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

REPLY TO
ATTENTION OF:

CESAD-RBT 8 August 2011

MEMORANDUM FOR COMMANDER, JACKSONVILLE DISTRICT (CESAJ-EN-T/ [redacted])

SUBJECT: Approval of the Review Plan for Picayune Strand Restoration Project, Design and Construction Phases, Collier County, Florida

1. References:

a. Memorandum, CESAJ-EN-T, 26 April 2011, Subject: Approval of the Review Plan for Picayune Strand Restoration Project, Design and Construction Phases, Collier County, Florida (Enclosure).

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

c. WRDA 2007 H. R. 1495 Public Law 110-114, 8 November 2007.

2. The enclosed Review Plan for the Picayune Strand Restoration Project, Design and Construction Phases, Collier County, Florida dated 25 April 2011 submitted by reference 1.a, has been reviewed by this office and is approved in accordance with reference 1.b.

3. The South Atlantic Division concurs with the determination that a Type II Independent External Peer Review (IEPR) is not required on this project. The primary basis for the concurrence that a Type II IEPR is not required is the determination that no life safety concerns have been identified since the level of water associated with the project features will not create an adverse condition for life safety. Non-substantive changes to this RP do not require further approval.

4. The District should take steps to post the Review Plan to its web site and provide a link to CESAD-RBT. Before posting to the web site, the names of Corps/Army employees should be removed.

5. The SAD point of contact is [redacted].

FOR THE COMMANDER:

Encl

CHRISTOPHER T. SMITH, P.E.
Chief, Business Technical Division

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P.O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO
ATTENTION OF

CESAJ-EN-T

26 April 2011

MEMORANDUM FOR Commander, South Atlantic Division (CESAD-RBT)

SUBJECT: Approval of Review Plan for Picayune Strand Restoration Project, Design and Construction Phases, Collier County, Florida

1. References.

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

b. WRDA 2007 H. R. 1495 Public Law 110-114, 08 Nov 07

2. I hereby request approval of the enclosed Review Plan and concurrence with the conclusion that Type II Independent External Peer Review (IEPR) of this project is not required. The Type II IEPR determination is based on the EC 1165-2-209 Risk Informed Decision Process as presented in the Review Plan. Approval of this plan is for the Design and Construction Phases. The Review Plan complies with applicable policy, provides Agency Technical Review and has been coordinated with the CESAD. It is my understanding that non-substantive changes to this Review Plan, should they become necessary, are authorized by CESAD.

3. The district will post the CESAD approved Review Plan to its website and provide a link to the CESAD for its use. Names of Corps/Army employees are withheld from the posted version, in accordance with guidance.

FOR THE COMMANDER:

[redacted]

Encl

REVIEW PLAN

for

PICAYUNE STRAND RESTORATION PROJECT
DESIGN AND CONSTRUCTION PHASES

COLLIER COUNTY, FLORIDA

Jacksonville District

April 25, 2011

US Army Corps of Engineers ®

Table of Contents

1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of review activities for Picayune Strand Restoration Project Design and Construction Phases. Review activities consist of District Quality Control (DQC), Construction Quality Management, Agency Technical Review (ATR), and Type II Independent External Peer Review (IEPR). Portions of the project are in the Pre-Construction, Engineering and Design (PED) Phase and the Construction Phase. The related documents are Implementation Documents that consist of Plans and Specifications (P&S), Design Documentation Reports (DDR), and Engineering During Construction (EDC) products. Upon approval, this review plan will be included into the Project Management Plan as an appendix to the Quality Management Plan.

b. References.

(1) ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 Aug 1999
(2) ER 1110-1-12, Engineering and Design Quality Management, 21 Jul 2006
(3) ER 1180-1-6, Construction Quality Management, 30 Sep 1995
(4) Enterprise Standard (ES)-08025, Government Construction Quality Assurance Plan and Project/Contract Supplements
(5) Enterprise Standard (ES)-08026, Three Phase Quality Control System
(6) EC 1165-2-209, Civil Works Review Policy, 31 January 2010
(7) Central and Southern Florida Project, Project Management Plan, Picayune Strand Restoration Project, P2 Number 112375

c. Requirements. This review plan was developed in accordance with EC 1165-2-209, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R). The EC provides the procedures for ensuring the quality and credibility of U.S. Army Corps of Engineers (USACE) decision, implementation, and operations and maintenance documents and work products. The EC outlines three levels of review: District Quality Control, Agency Technical Review, and Independent External Peer Review.

(1) 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 Project Management Plan (PMP). It is managed in the home district and may be conducted by staff in the home district as long as they are not doing the work involved in the study, or overseeing contracted work that is being reviewed. Basic quality control tools include a Quality Management Plan providing for seamless review, quality checks and reviews, supervisory reviews, Project Delivery Team (PDT) reviews, etc. Additionally, the PDT is responsible for a complete reading of the reports to assure the overall integrity of the reports, technical appendices and the recommendations before approval by the District Commander. The Major Subordinate Command (MSC)/District quality management plans address the conduct and documentation of this fundamental level of review.

(2) Construction Quality Management (CQM). CQM methods and procedures are stipulated in above references. Obtaining quality construction is a combined responsibility of the construction contractor and the Government. The Construction element and Area/Resident Offices, as applicable, plan, coordinate, and manage the Construction Quality Management Program, plan and coordinate partnering of construction contracts, manage the Resident Management System (RMS), and monitor and evaluate CMR performance. Many of these tasks are accomplished using the RMS. In accordance with ER 1180-1-6, Construction Quality Management, Construction Branch and Area/Resident Office PDT members perform quality assurance of construction products.

(3) Agency Technical Review (ATR). ATR 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 the 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 reviews the various work products and assures 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 leader of the ATR team shall be from outside the parent MSC.

(4) Type II Independent External Peer Review (IEPR). 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. In accordance with Section 2035 of Water Resources Development Act (WRDA) of 2007 and EC 1165-2-209, a Type II IEPR (SAR) shall be conducted on design and construction activities for hurricane and storm risk management and flood risk management projects, as well as other projects where existing and potential hazards pose a significant threat to human life prior to initiation of physical construction and periodically thereafter until construction activities are completed. IEPR should occur on a regular schedule sufficient to inform the Chief of Engineers on the adequacy, appropriateness, and acceptability of the design and construction activities for the purpose of assuring public health, safety, and welfare.

d. Review Management Organization (RMO). The South Atlantic Division (SAD) is designated as the RMO for the Picayune Strand Restoration Project Design and Construction Phases. The RMO is responsible for managing the review activities described in this Review Plan. The RMO will also coordinate with the Cost Engineering Directory of Expertise (DX) as appropriate to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies.

2. PROJECT INFORMATION AND BACKGROUND

The Picayune Strand Restoration Project (PSRP), encompasses approximately 55,000 acres (241 km^2 or 23,995 ha) in Collier County, southwest Florida, between Interstate Highway 75 (I-75) and U.S. Highway 41.

The PSRP (Formerly the Southern Golden Gate Estates Restoration Project) encompasses an area of sensitive environmental land located in southwestern Collier County, Florida. It is located southwest of the Florida Panther National Wildlife Refuge, north of the Ten Thousand Islands National Wildlife Refuge, east of the South Bell Meade State Conservation and Recreation Lands (CARL) project, west of the Fakahatchee Strand State Preserve, and northeast of Collier-Seminole State Park. The South Bell Meade Carl project, known simply as “Belle Meade”, and the Picayune Strand Restoration Project have been combined by the State of Florida to form the Picayune Strand State Forest, refer to Figure 1 – Regional Project Map.

Southern Golden Gate Estates (SGGE) was planned as an extensive residential subdivision by Gulf American Corporation (GAC) beginning in the 1950's. PSRP includes approximately 44 miles (77 km) of drainage canals and 279 miles (449 km) of primary and secondary roads constructed in the 1960's as part of the former Southern Golden Gate Estates (SGGE) development The residential development failed before many of the planned houses were built. These roads and canals have over drained the area resulting in the reduction of aquifer recharge, increased freshwater shock load discharges to the receiving estuaries to the south, invasion by upland vegetation, loss of ecological connectivity and associated habitat, and increased frequency of forest fires. The Picayune Strand Restoration Project (PSRP or Project) will restore 55,247 acres of land to its pre-development condition.

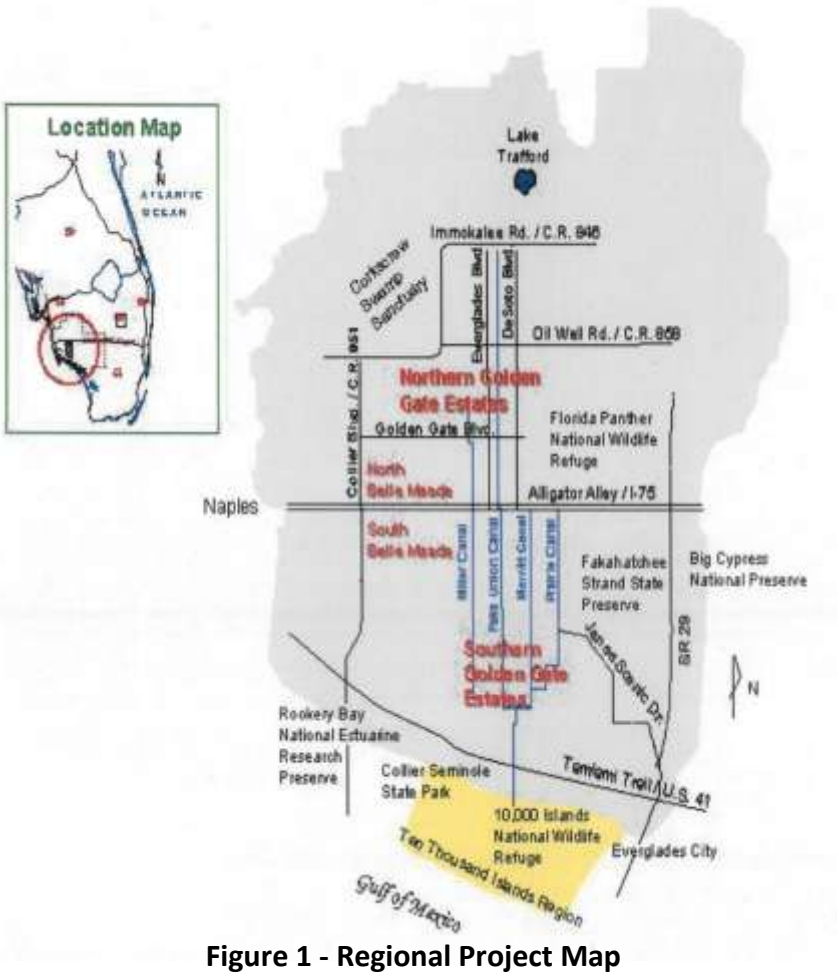


Figure 1 - Regional Project Map

In 1985, when the State of Florida established the CARL project, land acquisition began for the PSRP. Today almost 98% of the 55,247 acres has been acquired in fee. The *Water Resources Development Act of 1996* was enacted on October 12, 1996. Section 528 of the Act (Public Law 104-303) entitled "Everglades and South Florida Ecosystem Restoration" authorized a number of ecosystem restoration activities and also provided specific direction and guidance for the Comprehensive Everglades Restoration Plan (CERP). In the *Water Resources Development Act of 2000* (PL 106-541), Congress approved the Central and Southern Florida (C&SF) Project Comprehensive Review Study Integrated Feasibility Report and Programmatic Environmental Impact Statement, which describes and outlines the CERP. Chapter 9, Section 9.1.9.1 *Southern Golden Gate Estates Restoration* (OPE) of the C&SF Project Comprehensive Review Study Book describes the features, improvements and purpose of the PSRP.

The recommended plan for the PSRP is to remove the infrastructure of the subdivision and restore its pre-drainage hydrology and ecology, generating positive effects on the hydrology, vegetation and wildlife of the project area and surrounding public lands. The plan calls for the construction of a series of pump stations, tie-back levees, spreader berms and canal plugs to slow water flowing through existing canals and redistribute it across the landscape.

Components of the project include the following:

- Installation of culverts under US-41 to the south
- Degrading of the existing roadways and filling of the side swales

- Plugging of the existing canals, including the Prairie, Merritt, Miller and Faka Union Canals
- Construction of three pump stations (Merritt, Faka Union, and Miller) to replace the conveyance of the respective canals
- Construction of Spreader berms and tie-back levees
- Construction of Protection Features which includes but is not limited to tie-back levees and berms.


Legend
Approx. Footprints of Pump Stations
New Construction
Sprinkler Berm
Merritt Tieback Levee
Miller-Fake Tieback Levee
Structures for Removal
Canal Bridges
Weirs
Road Removal - All Phases
Log Train Removal
Existing Canals
Roadways
Interstate
Local Roads
CERP Project Footprint
0 2,500 5,000 10,000 15,000 20,000
Feet

Project Status

A Project Implementation Report (PIR) for the PSRP was completed by an AE Contractor (Parsons) in September 2004. In the PIR, alternatives for the design approach were discussed and an alternative (3D) was noted as the recommended plan. Due to the size of the project it was decided that it would be appropriate to break the design and construction of the individual features into separate projects. Since the initiation of the project, several components have been designed and construction has commenced on the first set of improvements known as the Merritt Pumping Station, Levees Canals and Roads (LCR).

The PSRP project was implemented prior to the regulation (EC 1165-2-209: Water Resources Policies and Authorities, Civil Works Review Policy) which stipulates that a Project Review Plan be implemented and therefore this project contains components that have already been design and/or construction initiated. The PSRP was originally managed by the Sponsor of the project, South Florida Water Management District (SFWMD), who performed or caused to be performed, the PIR, Hydraulic and Hydrologic modeling, as well as design efforts and construction plans and specifications through the Acceler8 program. The SFWMD implemented review activities for compliance with USACE guidance ER 1110-1-12 current edition at the time of product preparation. In 2008, at the request of SFWMD, the USACE assumed the lead as the managing entity.

Table 1 on the following page lists the review history of the PSRP overall project and components of the PSRP.

TABLE 1 – REVIEW HISTORY

No.	Review	Duration
1	Project's Team	Jan 05 - Jan -5
2	BODR SOW	Feb 05 - Mar 05
3	Prairie Canal (Intermediate Plans & Specs.	May 05 - May 05
4	H&H Modeling SOW	Jun 05 - Jun 05
5	Basis of Design Review (BODR) - Pump Station	Jun 05 - Jul 05
6	H&H Modeling QA/QC Technical Memo	Jul 05 - Jul 05
7	Pump Station Preliminary Design SOW	Jul 05 - Jul 05
8	BODR SOW - Protection Levees	Aug 05 - Aug 05
9	H&H Modeling SOW Phase1	Aug 05 - Aug 05
10	H&H Modeling SOW Phase2	Nov 05 - Nov 05
11	Geotech/Survey SOW for Levees, Canals & Roads	Dec 05 - Jan 06
12	Manatee Impact Study SOW	Jan 06 - Jan 06
13	Protection Levees Updated SOW	Jan 06 - Jan 06
14	Survey Deliverables - Pump Stations	Jan 06 - Jan 06
15	Pump Stations Preliminary Design	Feb 06 - Feb -06
16	Prairie Canal - 90% Plans & Specifications	Feb 06 - Mar 06
17	H&H Phase 1 Model Analysis Report	Mar 06 - Mar 06
18	Road Removal SOW	Mar 06 - Mar 06
19	Pump Stations Preliminary Design Resubmittal	Apr 06 - Apr 06
20	Draft Operations Manual	May 06 - May 06
21	Prairie Canal Design Analysis (USACE)	May 06 - May 06
22	Road Removal Pre-Final P&S	Jun 06 - Jun 06
23	H&H Phase II TM: Model Calibration	Jun 06 - Jun 06
24	Levees Canals & Roadways Preliminary Design SOW	Jul 06 - Jul 06
25	LCR BODR TM: Interior Drainage Analysis	Jul 06 - Jul 06
26	H&H Phase II TM: Modeling Draft	Jul 06 - Jul 06

TABLE 1 CONTINUED

No.	Review	Duration
27	Draft BODR Levees, Canals and Roads	Jul 06 - Aug 06
28	Opinion of Probable Construction Costs	Aug 06 - Aug 06
29	Intermediate Design - Pump Stations	Aug 06 - Sep 06
30	H&H Phase II, TM: Hwy 41 Road bed Analysis	Aug 06 - Sep 06
31	H&H Phase II, TM: Modeling Draft - IMC	Sep 06 - Sep 06
32	Survey Report	Oct 06 - Oct 06
33	H&H Modeling Final Draft Report	Mar 07 - Apr 07
34	Geotech - Spreader Berms Technical Memorandum	Nov 07 - Nov 07
35	Private Lands Canal Extension Geotechnical Report	Dec 07 - Dec 07
36	Geotech - Tieback Levee Technical Memorandum	Dec 07 - Dec 08
37	Faka Union Pump Station Pre-Final (90%) Design	Jan 08 - Feb 08
38	Miller Pump Station Pre-Final (90%) Design	Jan 08 - Feb 08
39	Draft Geotechnical Report - Site Survey LCR	Feb 08 - Feb 08
40	Merritt Pump Station - Pump Model Test Procedure	Feb 10 - Feb 10
41	EDC1 - Merritt Pump Station	Jul 10 - Jul 10
42	EDC2 - Merritt Pump Station	Jul 10 - Jul 10
43	EDC3 (WM012) Merritt Pump Station	Aug 10 - Aug 10
44	EDC4 (WM016) Merritt Pump Station	Sep 10 - Sep 10
45	EDC5 (WM019) Vegetation Clearing	Oct 10 - Oct 10
46	EDC6 (WM 017) Road Removal	Nov 10 - Nov 10
47	Hydrologic & Hydraulic Scope of Work	Nov 10 - Nov 10
48	EDC7 (WM021) Riprap, Bedding Material, and Geotextile	Dec 10 - Jan 11
49	EDC8 (WM022) Overhead Bridge Crane	Dec 10 - Jan 11
50	Topographic and Boundary Survey (POI)	Dec 10 - Jan 11
51	Miller Geotechnical Investigation SOW (Draft)	Jan 11 - Jan 11

It was identified that the plans and specifications prepared under the management of SFWMD did not meet the criteria established for projects lead by the USACE. Subsequently, the Designs for the Merritt, Faka Union and Miller Pumping Station Plans have been or will need to be updated. To date, the Merritt and Faka Union Plans and specifications have been updated and the update to Miller will begin in February 2011.

Table 2 below lists a summary of the tasks and construction activities previously initiated and their associated status or anticipated commencement and completion dates.

TABLE 2: DESIGN/CONSTRUCTION ACTIVITIES – COMPLETED OR UNDERWAY

Reports	**Date Issued**	**Contractor**
Project Implementation Report (PIR)	Sep-04	Parsons
Basis of Design Report (BODR)	Aug-06	Parsons
Construction Plans	**Begin**	**End**
Protection Features		
Port of the Islands	Jan-11	Oct-12
Private Lands	Dec-11	Nov-13
6Ls Farm	Jan-12	Apr-14
Miller Pumping Station	Jan-11	Jul-12
Construction	**Const. Comm.**	**Contractor**
Merritt Pumping Station	Jan-10	Harry Pepper

Table 3 lists a summary of the Design / Construction activities to be completed for the remainder of the PSRP.

TABLE 3: DESIGN/CONSTRUCTION ACTIVITIES TO BE PERFORMED

Plans and Specifications	**Begin**	**End**
Protection Features		
Port of the Islands	Jan-11	Oct-12
Private Lands	Dec-11	Nov-13
6Ls Farm	Jan-12	Apr-14
Miller Pumping Station	Jan-11	Jul-12
Construction	**Begin**	**End**
Faka Union Pumping Station	Jan-11	Dec-13
Protection Features		
Port of the Islands	Jan-13	Oct-13
Private Lands	Dec-13	Oct-14
6Ls Farm	Jan-12	Apr-14
Miller Pumping Station	Jul-14	Sep-15

Prairie Canal Phase

Canal Plugs

Plugging of the Prairie Canal consists of earthen plugs, which are located approximately 1,300 feet apart, begin at approximately 80th Street west of the sourthernmost existing plug and continues south to 118th Street. Plugs may not exist at every location depending on fill availability; however, all spoil material along the canals within the project limits will be returned to the canal.

Road Removal

Stewart Blvd. from Patterson Blvd to the Prairie Canal and Janes Senic Drive from the Prairie Canal east approximately 3,000 feet are to have the asphalt removed and culverts added to allow for sheet flow to the southern portion of the Picayune Strand. The existing berms to the north and south of the roads are to be degraded.

Merritt Phase

Pump Station
This feature will pump water from the Merritt Canal into a spreader basin for release to the downstream restoration area. The S-488 pump station is comprised of two (2) 75 cfs electrical pumps and four (4) 220 cfs diesel pumps for a total capacity of 1,030 cfs; however, the maximum design flow for flood protection is 880 cfs using the four high flow pumps.

Tie-Back Levee
The tie-back levee with a 14-foot wide access road is located along the northern extent of the restoration area and is intended to prohibit flow to the north during pump operations. The eastern tie-back levee is approximately 11,760 lineal feet extending from the pump station site eastward to Basil Road, which is adjacent to the Prairie Canal area. The western tie-back levee is primarily a north-south levee located adjacent to existing roadways, Merritt Boulevard and 66th Avenue SE. This levee, which is approximately 11,030 feet in length, begins at the pump station site and ends west of Merritt Boulevard on 66th Avenue SE. The levee elevation varies from 14.0 to 15.0 ft NAVD with the highest section near the pump station site.

Spreader Berm/Basin and Weirs
Approximately 3,500 lineal feet of spreader berm oriented in an east-west direction connects to the tie-back levees on either side of the pump station site to create a spreader basin. The pump station discharges into this spreader basin, which fills and overflows into the restoration area via multiple concrete weirs with varying widths and elevations. Overflow weirs S-488A and S-488B are at elevation 10.0-ft. NAVD with a width of 150 feet; secondary weirs S-488C, S-488D and S-488F through S-488I are all 45 feet wide at elevation 9.5 ft. NAVD; and the primary weir, S-$88E, is 65 feet wide with an elevation of 9.0 ft. NAVD. A distribution canal located on the interior of the spreader basin improves the distribution of flow while providing material for the berm construction.

Road Removal
All remaining asphalt roads south of I-75 between the Prairie Canal and the Faka Union Canal, with the exception of the primary access roads, will be degraded to natural grade. Primary access roads within the restoration area will still require removal of the asphalt material and clearing of vegetation. Culverts will be installed at 11 locations under Stewart Boulevard from Patterson Boulevard west to the Faka Union Canal to allow sheet flow to continue south.

Canal Plugs
Earthen canal plugs, with a minimum length 100 feet per plug, are located within the Merritt Canal and the south section of the Prairie Canal at the intersection of the roads with the canals. The existing spoil material along the top of bank on either side of the Merritt and Prairie Canals is the primary source of material for the canal plugs. The Merritt Canal plugs begin at 56th Avenue SE and continue south to 134th Avenue South with additional plugs in the east-west section of the Merritt Canal east of the Faka Union Canal. Additionally, an existing farm ditch located between the Merritt Canal and the Prairie Canal will be completely backfilled to natural grade.

Faka Union Phase

Pump Station
The S-487 pump station is comprised of three (3) 100 cfs electrical pumps and five (5) 470 cfs diesel pumps for a total capacity of 2,650 cfs, however, the maximum design flow for flood protection is 2,350 cfs using the five high flow pumps.

Tie-Back Levee
The tie-back levee with a 14-foot wide access road is located along the northern extent of the restoration area and is intended to prohibit flow to the north during pump operations. The eastern tie-back levee is approximately 5,680 lineal feet extending from the pump station site to the west

end of the Merritt tie-back levee along the south side of 66th Avenue SE. The western tie-back levee, which is approximately 10,600 lineal feet, is primarily located along the south side of 66th Avenue SE until Everglades Boulevard where it jogs north to the south side of 64th Avenue SE, then continues east to the Miller Canal Pump Station site. The levee elevation varies from 15.3 to 16.0 ft. NAVD with the highest section near the pump station site.

Spreader Berm/Basin and Weirs

Approximately 9,290 lineal feet of spreader berm oriented in an east-west direction connects to the tie-back levees on either side of the pump station site to create a spreader basin. The pump station discharges into this spreader basin, which fills and overflows into the restoration area via multiple concrete weirs with varying widths and elevations. All of the weirs are 80 feet wide at elevation 9.5 ft. NAVD with the exception of the following: the overflow weirs, S-487F, D-487G, S-487N and S-487R, are at elevation 10.0 ft. NAVD with a width of 110 feet and the S-487H weir is 45 feet wide with an elevation of 10.0Ft. NAVD. A distribution canal located on the interior of the spreader basin improves the distribution of flow while providing material for the berm construction.

Road Removal

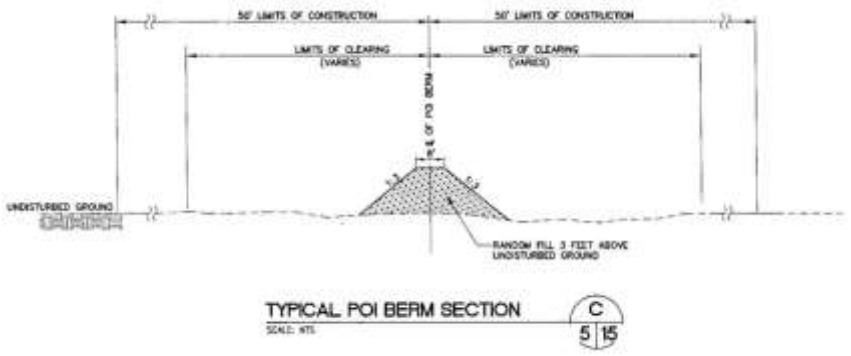
All remaining asphalt roads in the Faka Union Construction limits south of I-75 between the Faka Union Canal and Miller Canal, with the exception of the primary access roads, will be degraded to natural grade. Primary access roads within the restoration area will still require removal of the asphalt material and clearing of vegetation.

Protection Features

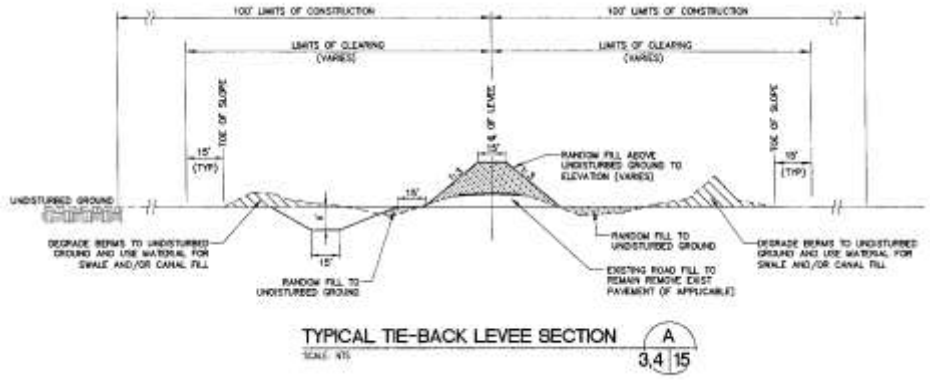
The protection features portion of the project deals with the water resource engineering needed to determine what protection features will be needed in the surrounding project areas. There will be three phases for this work. The first phase will evaluate the best available data that was developed by the Corps and SFWMD during the PIR and ACCELER8 design phases of the Picayune Strand Project. The second phase will involve developing hydrologic and hydraulic computer models for the analysis and design of the protection features. The final phase will be a detailed design phase and involve developing the best plan to construct each of the necessary project features to meet the project's goal. During this phase design will provide sufficient detail to document design decisions and produce detailed guidance for developing construction plans and specification for the Picayune Strand Restoration Project.

The anticipated features include the following:

1) A berm along the east side of Port of the Islands approximately 3' in height and 8' wide at the top.



2) An extension of the tie-back levee located west of the Miller Pump Station. The levee would vary in height (approximately xx)_with a 15' wide driveable surface at the top.



3) A berm/levee around a portion of the 6L's farm located to the southwest of the project, north of US 41. H&H Modeling is required to provide a more definitive scope and design of the levee.

Miller Phase

Pump Station

This feature will pump water from the Miller Canal into a spreader basin for release to the downstream restoration area. The Miller pump station is comprised of two (2) 75 cfs electrical pumps and six (6) 220 cfs diesel pumps for a total capacity of 1,470 cfs; however, the maximum design flow for flood protection is 1,350 cfs using the six high flow pumps.

Tie-Back Levee

The tie-back levee with a 14-foot wide access road is located along the northern extent of the restoration area and is intended to prohibit flow to the north during pump operations. The eastern tie-back levee is being designed and constructed under the Faka Union Pump Station scope of work. The western tie-back levee is primarily an east-west levee located adjacent to existing roadway, 64th Avenue SE, also has a small portion that extends to the north just past the private

lands. This levee, which is approximately 10,000 feet in length, begins at the pump station site and ends west of the private lands. The levee elevation varies from approximately 14.5 to 15.5 ft NAVD with the highest section near the pump station site.

Spreader Berm/Basin and Weirs

Approximately 7,100 lineal feet of spreader berm oriented in an east-west direction connects to the tie-back levees on either side of the pump station site to create a spreader basin. The pump station discharges into this spreader basin, which fills and overflows into the restoration area via multiple concrete weirs with varying widths and elevations. Primary weir W-5 is at an elevation of 9.0 NAVD with a width of 45'. Overflow weirs W-1 and W-4 are at elevation 10.0-ft. NAVD with a width of 100 feet; secondary weirs W-3, W-6, W-7, W-8 and W-9 are at elevation 9.5 with a width of 90, secondary weir W-2 is at elevation 9.5 with a width of 100'. A distribution canal located on the interior of the spreader basin improves the distribution of flow while providing material for the berm construction.

Road Removal

All remaining asphalt roads south of I-75 between the Faka Union Canal and the Miller Canal, with the exception of the primary access roads, will be degraded to natural grade. Primary access roads within the restoration area will still require removal of the asphalt material and clearing of vegetation. Culverts will be installed at locations under Miller Boulevard to allow sheet flow to continue west.

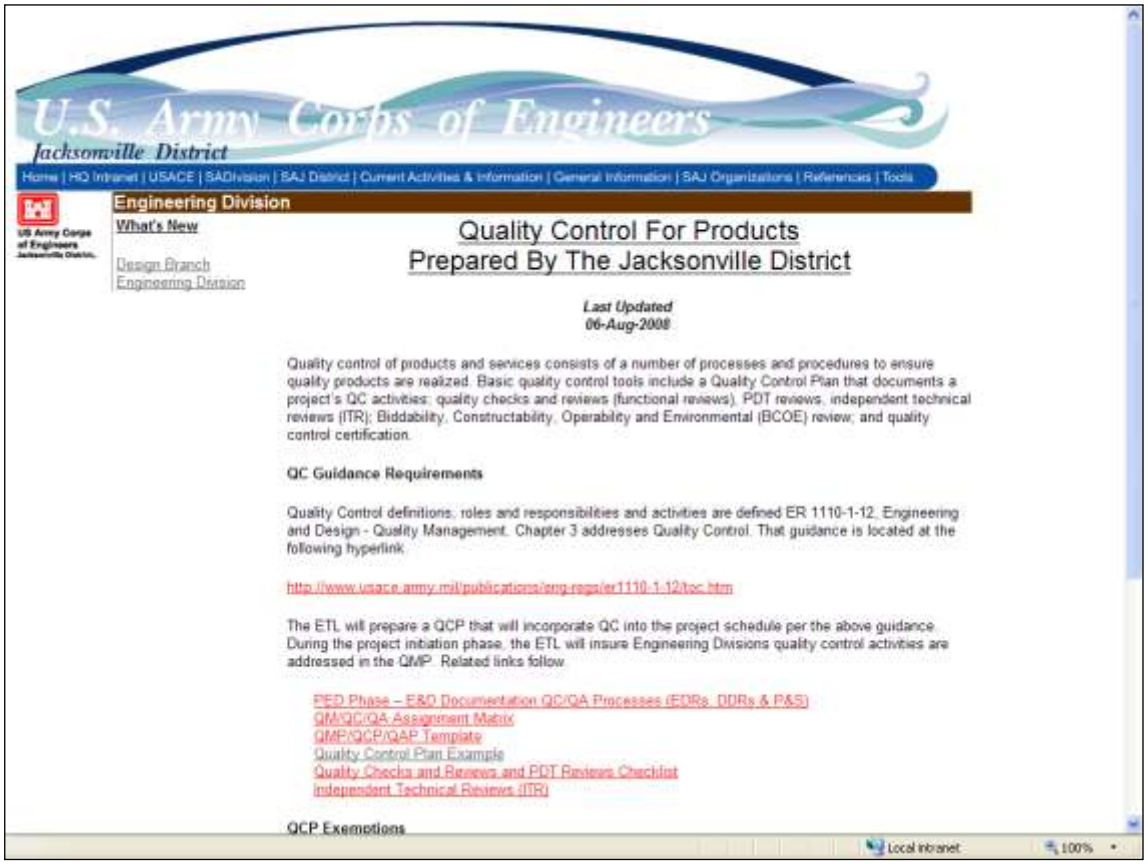
Canal Plugs

Earthen canal plugs, with a minimum length 100 feet per plug, are located within the Miller Canal. The existing spoil material along the top of bank on either side of the Miller Canal is the primary source of material for the canal plugs. The Miller Canal plugs begin at the Miller Pump Station and continue south to 128th Avenue South (aka Lynch Blvd.) with additional plugs in the east-west section of the Miller Canal west of the Faka Union Canal. Plugs may not exist at every location depending on fill availability; however, all spoil material along the canals within the project limits will be returned to the canal.

3. DISTRICT QUALITY CONTROL

a. In-house Prepared Products. District Quality Control Quality Control and Quality Assurance activities for implementation documents (DDRs and P&S) are stipulated in ER 1110-1-12, Engineering & Design Quality Management. Agency Technical Review (formerly called Independent Technical Review), quality checks and reviews, supervisory reviews, Project Delivery Team (PDT) reviews are required by the ER and those items are embodied into the CESAJ EN Procedures Portal which can be viewed at the following hyperlink. The subject project is prepared by the Jacksonville District and by others including Architect-Engineer Firms and other Corps of Engineers Offices. The related procedures for in-house products are located at the following hyperlink. A related screen shot is below.

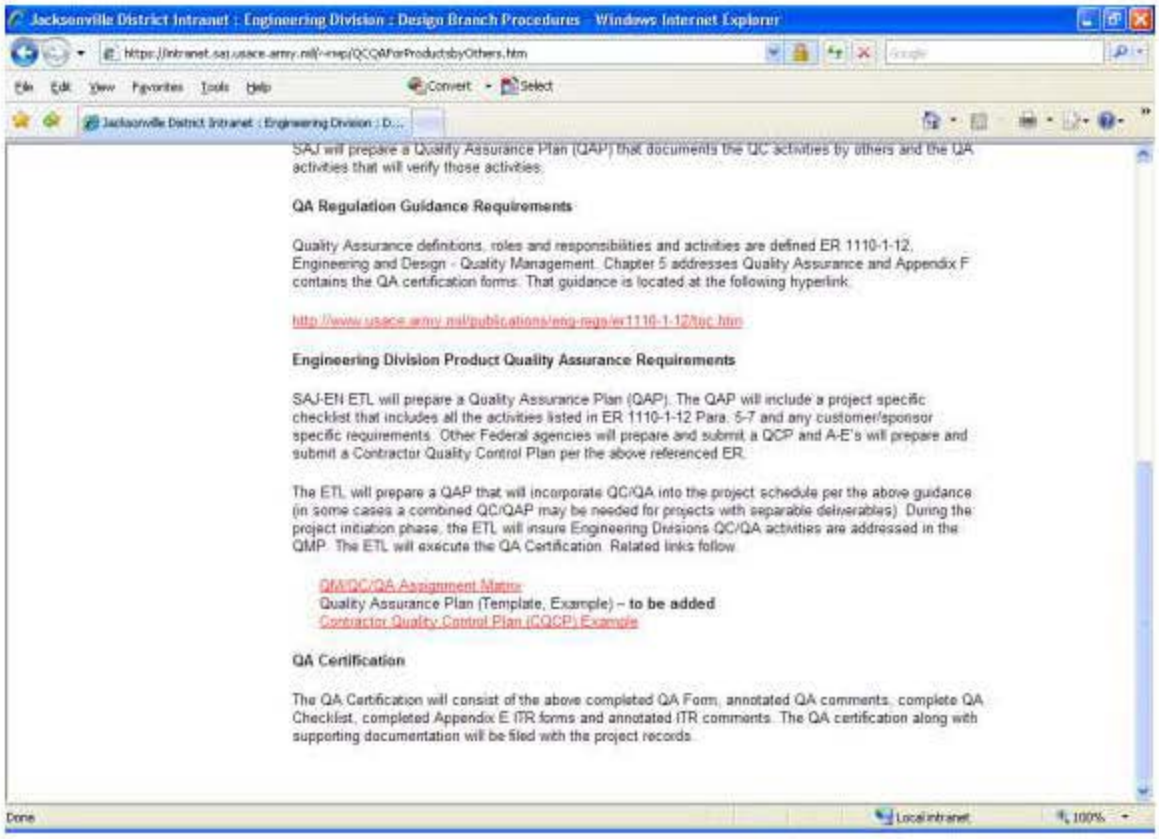
https://intranet.saj.usace.army.mil/~rwp/QCForProducts.htm



b. Products Prepared by Others. The related SAJ procedures for Products Prepared by Others are located at the below site. Screen shots are also provided below.

https://intranet.saj.usace.army.mil/~rwp/branch_procedures.htm


Jacksonville District Intranet : Engineering Division : Design Branch Procedures - Windows Internet Explorer
Engineering Division
What's New
Design Branch
Engineering Division
Quality Control / Quality Assurance (QC/QA)
For
Products Prepared By Others
(A-E, Non-Federal Entities, or Other Federal)
Last Updated
06-Aug-2008
Quality Assurance (QA) is defined as that part of quality management focused on providing verification that project quality control requirements for products prepared by others as defined in the that entities QCP and the SAJ PMP QMP are fulfilled.
Quality control activities conducted by others (during the preparation of products prepared for SAJ) consist of the same (or equivalent) processes as those conducted for products prepared by SAJ. The A-E, Other COE District (Brokered), Non-Federal Entity or other Federal agency's quality control tools will include a Quality Control Plan that documents a project's QC activities: quality checks and reviews, PDT reviews, and independent technical reviews (ITR).
SAJ will prepare a Quality Assurance Plan (QAP) that documents the QC activities by others and the QA activities that will verify those activities.
QA Regulation Guidance Requirements
Quality Assurance definitions, roles and responsibilities and activities are defined ER 1110-1-12, Engineering and Design - Quality Management. Chapter 5 addresses Quality Assurance and Appendix F contains the QA certification forms. That guidance is located at the following hyperlink:
http://www.usace.army.mil/publications/eng-regs/er1110-1-12/toc.htm
Engineering Division Product Quality Assurance Requirements


Jacksonville District Intranet : Engineering Division : Design Branch Procedures - Windows Internet Explorer
SAJ will prepare a Quality Assurance Plan (QAP) that documents the QC activities by others and the QA activities that will verify those activities.
QA Regulation Guidance Requirements
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http://www.usace.army.mil/publications/eng-regs/er1110-1-12/toc.htm
Engineering Division Product Quality Assurance Requirements
SAJ-EN ETL will prepare a Quality Assurance Plan (QAP). The QAP will include a project specific checklist that includes all the activities listed in ER 1110-1-12 Para. 5-7 and any customer/sponsor specific requirements. Other Federal agencies will prepare and submit a QCP and A-E's will prepare and submit a Contractor Quality Control Plan per the above referenced ER.
The ETL will prepare a QAP that will incorporate QC/QA into the project schedule per the above guidance (in some cases a combined QC/QAP may be needed for projects with separable deliverables). During the project initiation phase, the ETL will insure Engineering Divisions QC/QA activities are addressed in the QMP. The ETL will execute the QA Certification. Related links follow:
QM/QC/QA Assignment Matrix
Quality Assurance Plan (Template, Example) – to be added
Contractor Quality Control Plan (CQCP) Example
QA Certification
The QA Certification will consist of the above completed QA Form, annotated QA comments, complete QA Checklist, completed Appendix E ITR forms and annotated ITR comments. The QA certification along with supporting documentation will be filed with the project records.

c. Engineering and Design during Construction Phase DQC/QA. Engineering effort during construction includes completion of Design Documentation Reports (DDR's), modification of P&S (where appropriate), and preparation of engineering considerations and instructions to field personnel. Additional effort is needed to review selected contractor submittals, conduct site visits, and prepare construction foundation reports and concrete reports. The engineers must also provide support for contract claims and modifications, development of operation and maintenance (O&M or OMRR&R) manuals, emergency action plans (including inundation maps), and review of as-built drawings.

d. Construction Quality Management. Construction Division (CD) efforts in support of the Picayune Strand Restoration Project started during the design process by actively participating in the PDT during the early stages of design and will continue until completion of the project. CD played an important role during the BCOE review process and coordination of all independent review team comments. During construction, Division Quality Assurance personnel, provides training and support to contractor personnel on QCS issues, provides Construction Quality Management training to all Contractor personnel engaged in Quality control and office engineering functions and serves as primary points of contracts for technical and quality control/assurance issues. CD also develops the scope of work and coordinates the issuance of task orders for obtaining material testing services and quality assurance for services contracts.

4. AGENCY TECHNICAL REVIEW

a. General. Agency Technical Review (ATR) is undertaken to "ensure the quality and credibility of the government's scientific information" in accordance with EC 1165-2-209 and ER 1110-1-12. An ATR will be performed on the P&S and DDR intermediate and pre-final submittals.

ATR comments are documented in the DrChecks^{sm} model review documentation database. DrChecks^{sm} is a module in the ProjNet^{sm} suite of tools developed and operated at ERDC-CERL (www.projnet.org).

ATR is being conducted by individuals and organizations that are external to the Jacksonville District. SAD will be the RMO that will manage the ATR. The required disciplines and experience are described below.

b. PDT Discipline Descriptions. The ATR team composition will mirror the following PDT expertise used to prepare project work products.

H&H Analysis:
- Hydraulic / Hydrologic Engineer
- Civil Engineer
- Geotechnical Engineer

Protection Features (Port of the Islands, Private Lands and 6Ls):
- Hydraulic / Hydrologic Engineer
- Civil Engineer
- Geotechnical Engineer
- Geologist
- Geomatics
- Cost Engineer
- Real Estate Specialist
- ETHRW/Chemist
- Archeologist
- Environmental Scientist/Biologist
- Environmental Engineer

Miller Pump Station:

- Civil Engineer
- Hydraulic / Hydrologic Engineer
- Structural Engineer
- Mechanical Engineer
- Electrical Engineer
- Geotechnical Engineer
- Geologist
- Cost Engineering
- Real Estate Specialist
- ETHRW/Chemist
- Land Surveyor
- Archeologist
- Environmental Scientist/Biologist
- Environmental Engineer

c. ATR Disciplines. As stipulated ER 1110-1-12, ATR members were sought from the following sources: regional technical specialists (RTS); appointed subject matter experts (SME) from other districts; senior level experts from other districts; Center of Expertise staff; appointed SME or senior level experts from the responsible district; experts from other USACE commands; contractors; academic or other technical experts; or a combination of the above. The ATR Team is comprised of the following disciplines; knowledge, skills and abilities; and experience levels.

Hydrology and Hydraulics. Two to three team members will be required to review the hydraulic design, hydraulic modeling, hydrologic modeling, and wind/wave analyses. The team member(s) should be registered professionals with 10 or more years experience in conducting and evaluating hydrologic and hydraulic analyses for flood risk management projects. Experience with 2D hydraulic modeling, 3D hydrologic and groundwater modeling, wind/wave analysis, and performance of risk assessments is required.

Geotechnical Engineering. The team member should be a registered professional engineer and have 10 or more years experience in geotechnical engineering. Experience needs to include geotechnical evaluation of flood risk management structures. Experience needs to encompass static and dynamic slope stability evaluation; evaluation of the seepage through earthen embankments and under seepage through the foundation of the flood risk management structures, including dams, levee embankments, floodwalls, closure structures and other pertinent features; and settlement evaluations.

Structural Engineering. The team member should be a registered professional engineer and have 10 or more years experience in structural engineering. Experience needs to include the engineering and design of flood risk management project features such as pump stations, conveyance culverts, and spillways.

Mechanical and Electrical Engineering. The team members should have 10 or more years experience in mechanical and electrical engineering. Experience needs to include engineering and design of flood risk management project features such as pump stations, related systems and components.

Civil Engineering. The team member should be a registered professional engineer and have 10 or more years experience with civil/site work projects to include embankments, roads and highways, relocations, paving and drainage.

Cost Engineering. The team member should have 10 or more years demonstrated in the preparation of cost estimates, cost risk analyses and cost engineering. Experience is needed for complex Civil Works projects to include dams and impoundments.

Environmental Scientist/Biologist/NEPA Compliance. The team member should have 10 or more years of experience in NEPA compliance and preparing and coordinating EA's and EIS's on District projects, including preparation of the environmental portions of project reports. Team member should also be able to execute and evaluate compliance with environmental law such as the Endangered Species Act, Coastal Zone Management Act, Migratory Bird Treaty Act, and Marine Mammal Protection Act.

Environmental Engineer. The team member should be an environmental engineer and have 7 or more years experience with water resource and or restoration projects. The member should have extensive experience with nutrient loading/TP concerns within the state of Florida. The team member should be familiar with the state water quality criteria for the project area.

Geomatics & Survey. The team member must be a Professional Surveyor and Mapper (PSM) licensed in the State of Florida and have a minimum of 10 years experience with Topographic, Bathymetric, and Construction Layout surveys.

EHTRW/Chemist. The team member should be a chemist with 10 or more years experience in conducting and evaluating ecological risk assessments.

Geologist. The team member should be a registered professional geologist and should have at least 10 years of specialized experience in but not limited to; knowledge of geological theories, principles, and methodology, have the ability to plan, direct, and report conclusions of geologic investigations. The individual should also be skilled in interpretation of field test data for determining the foundation strengths engineering purposes. The team member should also serve as the Engineering Geologist, utilizing a highly developed professional knowledge of geological theories and applications for complex assignments of considerable breadth and scope related to engineering geologic and hydrogeologic investigations. His/her experience should include planning, directing, analyzing and reporting conclusions of geologic and coastal investigations pertaining to the design and construction of Civil Works Resources Projects throughout the State of Florida, and must have a strong background in Florida Geology in general to be able to provide technical guidance to other Geologists and Engineers not only in the preparation of project reports, but also to resolve geologic problems involved.

Archeologist. The team member should be a professional archeologist preferably with an advanced degree and with at least 10 years experience doing federal cultural resource management.

Real Estate Specialists. The Real Estate Specialist should be a senior level employee with demonstrated project Pre-Construction, Engineering and Design Phase experience.

ATR Team Leader. The ATR Team Leader should have 10 or more years experience with Civil Works Projects and have performed ATR Team Leader duties on complex civil works projects. ATR Team Leader can also serve as one of the review disciplines.

e. ATR Charges. The RMO will develop review charges in accordance with EC 1165-2-209.

5. INDEPENDENT EXTERNAL PEER REVIEW

a. General. EC 1165-2-209 provides implementation guidance for both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114). The EC addresses review procedures for both the Planning and the Design and Construction Phases (also referred to in USACE guidance as the Feasibility and the Pre-construction, Engineering and Design Phases). The EC defines Section 2035 Safety Assurance Review (SAR), Type II

Independent External Peer Review (IEPR). The EC also requires Type II IEPR be managed and conducted outside the Corps of Engineers.

b. Type I Independent External Peer Review (IEPR) Determination. A Type I IEPR is associated with decision documents. There are no remaining decision documents scheduled for PSRP. The project decision document is a Project Implementation Report (PIR) which is a decision document that was specifically used for the CERP. It was approved in accordance with USACE guidance in effect at the time of approval. A Type I IEPR is not applicable to the implementation documents covered by this Review Plan.

c. Type II Independent External Peer Review (IEPR) Determination (Section 2035). This project does not trigger WRDA 2007 Section 2035 factors for Safety Assurance Review (termed Type II IEPR in EC 1165-2-209) and therefore, a review under Section 2035 is should not be warranted. The factors in determining whether a review of design and construction activities of a project is necessary are based on the EC 1165-2-209 Type II IEPR Risk Informed Decision Process. The following EC 1165-2-209 risk decision criteria are followed by a statement that forms the basis for the Type II IEPR exclusion.

1. The Federal action is justified by life safety or the failure of the project would pose a significant threat to human life.

The Jacksonville District has not identified any concerns with respect to life safety since the level of water associated with the project features would not create an adverse condition for life safety. The primary rationale for the levee system is to train the water in a southerly direction and to minimize any outflanking effects that might otherwise be experienced on adjacent lands.

2. The project involves the use of innovative materials or techniques where the engineering is based on novel methods, presents complex challenges for interpretations, contains precedent-setting methods or models, or presents conclusions that are likely to change prevailing practices.

The project involves standard materials and techniques for the managing for stormwater and the installation of constructed features. Consequently, no unique materials or techniques are proposed for this project. Subsequently, the methods utilized do not set a precedent and are not likely to change prevailing practices.

3. The project design requires redundancy, resiliency, and robustness.

(1) Redundancy. Redundancy is the duplication of critical components of a system with the intention of increasing reliability of the system, usually in the case of a backup or fail-safe.

(2) Resiliency. Resiliency is the ability to avoid, minimize, withstand, and recover from the effects of adversity, whether natural or manmade, under all circumstances of use.

(3) Robustness. Robustness is the ability of a system to continue to operate correctly across a wide range of operational conditions (the wider the range of conditions, the more robust the system), with minimal damage, alteration or loss of functionality, and to fail gracefully outside of that range.

This project principal function is to provide flood risk management while restoring the hydrology to a stressed ecosystem. The pump stations that are being designed/constructed have redundant pumps proposed to allow for interrupted operation and repair and replacement without losing the required capacity to maintain the current flood protection for the neighboring properties. Additionally, there is diesel generated backup power in the event of a loss of electricity. The pump stations can be controlled via on-site personnel or from the command center of the South Florida Water Management District in West Palm Beach, FL. The design and construction of the

facilities was performed in anticipation of adverse conditions that can arise in South Florida. The buildings have been design to withstand hurricane force winds up to 140 mph at a reoccurrence level of 200 years.

4. The project has unique construction sequencing or a reduced or overlapping design construction schedule; for example, significant project features accomplished using the Design-Build or Early Contractor Involvement (ECI) delivery systems.

Construction sequencing is essential to all construction projects at some level. The Picayune Strand Project does involve construction sequencing; however it is for the purpose of financial convenience and logical implementation of improvements. A reduced or overlapping design/construction is not part of this project like it would be expected for a design/build approach.

6. MODEL CERTIFICATION AND APPROVAL

Engineering Models. The Picayune Strand Restoration Project does not use any engineering models that have not been approved for use by USACE. The engineering models are:

- *MIKESHE/Mike11 (v2009): MikeShe/Mike11 is an integrated surface water-groundwater dynamic modeling system developed by the Danish Hydraulic Institute. It can simulate all of the major land phase hydrological processes and is comprised of several independent modules that represent each hydrological process. The program will be used to update the flood routings and resulting stage-frequency relationships for Picayune Strand.*

- *MIKE FLOOD (v2008): The Danish Hydraulic Institute (DHI) MIKE FLOOD is a comprehensive flood modeling package covering all the major aspects of flood modeling. MIKE FLOOD combines the capabilities of MIKE 11 and MIKE 21. MIKE FLOOD integrates flood plains, canals, roadways, levee and etc. into one package. MIKE FLOOD can simulate flood waves over dry land in channels and on floodplains associated with a dam breach. MIKE FLOOD will integrate the hydrodynamic models MIKE 21 and MIKE 11 in support of the tie-back levee breach analyses and evaluations.*

- *MIKE 21: MIKE 21 is a 2-D hydrodynamic model that simulates flow and sediment transport. MIKE 21 is integrated and dynamically linked to MIKE 11 to simulate flood flows in a combined river and floodplain environment.*

- *MIKE 11: MIKE 11 is a 1-D hydrodynamic model that simulates flow in 1-D channels, flows over a variety of structures including broad-crested weirs, dam break structures, and user-defined structures. MIKE 11 is integrated and dynamically linked to MIKE 21 to simulate flood flows in a combined river and floodplain environment.*

- *MIKE Zero: MIKE Zero is MIKE FLOOD's fully integrated GUI used to develop model grids, to set up simulations, for pre- and post-processing analysis, and to present and visualize model results. Post processing capabilities include extracting a time series of surface elevations and extracting profile series, performing statistical values on time series, line series, matrix series or volume series, rotating and transforming 2-D data, pre- and post-processing in a Geographic Information Systems (GIS) integrated environment, composing plots, and animating video.*

- *ESRI ArcMap 9.3.1.: Environmental Systems Research Institute's GIS software was utilized to provide geospatial information for hydrodynamic model pre-processing including land use, lidar, and geographic feature alignments.*

- *HEC-RAS 4.1.: The Hydrologic Engineering Center's River Analysis System(HEC-RAS) program provides the capability to perform one-dimensional unsteady flow river hydraulics calculations. The program was utilized to model maximum inundation extent to help establish MIKE-21 mesh domain.*

- *SMS (Version 10.0): The Surface-Water Modeling System (SMS) is an intuitive pre- and post-processor for building grids, viewing solutions, and many other specialized tasks. This software package was developed by Brigham Young University. The SMS software package was used to construct finite element grids for the wind and wave analysis portion of the wave run-up and embankment over-wash evaluation for pump station tie-back levees. Grids included a coarse resolution grid of the Picayune Strand and refined resolution grids for Port of the Islands, Private Lands and 6L's Farm.*

- *Compaq Visual Fortran (Professional Edition 6.1.0): Compaq Visual Fortran is a flexible Fortran programming language compiler that supports Fortran 66, Fortran 77, Fortran 90, and Fortran 95. The Compaq Visual Fortran developer was used to code both the ACES source code equations and Bretschneider's derivations into Fortran programs for calculating wave run-up, wave over-wash, and wind set-up and set-down.*

- *Microsoft Excel spreadsheet tools have been developed by the Risk Management Center in a modular format. The workbooks follow a step-by-step procedure to determine the conditional probabilities needed to develop a system response curve. Tables are presented within each workbook to provide guidance on the estimation of conditional probabilities. These tables have been developed to model the physical processes so far as practical. The probabilities have been assessed using the expert judgment of workshop attendees. Where practical, the probabilities have been anchored to historic data.*

- *GeoStudio 2004 containing both Seep/W and Slope/W from GEO-SLOPE, Inc. out of Alberta, Canada. Seep/W is a numerical model that can mathematically simulate the real physical process of water flowing through a particulate medium through the use of finite elements. This program is used to model the flow of water through embankment, foundation, and other features as required in pursuit of solutions that adequately address factors of safety against piping and uplift. Slope 2D is a numerical model that utilizes limit equilibrium methods to analyze the stability of earth structures through inputs of geometry, soil strength, pore-water pressure, soil-structure interactions, and imposed loading. It is also capable of performing probabilistic stability analyses through a Monte Carlo process.*

- *Groundwater Modeling System (GMS) version 6.5. Department of Defense. GMS provides an integrated and comprehensive computational environment for simulating subsurface flow, contaminant fate/transport, and the efficacy and design of remediation systems. This program is used to model the flow of water through embankment, foundation, and other features as required in pursuit of solutions that adequately address factors of safety against piping and uplift.*

7. BUDGET AND SCHEDULE

a. Design and Construction Phase Project Milestones. Project review milestones are contained in the following table.

DQC, ATR, and BCOE SCHEDULE			
PRODUCT	***Activity***	***Preparer***	***Date***
H&H Analysis[1]		*SAJ*	*FY11*
	QCR (Internal Review)		*06/2011*
	ATR		*08/2011*
	*** BCOE*		*TBD*
	Advertise		
Merritt Pumping Station	*Construction*	*Parsons*	*Jan 11 – Aug 12*
Faka Union Pumping Station		*Parsons*	
	Construction		*Jan 11 – Dec 13*
Protection Features		*SAJ*	*FY11*
Port of the Islands[2]			
Preliminary P&S	*QCR (Internal Review)*	*SAJ*	*Dec 11 – Jan 12*
Intermediate P&S	*QCR (Internal Review)*	*SAJ*	*May – Jun 12*
	ATR		*Jun – July 12*
Pre-Final Design	*QCR*	*SAJ*	*Sept 12*
	ATR		*Sept – Oct 12*
Final	*QCR*	*SAJ*	*Nov 12*
	*** BCOE*		*Nov – Dec 12*
	Advertise		*Dec 12 – Feb 13*
	Construction		*May 13 – Dec 13*
Private Lands[3]			
Preliminary P&S	*QCR*	*SAJ*	*Nov 12*
Intermediate P&S	*QCR*	*SAJ*	*Aug 13*
	ATR		*Apr 13*
Pre–Final Design	*QCR*	*SAJ*	*Aug 13*
	ATR		*Sept 13*
Final	*QCR*	*SAJ*	*Dec 13*
	*** BCOE*		*Dec 12 – Jan 13*
	Advertise		*Jan – Feb 13*
	Construction		*May 14 – Mar 15*
6L's[4]			
Preliminary P&S	*QCR*	*SAJ*	*Jan – Feb 13*
Intermediate P&S	*QCR*	*SAJ*	*Aug 13*
	ATR		*Aug 13*
Pre-Final Design	*QCR*	*SAJ*	*Jan 14*
	ATR		*Feb 14*

Final	*QCR*	*SAJ*	*Apr 14*
	***BCOE*		*Apr – May 14*
	Advertise		*Jun – July 14*
	Construction		*Oct 14 – Nov 15*
Miller Pumping Station		*SAJ*	*FY11*
Intermediate P&S	*QCR (Internal Review)*		*Oct 11*
	ATR		*Dec 11*
	BCOE		*Dec 11*
Final P&S	*QCR*	*SAJ*	*July 12*
	ATR		*Aug 12*
	***BCOE*		*Aug 12*
	Advertise		*Dec 12 – Feb 13*

[1]H&H Analysis – The H&H analysis includes the hydrologic and hydraulic analysis of the entire project in an effort to get a gross level (Tier 1) of understanding of the stages that will occur before and after the implementation of the pump stations and protection features. Once the Tier 1 model is formulated, more specific analyses (Tier 2 and Tier 3) will be conducted as part of the H&H scope of work that will more accurately define the stages at areas determined to be of significance.

[2]Port of the Islands – Port of the Islands is an existing mixed use community located at the southern extreme of the Picayune Strand Restoration Project, adjacent to the Faka Union Canal and on both the north and south side of US 41. The community consists of single and multi-family residential, hotel/restaurant, marina and gun club.

[3]Private Lands – To the west of the Miller Canal and Miller Blvd. there are some remaining homes between 54th Ave. and 62nd Ave. that are not part of the restoration project. These homes will remain after construction of the pump stations and levees. As part of the overall project, it is anticipated that an extension of the Miller Pump Station Tie-Back Levee may need to be extended as part of the Protection Features. The extension would be to address potential staging on the private lands.

[4]6L's – To the southwest of the Picayune Strand Restoration Project, north of US 41 there is an existing tomato farm called the 6L's Farm. The H&H modeling that will be performed as part of the Protection Features will evaluate the possible effects could occur as a result of the restoration project and what protection features may be necessary to compensate for those possible stages.

b. ATR Budget Estimate. FY11 ATR cost estimates will range $150,000-$200,000.

c. Construction and Operations and Maintenance Phase Milestones.

OMRR&R Phase and O&M Manual– Jan 2012

8. POINTS OF CONTACT

Per guidance, the names of the following individual will not be posted on the Internet with the Review Plan. Their titles and responsibilities are listed below.

Jacksonville District POCs:

Review Plan, ATR and IEPR Process: [redacted]

Project Information, PM: [redacted]

[redacted]

Project Information, Project Engineer: [redacted]

[redacted]

South Atlantic Division: [redacted]