, and welfare. However, since this project is an ecosystem restoration project and does not address flooding or storm damage reduction, the safety assurance review requirement is not applicable.

## **F. Planning Center of Expertise (PCX) Coordination**

This project is an ecosystem restoration project. Pursuant to EC 1105-2-408, the District will coordinate with the USACE National Ecosystem Planning Center of Expertise (ECO-PCX), Mississippi Valley Division (MVD), Vicksburg, Mississippi as the lead PCX to organize teams to perform the reviews at various stages throughout the study. This PCX is responsible for the accomplishment and quality of ATR for this study. The ECO-PCX will also coordinate with Cost Engineering Directory of Expertise at Walla Walla for ATR of the Mii estimate, construction schedules, and contingencies.

## **6. REVIEW PROCESS – AGENCY TECHNICAL REVIEW (ATR)**

### **A. General**

The ATR process will be conducted throughout the study process. ATR involvement is anticipated between major project milestones, in this case, the FSM (occurred 2005) and the AFB. Once the ATR team has been identified, copies of PDT meeting notes will be provided to ATR team for information. ATR participation in PDT meetings on a quarterly basis (at a minimum) will be recommended.

As part of the QCP for the Resacas at Brownsville Project, an ATR team will be formed to perform periodic reviews of the feasibility study efforts, including the project assumptions, analyses, and calculations, as needed throughout the planning study process. The District will coordinate with the PCX to identify the appropriate scope of work and an expanded ATR team for model review and approval for one-time use.

The ATR team will meet with PDT members on a quarterly basis or as needed. These quarterly meetings will be documented as required by ER 1165-2-203. Coordination throughout the study will be accomplished through individual contact between the PDT and the ATR team. The ATR will focus on the following:

- Review of the planning study process,
- Review of the methods of analysis and design of the alternatives and recommended plan,
- Compliance with program and NEPA requirements, and
- Completeness of study and support documentation

More detailed ATR information is found in the Plan Formulation and Evaluation Section of the PMP.

## **B. ATR Team**

The ATR is best conducted by experienced peers within the same discipline who are not directly involved with the development of the study or project being reviewed. Management of ATR reviews are conducted by professionals outside of the home district. For planning feasibility-level studies the ATR is managed by the appropriate Planning Center of Expertise (PCX) with appropriate consultation with the allied Communities of Practice such as engineering and real estate. For the City of Brownsville, TX, Resacas Restoration Project, an expanded ATR team will be formed and will include team members with the necessary expertise to review and approve the ecosystem restoration model for a one-time use. The Ecosystem Restoration PCX is responsible for identifying the ATR team members. The Galveston District could provide suggestions on possible reviewers. The ATR team members will reside outside the Galveston District with the ATR team leader from outside the Southwestern Division. Once the ATR team has been identified, the names and disciplines of the ATR team will be included in Appendix A of this document.

The ATR team will consist of eight to twelve reviewers, one or more from each of the following disciplines: engineering design, hydraulics and hydrology, economics, environmental, real estate, plan formulation, and cost engineering. A brief description of the disciplines required for the ATR team are identified below:

- a. Engineering Design – The reviewer(s) should have a strong background in assessment of habitat modeling as well as current environmental laws and regulations.
- b. Hydraulics and Hydrology – the reviewer(s) should have extensive knowledge of oxbow/resaca systems and ecosystem restoration models/studies.
- c. Environmental – the reviewer(s) should have a strong background in assessment of habitat modeling (e.g. HEP), as well as current Texas environmental laws and regulations and have an understanding of natural and man-made resources within the project area and of the valley area of south Texas.
- d. Real Estate – the reviewer should have knowledge in reviewing RE Plans for feasibility studies (i.e. ecosystem restoration).
- e. Plan Formulation – the reviewer(s) should have a strong knowledge in current planning policies and guidance related to feasibility studies.
- f. Cost Engineering – the reviewer should have a strong knowledge of the cost estimating practices for ecosystem restoration projects.

### **C. Review Cost**

It is estimated that the preliminary review of the ecosystem restoration model (prior to ATR) will be \$15,000.00 to \$20,000.00 and that ATR of the remainder of the study, including approval of a one-time use for the ecosystem restoration model will be \$100,000.00.

### **D. Review Schedule**

<b>TASK</b>	<b>Proposed Date</b>
Update of Project Review Plan	May 15, 2009
Coordinate with MSC and post on website	July 2009
PCX identifies Preliminary Review Team	September 2009
Preliminary Review of Restoration Model	October 2009
PCX identifies ATR Team	TBD
Review of Models	TBD
ATR review of draft documents (before AFB)	June 2010
Participation in AFB meeting	December 2011
ATR Certification Draft Report	March 2011
Public Review of Draft Report	April 2011
ATR Certification Final Report	June 2011

## **7. PROJECT REVIEW PLAN**

The components of the PRP were developed pursuant to the requirements of EC 1105-2-408 and EC 1105-2-410.

### **A. General Information**

The decision documents that will undergo peer review are the Feasibility Report (including Economic Appendix), Environmental Assessment, and Engineering Appendix. No sponsor in-kind services are expected for this project. If in-kind services are provided in the future, those products will also undergo peer review.

### **B. Scientific Information**

The final feasibility report (and supporting documentation) is anticipated to contain standard engineering, environmental and economic analyses and information; therefore no influential scientific information is likely to be contained in any of the documentation.

### **C. Timing**

A feasibility scoping meeting was held August 11, 2005. The peer review process will begin in July 2009 with the initiation of the ATR team followed by the assessment of key models (e.g. HEP analysis) and review of the AFB document package during the plan formulation phase of the study.

### **D. Public Comment**

A Public Scoping Meeting was held in Brownsville, Texas on June 26, 2002. An Interagency Coordination Team (ICT) made of representatives from the District, non-Federal sponsor, state and Federal resource agencies, subject matter experts, and interested groups was formed June 25, 2003 as part of the study. The ICT was formed to provide guidance during the development of the ecosystem restoration model. A Public Involvement Plan will be formulated to ensure public involvement throughout the feasibility study process. Public comments will be made available on the project website. Public review is scheduled after the AFB and those comments will be summarized in the EA with responses provided. The AFB package submitted for ATR will include documentation of the Public Scoping Meeting and comments.

<u>TASK</u>	<u>START DATE</u>	<u>FINISH DATE</u>
Public Scoping Meeting	June 26, 2002	N/A
Public Involvement Plan	TBD	TBD
ICT Meetings	June 25, 2003	TBD
Public Meetings	June 26 2002	TBD
Public Review of DFR & EA	2011	March 2011

### **E. Dissemination of Public Comments**

Proceedings from all public meetings, minutes from ICT meetings or any other public involvement meetings will be included in the draft EA and in the final EA with response to comments. Public comments will be made available on the project website. Public review is scheduled after the AFB and those comments will be summarized in the EA with responses provided.

### **F. Points of Contact**

Questions about this Review Plan may be directed to Mr. Seth Jones, Galveston District PDT Planning contact at (409) 766-3068 or [seth.w.jones@usace.army.mil](mailto:seth.w.jones@usace.army.mil) or *insert contact*, ECO-PCX Manager at (xxx) xxx-xxxx or *insert email address* .