



REPLY TO  
ATTENTION OF

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

CESAD-RBT

9 January 2012

MEMORANDUM FOR COMMANDER, JACKSONVILLE DISTRICT (CESAJ-EN-QC/  
[REDACTED])

SUBJECT: Approval of the Review Plan for the Preconstruction, Engineering and Design Phase Implementation Documents for C-111 Project Modifications to the C&SF Project, C-111 South Dade Contract 8, Miami-Dade County, Florida

1. References:

a. Memorandum, CESAJ-EN-QC, 5 December 2011, Subject: Approval of the Review Plan for the Preconstruction, Engineering and Design Phase Implementation Documents for C-111 Project Modifications to the C&SF Project, C-111 South Dade Contract 8, Miami-Dade County, Florida (Enclosure).

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

2. The Review Plan for the for the Preconstruction, Engineering and Design Phase Implementation Documents for C-111 Project Modifications to the C&SF Project, C-111 South Dade Contract 8, Miami-Dade County, Florida dated 5 December 2011 submitted by reference 1.a has been reviewed by this office and is approved in accordance with reference 1.b above. A copy of the approved Review Plan is enclosed.

3. We concur with the conclusion of the District that Type II Independent External Peer Review (IEPR) is not required for this Design Implementation Document Phase of Contract 8 of this project. The primary basis for the concurrence that a Type II IEPR is not required is the determination that failure of this project effort does not pose a significant threat to human life.

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



REPLY TO  
ATTENTION OF

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

CESAJ-EN-QC

5 December 2011

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

SUBJECT: Approval of Review Plan for Preconstruction, Engineering and Design Phase Implementation Documents for C-111 Project Modifications to the C&SF Project, C-111 South Dade Contract 8, Miami-Dade County, Florida

1. References.

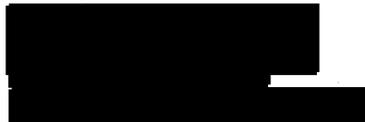
- a. EC 1165-2-209, Civil Works Review Policy, 31 January 2010
- b. WRDA 2007 H. R. 1495 Public Law 110-114, 08 Nov 07

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 Preconstruction, Engineering and Design Phase Implementation Documents. 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:

Encl



# **REVIEW PLAN**

For

Preconstruction, Engineering and Design Phase

Implementation Documents

For

C-111 Project Modifications to the C&SF Project

**C-111 South Dade Contract 8**

Miami-Dade County, Florida

Jacksonville District

5 December 2011

THE INFORMATION CONTAINED IN THIS REVIEW PLAN IS DISTRIBUTED SOLELY FOR THE PURPOSE OF PREDISSEMINATION PEER REVIEW UNDER APPLICABLE INFORMATION QUALITY GUIDELINES. IT HAS NOT BEEN FORMALLY DISSEMINATED BY THE U.S. ARMY CORPS OF ENGINEERS, JACKSONVILLE DISTRICT. IT DOES NOT REPRESENT AND SHOULD NOT BE CONSTRUED TO REPRESENT ANY AGENCY DETERMINATION OR POLICY.



**US Army Corps  
of Engineers**®

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## 1. PURPOSE AND REQUIREMENTS

**a. Purpose.** This Review Plan defines the scope of review activities for the C-111 Project Modifications to the C&SF Project, Contract 8, Miami-Dade County, Florida. Review activities consist of District Quality Control (DQC) and Agency Technical Review (ATR). The project is in the Preconstruction, Engineering and Design (PED) Phase. The related project documents are Implementation Documents that consist of Plans and Specifications (P&S) and a Design Documentation Report (DDR). Upon approval, this review plan will be included into the Project Management Plan as an appendix to the Quality Management Plan.

### **b. References.**

- (1). EC 1165-2-209, Civil Works Review Policy, 31 January 2010
- (2). ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 Aug 1999
- (3). ER 1110-1-12, Engineering and Design Quality Management, 21 Jul 2006
- (4). Project Management Plan, Canal 111 (C-111) South Dade, FL, P2 Number: 114796

**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 other work products. The EC outlines three levels of review: District Quality Control, Agency Technical Review, and Independent External Peer Review. Refer to the EC for the definitions and procedures for the three levels of review.

**d. Review Management Organization (RMO).** The South Atlantic Division is designated as the RMO.

## 2. PROJECT INFORMATION AND BACKGROUND

The C-111 Project modifications to the C&SF Project were authorized by Section 316 of the Water Resources Development Act (WRDA) of 1996 (*Public Law 303, 104<sup>th</sup> Congress*), 110 Stat. 3715, October 12, 1996:

*SEC. 316. CENTRAL AND SOUTHERN FLORIDA, CANAL 111.  
IN GENERAL.—The project for Central and Southern Florida, authorized by section 203 of the Flood Control Act of 1948 (62 Stat. 1176) and modified by section 203 of the Flood Control Act of 1968 (82 Stat. 740–741), is modified to authorize the Secretary to implement the recommended plan of improvement contained in a report entitled “Central and Southern Florida Project, Final Integrated General Reevaluation Report and Environmental Impact Statement, Canal 111 (C–111), South Dade County, Florida”, dated May 1994, including acquisition by non-Federal interests of such portions of the Frog Pond and Rocky Glades areas as are needed for the project.*

The purpose of the C-111 South Dade project is restoration of the ecosystem in Taylor Slough and the eastern panhandle of Everglades National Park that were affected by the construction of the flood control project in the C-111 Basin, while preserving the current level of flood damage reduction for the agricultural activities in the C-111 basin.

C-111 Contract 8 is one of 9 contracts that are components of the C-111 South Dade Project. It is the second to the last contract to be constructed.

The C-111 Contract 8 when complete will provide a Northern Detention/Retention Area for S-332B and S-357 pump station outflows. This detention area forms a hydraulic ridge to help prevent ground water from seeping out of Everglades National Park (ENP), thus providing additional hydration for ENP and maintaining the current level of flood damage reduction for the C-111 Basin.

C-111 Contract 8 will construct the components of C-111 Northern Detention/Retention Area. This will extend the existing hydraulic ridge, which currently exists between S-332B and S-332D (referred to as the C-111 Southern Detention/Retention Area), north to the 8.5 Square Mile Area Stormwater Treatment Area. This new detention/retention area will receive discharge from the existing S-332B and S-357 pump station. The individual components that are incorporated into this contract are (See Figure 2):

- Levee 315 (L-315) extends 20,194 feet from the west side of the S-332B Northern Detention Area (NDA) and terminates on the southwest corner of L-359 (the perimeter levee for the 8.5 Square Mile Area Stormwater Treatment Area) paralleling the Everglades National Park boundary. The levee crest width is 14 feet with a six foot height and four to one side slopes.
- L-316 extends 16,198 feet from the east side of the S-332B NDA, basically paralleling L-31N a half mile to the west, until it ties into the southeast corner of L-359 (8.5 SMA STA). The levee crest width is 14 feet with a six foot height and four to one side slopes.
- The L-316 contains three emergency over flow weirs (S-315N, S-315 S, and S-317). These structures are designed to pass 500 cfs with 1.0 feet of head over the weir. The crest width on the weirs is 14 feet in width with 1 on 4 side slopes and a height of 3.0 feet above grade. The weirs are adjustable at 4 inch intervals for an additional 16 inches in height.
- L-317 is a 20,197 foot long earthen berm that parallels L-316 500 feet to the west. The concrete berm is 2 feet wide and extends approximately 1.0 feet above existing average grade in the area. This feature allows for the generation of a smaller hydraulic ridge that can be maintained during lower flows.
- Material for construction of the levees will be obtained by scraping the existing ground beneath and between the L-315 and L-316 levees and then capping the levee with material from a borrow source. This area has been rock plowed in the past leaving 3-9 inches of overburden that can be used for the construction of the core of the levee.
- The extension of L-357W 2,084 feet south from Richmond Drive (168<sup>th</sup> Street) to L-359 (the northwest corner of the 8.5 SMA STA). The levee crest width is 14 feet with a six foot height and four to one side slopes. A road ramp will be constructed over the levee at Richmond to maintain existing traffic on the road.
- Portions of the existing S-332B NDA will be demolished so that this area can be incorporated into the larger C-111 Northern Detention/Retention Area. Areas that will be demolished will be the northern portion and part of eastern side of the existing C-111 NDA.

Work to be performed in the completed C-111 Southern Detention Area is as follows:

- Construction of three emergency overflow weirs (S-318 S-320 and S-321) in the L-322 levee (western boundary levee in the C-111 Southern Detention Area). These structures are designed to pass 500 cfs with 1.0 feet of head over the weir. The crest width on the weirs is 14 feet in width with 1 on 4 side slopes and a height of 3.0 feet above grade. The weirs are adjustable at 4 inch intervals for an additional 16 inches in height.
- L-321 is a 25,216 foot long earthen berm that parallels L-322 (eastern boundary levee for the C-111 Southern Detention Area) 500 feet to the west. The concrete berm is 2 feet wide and extends approximately 1.0 feet above existing average grade in the area. This feature allows for the generation of a smaller hydraulic ridge that can be maintained during lower flows.
- L-323 is to be degraded at an area on the North and on the South for a total of 1000 feet. This will allow for flow out of S-318 into the buffer area.

The operational depth of the detention areas is 2 feet in height. Under extreme storm events the water level could rise to 4 feet as long as it does not overflow into ENP. The height of the current weirs to be placed to the east in the North and South Detention areas are currently set at 3.5 feet above grade. This

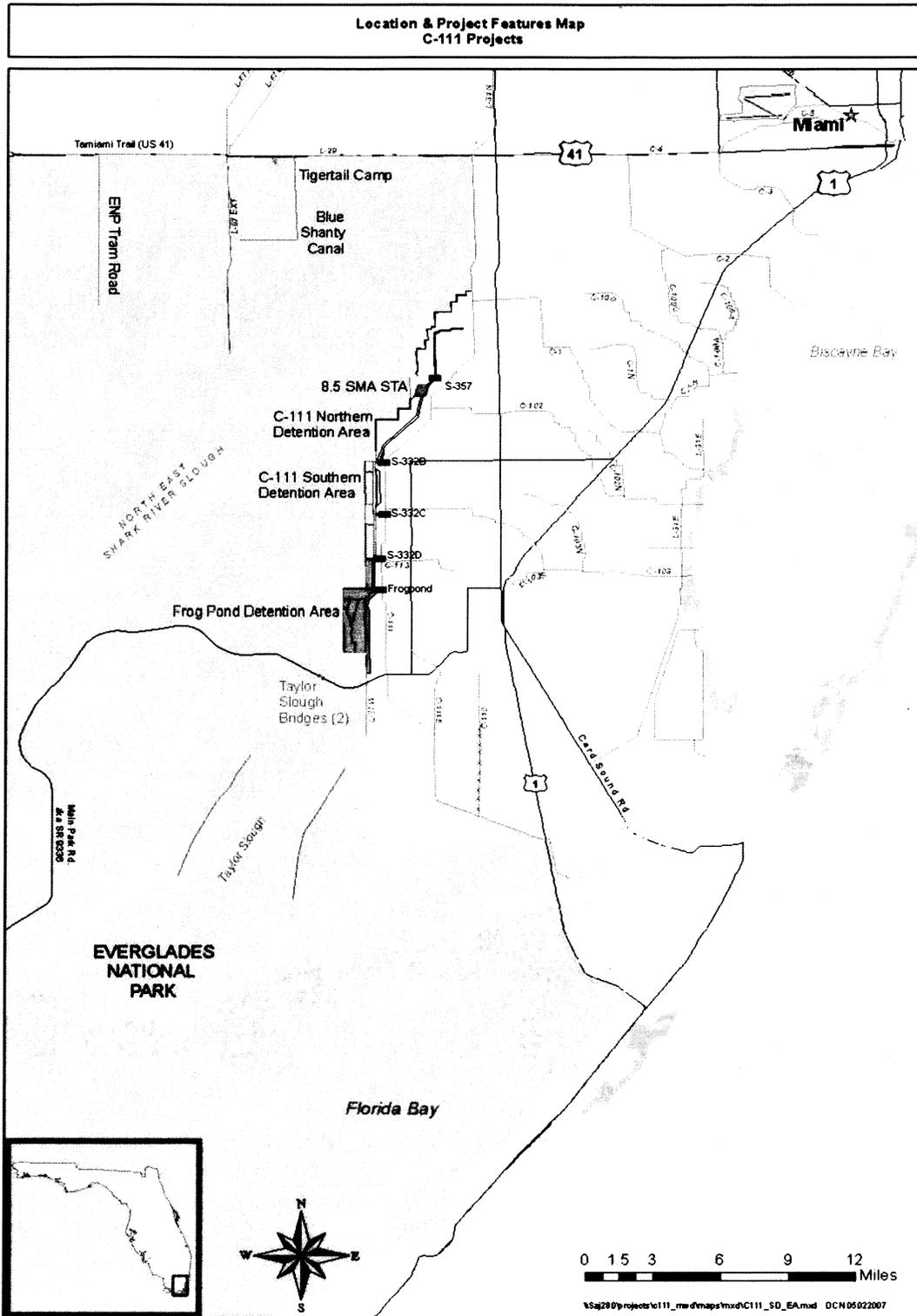
elevation would prevent the emergency operation of the detention areas. This item will be reviewed and the final decision on the weir heights or weir installation will be in the DDR.

The PDT disciplines for the plans and specifications are:

- Design Lead and Civil/Site
- Hydrology and Hydraulics
- Structural Engineering
- Geotechnical Engineering
- Cost Engineering
- Specifications

Figure 1 shows the location of C-111 Contract 8 in relation to other features in the area. Figure 2 notes the features proposed for construction.

Figure 1



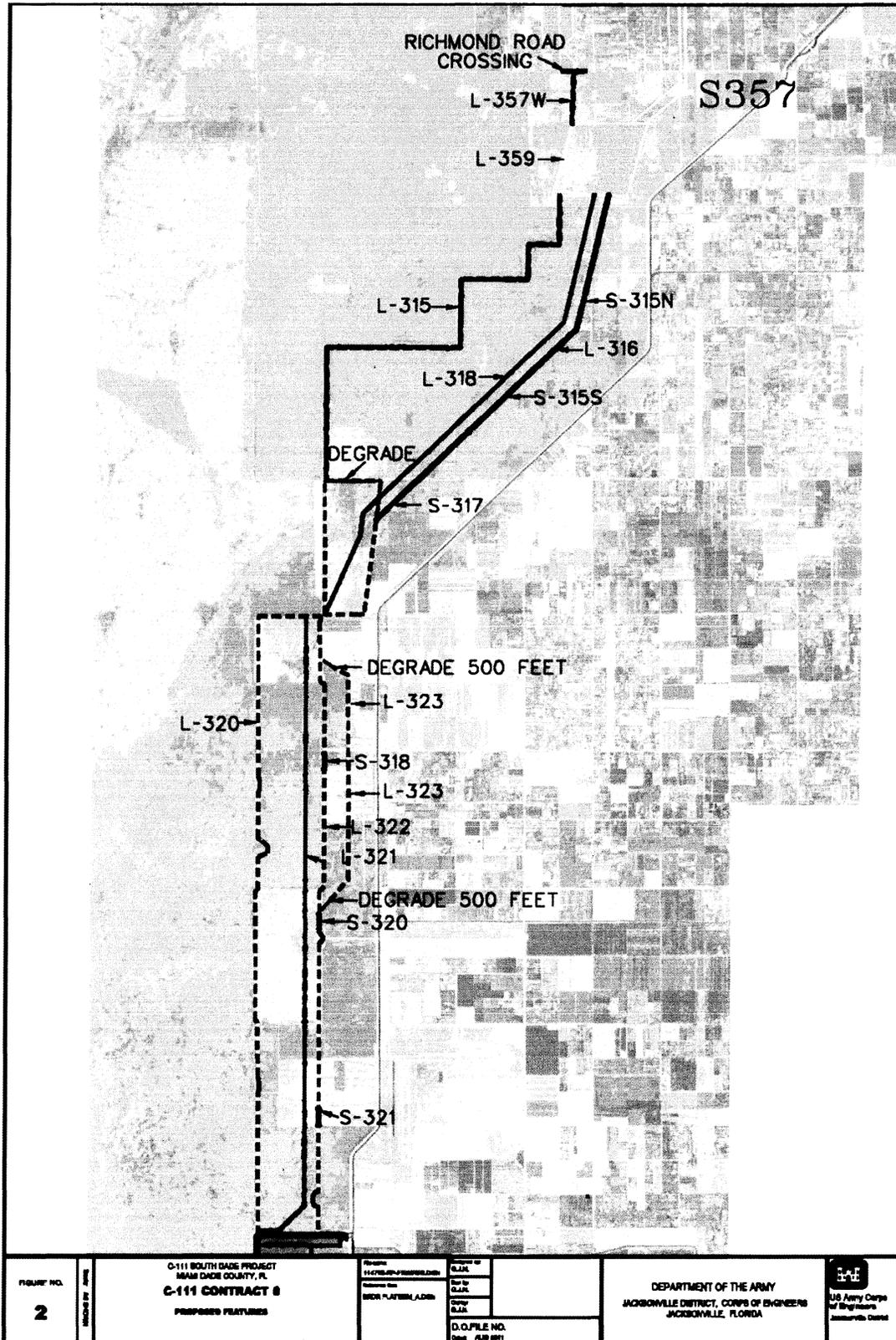


Figure 2.

### 3. DISTRICT QUALITY CONTROL

District Quality Control and Quality Assurance activities for implementation documents (DDRs and P&S) are stipulated in ER 1110-1-12, Engineering & Design Quality Management. The subject project DDR and P&S will be prepared by the Jacksonville District using the SAJ procedures and will undergo DQC.

### 4. AGENCY TECHNICAL REVIEW

**a. Scope.** 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 pre-final submittals.

ATR will be conducted by individuals and organizations that are external to the Jacksonville District. The ATR Team Leader is a Corps of Engineers employee outside the South Atlantic Division. The required disciplines and experience are described below.

ATR comments are documented in the DrChecks<sup>sm</sup> model review documentation database. DrChecks<sup>sm</sup> is a module in the ProjNet<sup>sm</sup> suite of tools developed and operated at ERDC-CERL.

At the conclusion of ATR, the ATR Team Leader will prepare a Review Report that summarizes the review. The report will consist of the ATR Certification Form from EC 1165-2-209 and the DrChecks<sup>sm</sup> printout of the closed comments.

**b. ATR Disciplines.** As stipulated ER 1110-1-12, ATR members will be 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; experts from other USACE commands; contractors; academic or other technical experts; or a combination of the above. The ATR Team will be comprised of the following disciplines; knowledge, skills and abilities; and experience levels.

**Civil Engineering.** The team member should be a registered professional engineer with 5 years minimum experience in civil/site work that encompasses embankment, road and channel design. Related construction experience is also desired.

**Geotechnical Engineering.** The team member should be a registered professional engineer with 5 years minimum experience that encompasses retention/detention area, embankment and channel design. Related construction experience is also desired.

**Hydrology and Hydraulics.** The H&H team member should be a registered professional with a minimum of 5 years experience that encompasses detention/retention area, embankment, weir and flow way modeling and design.

**NEPA Compliance.** The team member should have experience in NEPA compliance activities and preparation of Environmental Assessments and Environmental Impact Statements for civil works projects.

**ATR Team Leader.** The ATR Team Leader will be from outside SAD and should have experience with civil works projects. ATR Team Leader may also serve as a co-duty to one of the review disciplines.

There is no structural engineer on the ATR team as the only structural features are the adjustable emergency overflow weirs. This is considered a simple design and DQC will be an adequate review.

There was no cost engineer on the team as the PED Phase cost engineering review will be completed as part of final C-111 Engineering Documentation Report (EDR) ATR.

## 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).

**b. Type I Independent External Peer Review (IEPR) Determination (Section 2034).**

A Type I IEPR is associated with decision documents. No decision documents are addressed 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 not required. The factors in determining whether a review of design and construction activities of a project is necessary as stated under Section 2035 along with this review plans applicability statement follow.

- (1) The failure of the project would pose a significant threat to human life.

*Failure of the project would not pose a threat to human life. The C-111 South Dade Contract 8 project is on lands that are only utilized for restoration of the Everglades National Park. The project consists of retention levees to retain water for short periods of time at elevations ranging 2 to 4 feet above grade. There are no communities residing along or near project works. Failure of the embankments will release water into the Everglades and not residential or agricultural areas. The eastern levee failure would release water into the buffer area. This area used to be agricultural, but is now all state owned. All lands from Richmond Drive South and West of L-31N are owned in full by either the state of Florida or Everglades National Park(ENP). There are no agricultural activities or residences in this area. Failure of the Western levee would flood ENP, which is federally owned property. The project would function without these retention areas; it just would not meet the water quality standards for phosphorus levels in the Everglades National Park (ENP) during low canal volumes.*

- (2) The project involves the use of innovative materials or techniques.

*This project will utilize methods and procedures used by the Corps of Engineers on other similar works.*

- (3) The project design lacks redundancy.

*The concept of redundancy is not applicable to the water quality features associated with project works. The embankments will form above-ground impoundment cells, for which slope stability is the primary failure mode. However, a breach does not pose a significant threat to human life or adverse social-economic impacts and redundancy is not warranted.*

- (4) The project has unique construction sequencing or a reduced or overlapping design construction schedule.

*C-111 Contract 8 does not have or pose unique sequencing or a reduced or overlapping design. C-111 Contract 8 construction methods and procedures have been used successfully by the Corps of Engineers on other similar works. This project is non-complex, routine earthwork construction.*

## 6. MODEL CERTIFICATION AND APPROVAL

This project does not use any engineering models that have not been approved for use by USACE.

**7. BUDGET AND SCHEDULE**

Please budget for the following disciplines to review the plans and specifications.

Review Discipline	Reviews	Total Days	Cost/Day	Total Budget
ATRT Leader	1	3	\$ 1,000	\$ 3,000
Civil	1	3	\$ 1,000	\$ 3,000
Geotech	1	3	\$ 1,000	\$ 3,000
Hydraulics	1	1	\$ 1,000	\$ 1,000
Hydro-Modeling	1	2	\$ 1,000	\$ 2,000
NEPA	1	2	\$ 1,000	\$ 2,000
			<b>TOTAL</b>	<b>\$ 14,000</b>

The schedule is below:

Description	Work Days	Start Date	Finish Date
ATR/Sponsor Review	32d	Fri 3/9/12	Mon 4/23/12
Reproduce draft P&S\IDDR\DA for ATR/sponsor review	2d	Fri 3/9/12	Mon 3/12/12
ATR/sponsor Review	10d	Tue 3/13/12	Mon 3/26/12
ATR/sponsor Review Comment Evaluation	5d	Tue 3/27/12	Mon 4/2/12
ATR/sponsor Review Comment Backcheck / Close	5d	Tue 4/3/12	Mon 4/9/12
Incorporate ATR/sponsor comments	10d	Tue 4/10/12	Mon 4/23/12

**Project Milestones.**

Completion Submittal – scheduled for March 9, 2012

District Quality Control Certification – scheduled for March 6, 2012 to be complete  
 BCOE Certification-schedule for July 3, 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 QM Process:



Project Information:



Project Manager:



South Atlantic Division,

