



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

8 MAY 2013

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

SUBJECT: Approval of the Review Plan for Everglades Restoration Strategies L-8 Flow Equalization Basin, L-8 Divide Structure, and S-375 Expansion in STA1E, Palm Beach County, Florida

1. References:

a. Memorandum, CESAJ-EN-QC, 17 April 2013, CESAJ-EN Endorsement of Review Plan for Everglades Restoration Strategies L-8 Flow Equalization Basin, L-8 Divide Structure, and S-375 Expansion in STA1E, Palm Beach County, Florida (Enclosure).

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

2. The enclosed Review Plan for the Everglades Restoration Strategies L-8 Flow Equalization Basin, L-8 Divide Structure, and S-375 Expansion in STA1E prepared by the South Florida Water Management District and endorsed by Jacksonville District and submitted for approval by reference 1.a, has been reviewed by this office and is approved in accordance with reference 1.b above.

3. We concur with the conclusion in the Review Plan and the District Chief of Engineering endorsement that a Type II Independent External Peer Review (IEPR) is not required on this Restoration Strategies project. The primary basis for our concurrence is that the failure or loss of the features associated with this Restoration Strategies project do 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. Subsequent significant changes to this Review Plan, should they become necessary, will require new written approval from this office.

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

DONALD E. JACKSON, JR.
COL, EN
Commanding

Encl



REPLY TO
ATTENTION OF

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

CESAJ-EN-QC

17 April 2013

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

SUBJECT: CESAJ-EN Endorsement of Review Plan for Everglades Restoration Strategies L-8 Flow Equalization Basin, L-8 Divide Structure, and S-375 Expansion in STA1E, Palm Beach County, Florida

1. CESAJ-EN has reviewed the Review Plan for Everglades Restoration Strategies L-8 Flow Equalization Basin, L-8 Divide Structure, and S-375 Expansion in STA1E (dated April 2013), and concurs that this Review Plan provides for an adequate level of peer review and complies with the review policy requirements outlined in EC 1165-2-214 "Civil Works Review", dated 15 December 2012. 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 1165-2-214 Risk Informed Decision Process as presented in the Review Plan. Approval of this plan is for the Plans and Specifications and DDR Implementation Documents. It is my understanding that non-substantive changes to this Review Plan, should they become necessary, are authorized by CESAD.

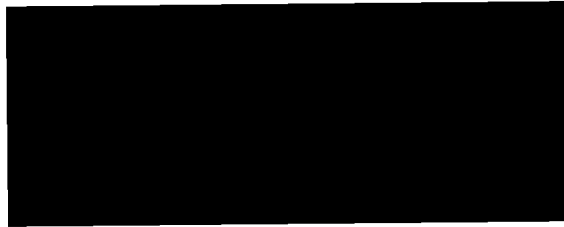
2. This Review Plan was prepared by the South Florida Water Management District (SFWMD) in association with a request for modification to the Central and Southern Florida Project under the authority of 33 USC 408. It has been reviewed by Jacksonville District and the South Atlantic Division, and all review comments have been satisfactorily resolved.

3. This project is currently being designed by an external A-E firm under contract to the SFWMD. The A-E will perform Quality Checks and internal QC on all products they develop. This Review Plan outlines three levels of review: A-E Discipline Quality Control, South Florida Water Management District Quality Assurance, and Agency Technical Review. The Review Plan defines the scope and level of the Jacksonville District's Agency Technical Review. To that end, this Review Plan identifies the most important skill sets required for each

level of review and the objectives of each review, thus setting the appropriate scale and scope of review for the Project.

4. CESAJ-EN endorses this document to be approved by the MSC Commander. Upon approval of the Review Plan, the district will post the approved Review Plan to its website and provide a link for SAD use. Names of Corps/Army employees will be withheld from the posted version, in accordance with guidance.

FOR THE COMMANDER:



Encl

REVIEW PLAN

For

EVERGLADES RESTORATION STRATEGIES

L-8 FLOW EQUALIZATION BASIN, L-8 DIVIDE STRUCTURE

AND S-375 EXPANSION IN STA-1E

Palm Beach County, Florida

Jacksonville District

April 2013

THE INFORMATION CONTAINED IN THIS REVIEW PLAN IS DISTRIBUTED SOLELY FOR THE PURPOSE OF PREDISSEMINATION PEER REVIEW UNDER APPLICABLE INFORMATION QUALITY GUIDELINES. IT DOES NOT REPRESENT AND SHOULD NOT BE CONSTRUED TO REPRESENT ANY AGENCY DETERMINATION OR POLICY.

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of review activities for the Everglades Restoration Strategies Projects (Project). The Project features include modifications to the L-8 Levee as part of the L-8 Flow Equalization Project, a divide structure (G-541) in the L-8 borrow pit and a new water control structure (G-716) adjacent to the S-375 structure in Stormwater Treatment Area (STA) 1East (STA-1E). The work is being performed by the South Florida Water Management District (SFWMD). Review activities consist of South Florida Water Management District Quality Control (SDQC), Agency Technical Review (ATR), Type II Independent External Peer Review (IEPR) and Policy and Legal Review. The project is in the Pre-Construction, Engineering and Design (PED) Phase. The related 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 in the Section 408 approval request package.

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, 31 March 2011
- (3). EC 1165-2-214, Civil Works Review Policy, 15 December 2012
- (4). SFWMD Everglades Restoration and Capital Projects Engineering Submittal Requirements, 05 November 2009
- (5). SFWMD Design Review Process, latest approved

c. Requirements. This review plan was developed in accordance with EC 1165-2-214, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R). The EC provides the procedures for ensuring the quality and credibility of USACE decision, implementation, and operations and maintenance documents and other work products. The EC outlines four levels of review: District Quality Control, Agency Technical Review, Independent External Peer Review and Policy and Legal Review. Refer to the EC for the definitions and procedures for the four levels of review.

d. Review Plan Approval and Updates. The South Atlantic Division Commander is responsible for approving this Review Plan with an endorsement by the Jacksonville District (CESAJ). The Commander's approval reflects vertical team input (involving CESAJ and MSC) as to the appropriate scope and level of review. The Review Plan is a living document and may change as the project progresses. The SFWMD is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC Commander approval are documented in Attachment "A". Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, will be posted on the Jacksonville District's webpage. The latest Review Plan will be provided to the RMO and home MSC.

e. Review Management Organization (RMO). The Review Management Organization (RMO) is the South Atlantic Division. RMO will also provide technical oversight for the ATR. In addition, the RMO, in cooperation of the vertical team, the appropriate PCXs, and the division will approve the ATR team members from within the Jacksonville District office staff.

2. PROJECT INFORMATION AND BACKGROUND

L-8 Reservoir and Divide Structure

Existing Features: The L-8 Levee is located in Palm Beach County, FL. The levee and associated borrow pit were designed and built by the USACE in the 1950's and connects Lake Okeechobee to the C-51 Canal through Culvert 10-A in the Herbert Hoover Dike. The L-8 Canal (called a borrow pit in the Detailed Design Report) has the capacity to deliver up to 1,000 cfs of runoff to Lake Okeechobee at the north end and 2,000 cfs (through S-5AS) to the Arthur R. Marshall Loxahatchee National Wildlife Refuge (Refuge) at the south end. According to the Detailed Design Report (DDR) (Part 1, Supplement 4), the levee was built on both sides of the borrow pit to protect agricultural interests in the area. Since then, the areas to the east have been developed for low density residential use. The South Florida Water Management District (SFWMD) acquired the L-8 Reservoir, located near the southern end of the levee system, (Figure 1) through a Public-Private Partnership for use in environmental restoration. The L-8 Levee was designed to a crest elevation of 24.0' NGVD with 3H:1V side slopes. According to the DDR and as-built drawings, the levee was built with a peat core and the final crest elevation was 26.5' NGVD.



Figure 1: L-8 Reservoir

The L-8 Canal discharges at the south end into the L-12 Canal through S-5AW, C-51 Canal through S-5AE, and STA-1W, STA-1E and Water Conservation Area 1 via the STA 1 Inflow Basin through S-5AS,

depending on established operating criteria (Figure 2). According to DBHYDRO, the SFWMD's database of recorded field information, the stages at the south end of the L-8 system ranged from a low of about 8' NGVD (1969) to a high of 19.5' NGVD (2012). Table 7-1 of Lake Okeechobee Regulation Schedule 2008 Water Control Plan states the optimum water control elevation for the L-8 Canal is between 12' NGVD and 14' NGVD. Based on DBHydro data for 2001 to 2012 (Table 1), the Normal Operating ranges for the L-8 Canal are between El. 12' NGVD and El. 15' NGVD (Table 1), however, the maximum design range extends to El. 18' NGVD.

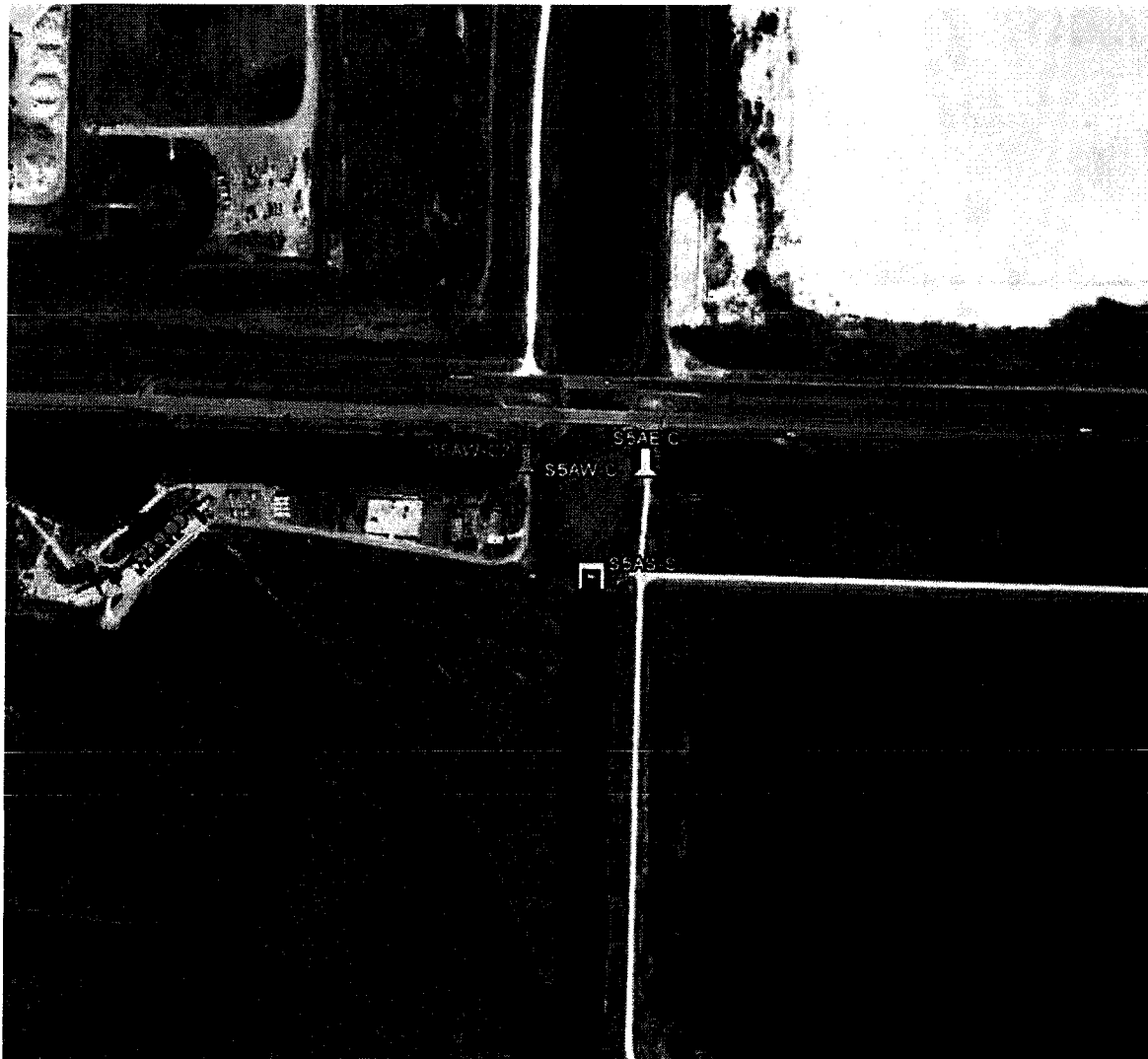


Figure 2: Intersection of L-8 Canal (North-South), L-12 (West) and C-51 Canal (East)

Table 1: Duration Curve For DBKEY OT897
For Period 20010416 to 20121227

Stage (ft., NGVD)	% Exceedance
16.900	1.01%
16.026	5.01%
15.555	10.01%
14.860	20.00%
13.538	50.00%
12.102	80.02%
11.601	90.01%
10.905	95.02%
9.441	99.02%
9.343	99.27%

Proposed Features: As part of the SFWMD’s Restoration Strategies Regional Water Quality Plan, which was developed in collaboration with the US Environmental Protection Agency and the Florida Department of Environmental Protection, the SFWMD plans to use the L-8 Reservoir to store excess stormwater runoff from the S-5A and C-51W basins and release it, as needed, to improve the intake flow patterns of STA-1E and STA-1W, thereby improving their efficiencies in removing phosphorus prior to discharge to the Water Conservation Areas. The SFWMD has entered into a Design-Build contract with an outside firm to build an intake structure through the L-8 Levee into the Reservoir, a discharge pump station and associated culverts from the Reservoir back through the Levee to the L-8 borrow pit and associated Reservoir improvements.

Intake Structure

The intake structure (Figures 3 and 4) will be a triple gated concrete control structure set on State lands west of the L-8 Levee. The Design-Build Team proposes to reconfigure the L-8 Levee at this location in such a way as to create an open channel from the L-8 Canal to the control structure. The L-8 Levee would be rebuilt on both sides of the intake channel in order to connect to the new control structure. Construction of the levee would be to current USACE and District design standards for levee construction, an improvement over the existing levee construction. The existing L-8 Levee will not be breached or degraded until the new levee is fully in place and capable of providing the same level of protection as the existing levee. This would minimize or eliminate any risk associated with performing this work. The intake structure will be designed to a capacity of 3,000 cfs. This volume of water would be obtained from the C-51 and L-12 Canals (See Figure 10) that would be pumped upstream to the Reservoir intake structure from the S-5A Pump Station or S-319 Pump Station (through S-375). Flow from the S-5A Pump Station currently flows into the STA-1 Inflow Basin area between the pump station and WCA-1, S-319 flow currently goes through STA-1E. By expanding the S-375 structure capacity, it will allow the full capacity of S-319 to flow through S-375 and out G-311 to the STA-1 Inflow Basin. A review of the S-5AS as-builts shows that the structure is capable of supporting 2-way flow through the structure. The proposed operations utilize this capability by allowing discharges from S-5A and S-319 Pump Stations to stage up in the Inflow Basin and flow back north through S-5AS into the L-8 Canal. The proposed divide structure in the L-8 Canal would be closed and these flows from S-5A would enter the L-8 Reservoir through the intake structure. During these operations, the L-8 Canal would not vary outside the maximum operating ranges for the L-8 Canal. Both sides of the intake canal would be lined with riprap bank stabilization, another improvement over the existing condition in the L-8 Canal.

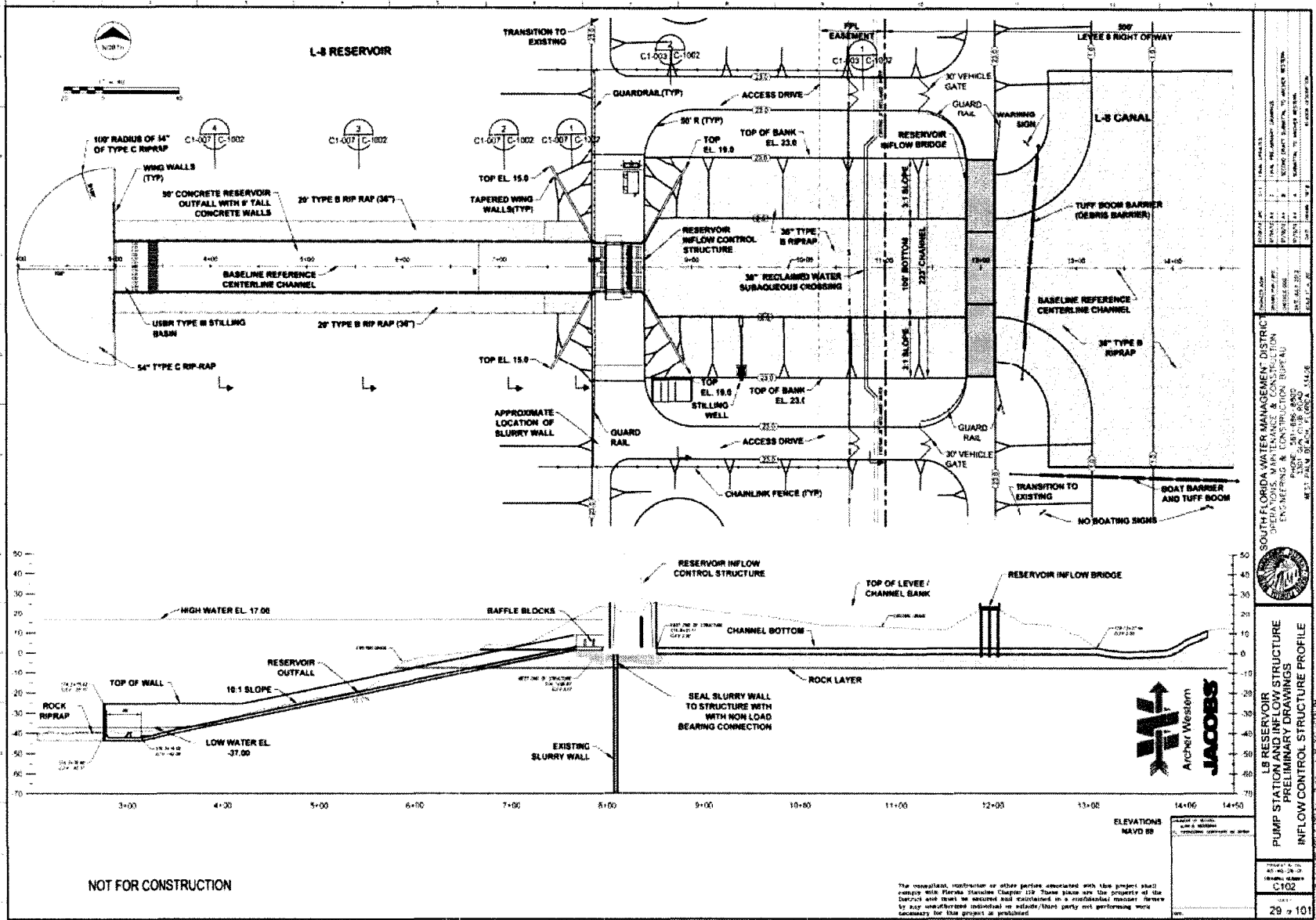


Figure 3: Intake Structure Plan and Profile

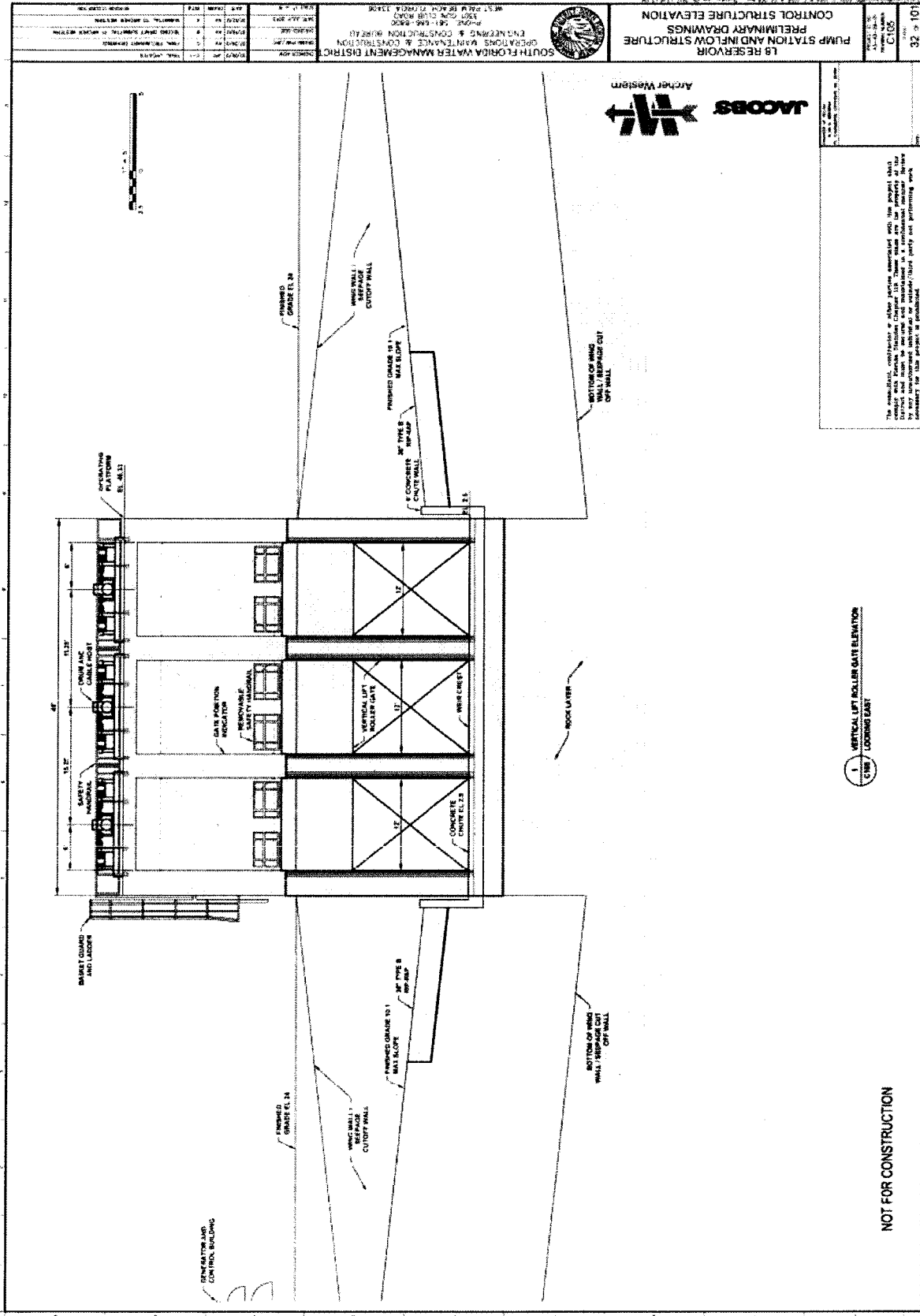


Figure 4: Intake Structure Profile

Discharge Structure

The Reservoir discharge structure is proposed to be a pump station within the Reservoir with six (6) discharge culverts through the L-8 Levee (Figures 5 and 6). Construction of the culverts will be performed only after installing a temporary cofferdam or sheet pile wall at the same protection level as the existing levee so that the risk of breach is minimized or eliminated. The anticipated discharge is a minimum of 450 cfs (when the reservoir is at its lowest level and the pump station is at its greatest head differential) back into the canal. The culverts will be constructed to current USACE and SFWMD design standards, similar to other culvert installations that have been approved by the USACE under separate minor Section 408 action. As part of the installation of the new discharge structure, an existing temporary discharge pump station, previously installed by SFWMD, will be removed and the levee in that location will be restored to its original as-built condition.

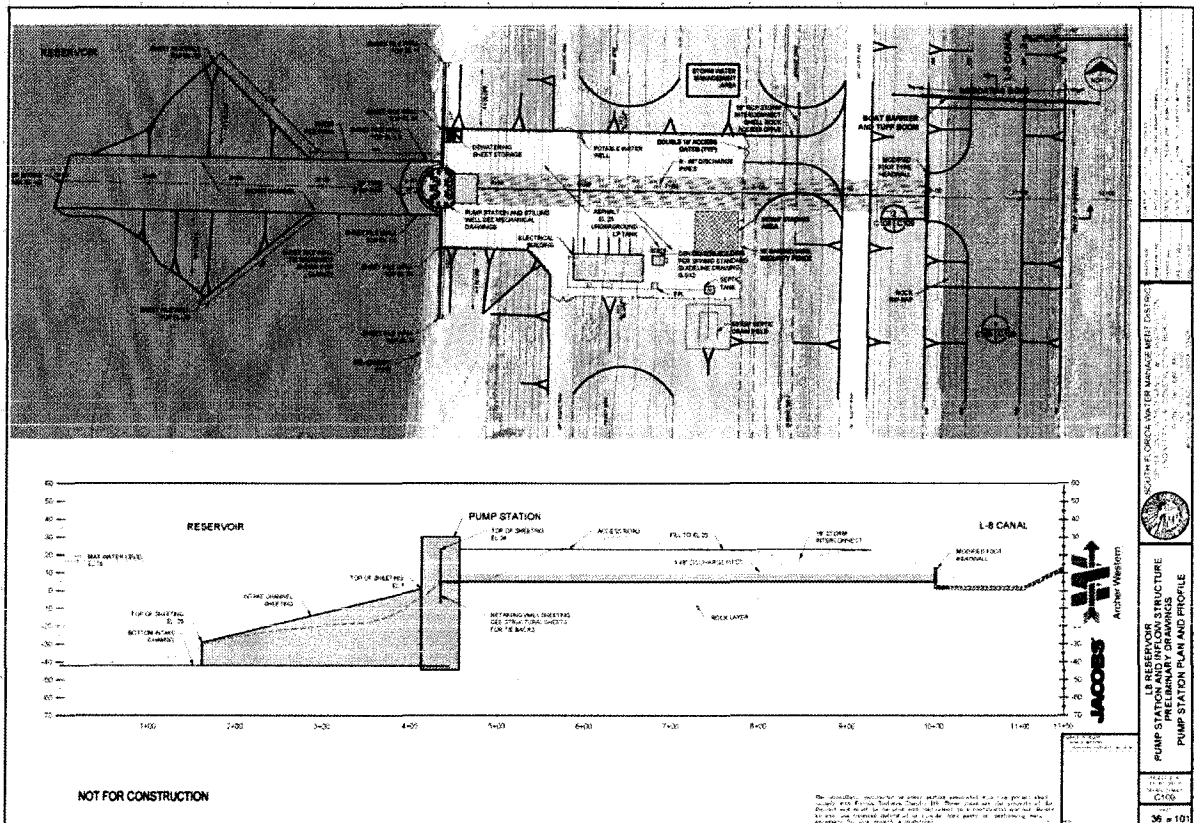


Figure 5: Discharge Structure Plan and Profile

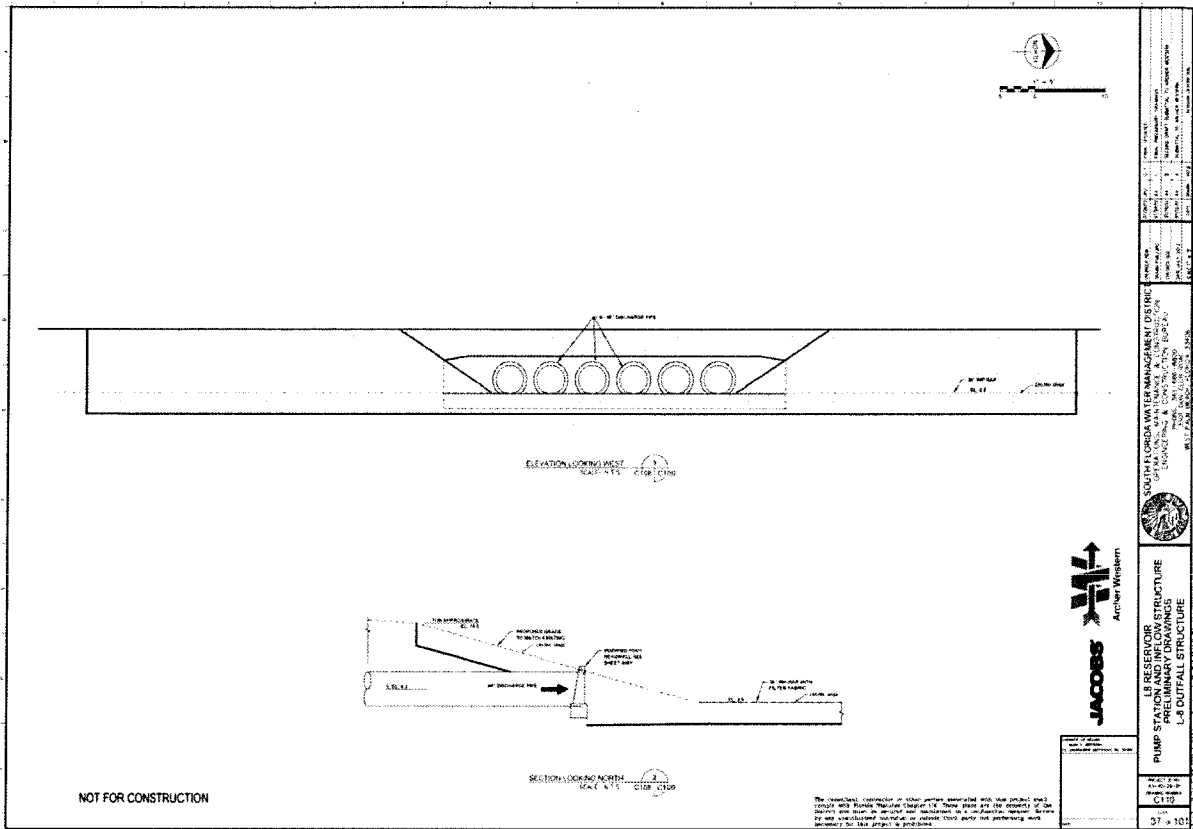


Figure 6: Discharge Structure Culverts Section

Divide Structure

In order to more efficiently transfer water from the S-5A Pump Station to the Reservoir, the District is planning to design and construct a gated, concrete divide structure in the L-8 Canal. The divide structure would be built entirely in the L-8 Canal and would not alter the existing L-8 Levee. The structure would be located approximately 1,000 feet upstream of the new pump station discharge out of the Reservoir. The future design of the divide structure will allow for stages south of the divide structure to be elevated within the maximum operating ranges of the L-8 Canal in order to move water into the Reservoir, from the STA-1 Inflow Basin. The same holds true for moving water south, from the Reservoir, into the STA-1 Inflow Basin. The divide structure would close such that stages to the north would remain unaffected or improved (moderated) while stages to the south would increase with the pumped discharge from the Reservoir into the L-8, ultimately reaching the STA-1 Inflow Basin. However, the Reservoir project can function without the divide structure. The divide structure would not alter the top and bottom ranges of stage and discharge for the L-8 Canal. All operations of the divide structure would remain within these set limits and would not create additional risk to the levee system. The divide structure would be designed to have minimal head loss through the structure when fully open so as to make it as hydraulically invisible as economically feasible. The SFWMD has constructed several other similar divide structures with great success (Figures 7, 8 and 9).

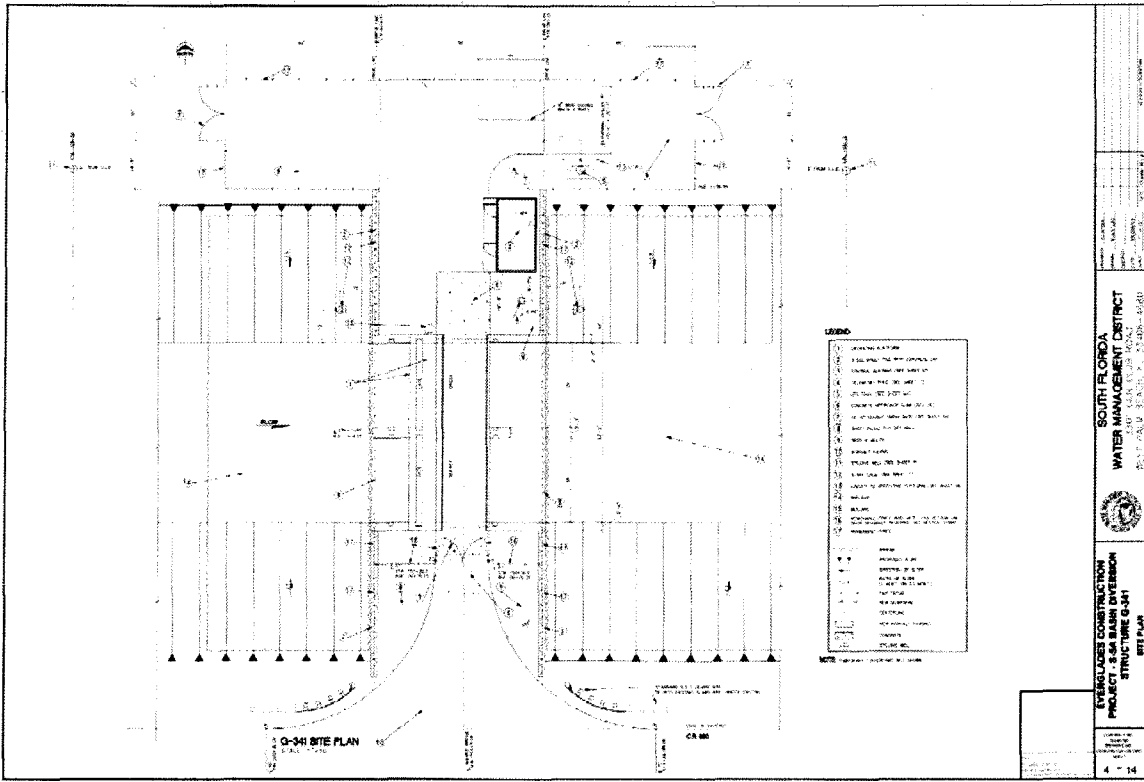


Figure 7: Sample Divide Structure Plan

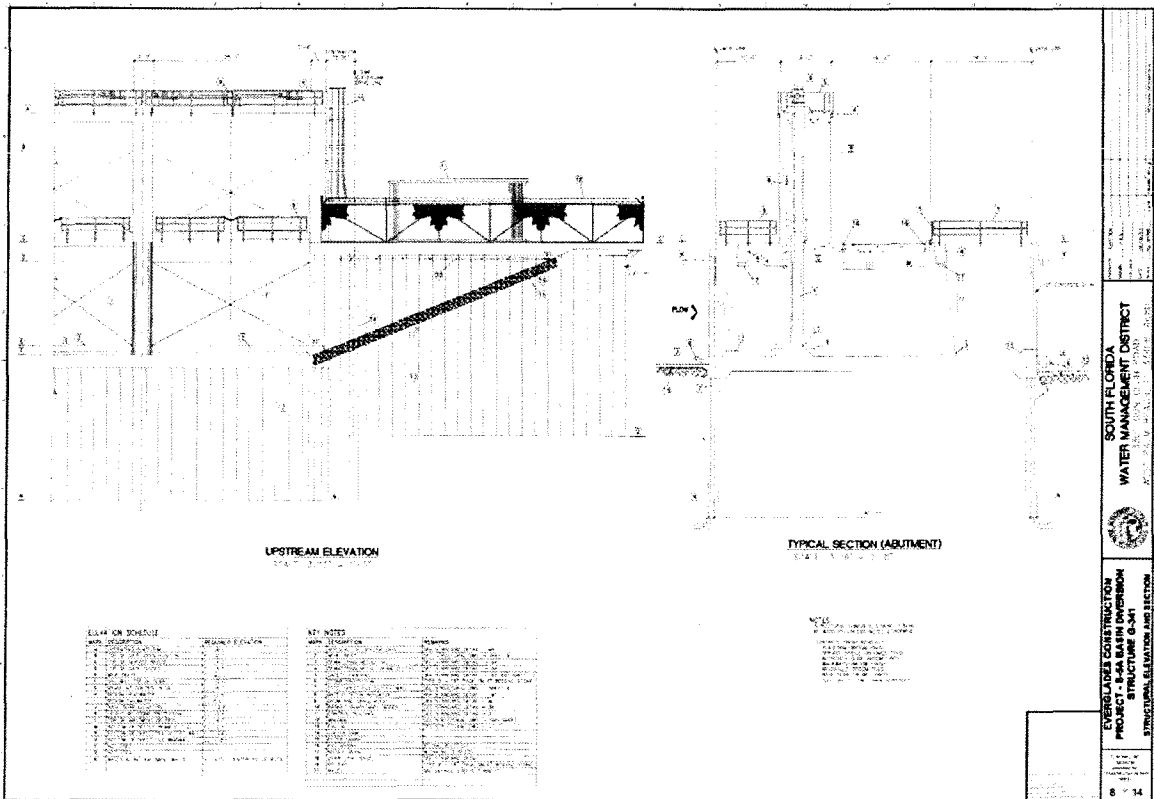


Figure 8: Sample Divide Structure Profile

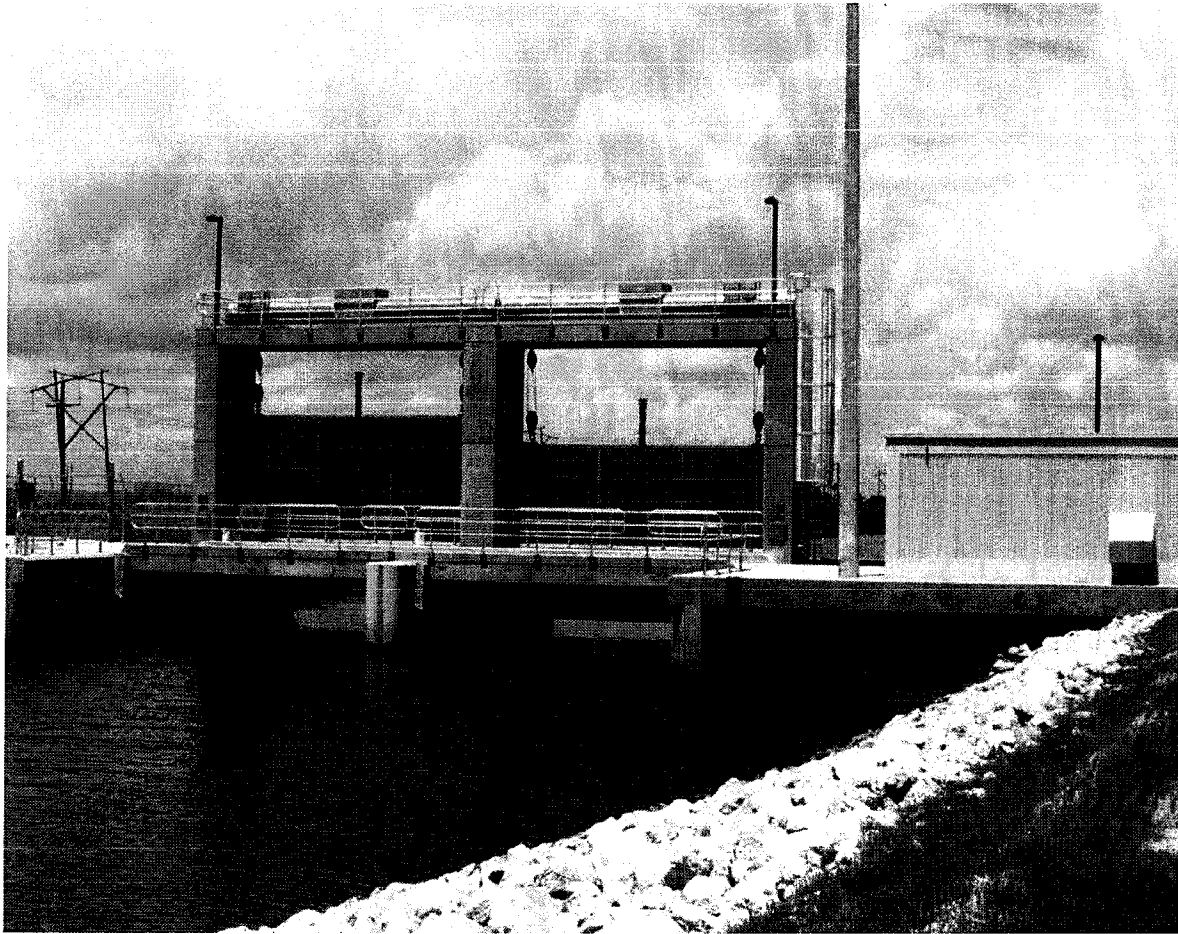


Figure 9: Sample Divide Structure

S-375 Expansion (G-716)

Existing Features: Stormwater Treatment Area 1 East (STA-1E), located in Palm Beach County, FL on the northeast side of WCA-1, is a 6,178 acre area designed to treat surface water, that once flowed to the Lake Worth Lagoon, prior to discharge to the Everglades (Figure 10). STA-1E was built by the USACE and was deemed substantially complete in 2004. STA-1E is divided into an East Distribution Cell (EDC) and a West Distribution Cell (WDC). S-375 was constructed between these two cells to transfer water from the east to the west as needed. S-375 is a triple gated, concrete divide structure capable of passing just over 1,500 cfs at two (2) feet of head when fully operational. S-375 is situated in an internal levee, IL-8, within STA-1E.



Figure 10: STA-1E with S-375

Proposed Features: The District operates STA-1E based on established operating criteria. As part of the District's desire to effectively transfer more water to the STA-1 Inflow Basin for routing to the L-8 Reservoir, additional capacity is needed in the S-375 structure over what was originally constructed by the USACE. The District proposes to increase the capacity of S-375 by adding new gated spillways, or similar water control features, adjacent to the existing structure. The flow through S-375 is anticipated to double once the new addition is constructed. However, this will not affect the overall discharge or operational parameters of the STA as a whole. It will allow SFWMD Operations to better distribute waters between the Distribution Cells and transfer excess water to the STA-1 Inflow Basin, making the entire STA work more efficiently towards lower phosphorus level goals. The existing S-375 Structure is not anticipated to be taken out of service to perform the work and current operational protocols for the STA will not be affected during construction. The area where the new structure is proposed to be

built is in a non-treatment area of the STA so construction will not reduce the treatment ability of this area. The work will be on the north side of S-375 through the IL-8 Levee (Figure 11) and will be designed consistent with USACE and SFWMD design standards.

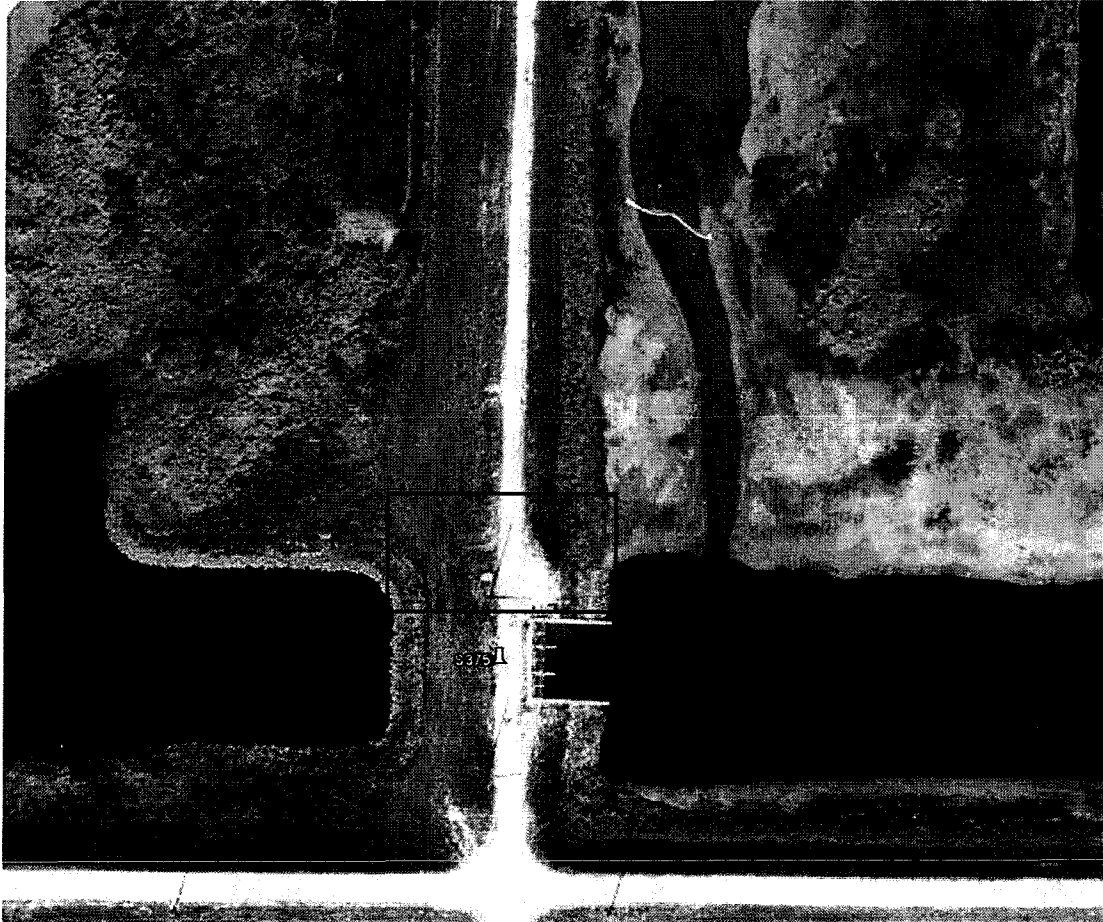


Figure 11: Close-up of S-375 with proposed expansion

Public Participation

The Jacksonville District Corporate Communications Office continually keeps the affected public informed on Jacksonville District projects and activities. There are no planned activities, public participation meetings or workshops that could generate issues needing provision to review teams. The project review plan will be posted on the Jacksonville District Internet. Any comments or questions regarding the review plan will be addressed by the Jacksonville District or the SFWMD.

In-Kind-Contributions by Project Sponsor

This Project is being conducted entirely by the SFWMD as the Local Sponsor for the Central and Southern Florida (C&SF) System. The work is being performed at no additional cost to the USACE.

Cost Engineering Directory of Expertise (DX) Review And Certification

The project cost documents will not require external peer review or certification. No additional cost review will be needed by the Cost Engineering Directory of Expertise (DX) for the implementation documents.

3. SFWMD QUALITY CONTROL

The SFWMD Design Review process utilizes the DrChecks system to capture all comments from various disciplines and enables proper closure of technical issues. The SFWMD's Project Development Section establishes the Design Review Team (DRT) for the project. The DRT may consist of representatives from the SFWMD, USACE, Florida Department of Environmental Protection (FDEP), US Fish and Wildlife Service (USFWS), Florida Fish and Wildlife Conservation Commission (FFWCC), local agencies and in many cases, independent consultants to supplement SFWMD staff.

As part of the Design Quality Control process, the SFWMD will require the AE deliverables be reviewed by the Designer's Quality Control (QC) Officer prior to submittal for the SFWMD DRT review (QA). The QC officer shall not be directly involved in the preparation of the plans and specifications, nor have project management responsibilities of the implementation documents. The Consultant's QC officer shall be charged with the responsibility of the implementation and documentation of their QC activities. The Design Submittal shall include from the AE a signed copy of the SFWMD's Quality Certificate of Compliance (see example on next page) with each Deliverable signifying that the internal QC was followed.

The SFWMD has utilized full service consulting firms to provide engineering discipline expertise to augment the SFWMD staff QA review efforts for technical design deliverables, and will be doing so with the L-8 FEB component. These services are typically specific to the fields of architecture, electrical, I&C, geology, geotechnical, hydraulics, hydrology, HVAC, plumbing, fire, mechanical, and structures and involve reviewing the design for conformance to industry standards, checking the calculations, etc. SFWMD staff will also perform QA review activities associated with checking deliverables for compliance with SFWMD engineering guidelines, level of risk associated with the work and operations and maintenance considerations. Project modeling tasks and deliverables will be reviewed and coordinated by the SFWMD's Project Development Section and the Hydrologic and Environmental Systems Modeling Section. The primary objectives of the DRT are to confirm that:

1. The engineering concepts are valid.
2. The recommended plan is feasible and will be safe and functional.
3. A reasonable opinion of probable construction cost estimate has been developed in accordance with Operation, Maintenance and Construction Engineering Bureau Procedures for Development of Opinions of Construction Costs (see Design Criteria Memorandum 7).
4. The approach to the engineering analysis is sound.
5. The submittal complies with SFWMD engineering submittal requirements.
6. The submittal complies with accepted engineering practice within the SFWMD and applicable Operation, Maintenance and Construction Engineering Bureau Design Criteria Memoranda (DCM) and Comprehensive Everglades Restoration Plan (CERP) Guidance Memoranda (CGM).



SOUTH FLORIDA WATER MANAGEMENT DISTRICT
Quality Certificate of Compliance

Project Name	Contract No./Work Order No.	Date
Deliverable Description		

_____ has completed preparation of the above referenced

Consultant Name

deliverable and herein submits it to the South Florida Water Management District (SFWMD) in accordance with the requirements of the referenced Work Order. It has been verified that this submittal includes all required components of the deliverable. Where required components are not submitted, an explanation and schedule for submitting the missing component(s) has been provided. Notice is hereby given that all quality control activities, appropriate to the level of risk and complexity inherent in the Project, have been completed. Compliance with established procedures as documented in the Project's Quality Control Plan submitted to the SFWMD has been verified.

This certification in no way relieves/replaces/changes/impacts/mitigates the contractual requirements to follow the consultant's own Quality Assurance/Quality Control (QA/QC) processes and procedures.

Consultant Quality Manager (Print)	Consultant Quality Manager (Signature)	Date
Consultant Project Manager (Print)	Consultant Project Manager (Signature)	Date

The reviews performed by the DRT shall be based on:

- SFWMD Standards for Construction of Water Resource Facilities – Design Details and Design Guidelines
- SFWMD Major Pumping Station Engineering Guidelines
- Operation, Maintenance and Construction Engineering Bureau Design Criteria Memoranda
- Operation, Maintenance and Construction Engineering Bureau Submittal Requirements
- CERP Guidance Memoranda
- Applicable US Army Corps of Engineers requirements
- Applicable Florida Department of Transportation (FDOT) Standards
- Other Applicable National and Industry Design Codes

The intent of each Technical Review is to identify fatal flaws to the design or items that are in conflict with SFWMD or other applicable standards and guidelines. The DRT members are discouraged from commenting on items that are “designer preference” in nature. The Technical Review shall include an evaluation of the level of completion for the respective submittal according to the Detailed Description of Plan Submittal Requirements (see Operation, Maintenance and Construction Engineering Bureau Submittal Requirements).

Following completion of the Technical Review process, a Technical Review Briefing (TRB) is conducted where the project submittal is summarized to SFWMD Management staff. The SFWMD Project Manager presents the project, including any changes from the previous submittal, results of the Technical Review and how issues were resolved, cost estimate and estimated construction schedule, procurement strategy and planned path forward. Once all reviews TRBs are completed, a Certificate of Technical Review Completion form is prepared and signed by the appropriate parties signifying that the reviews were done appropriate to the level of risk and complexity inherent in the Project. During the independent technical review, compliance with established policy, principles and procedures, utilizing justified and valid assumptions, were verified including a review of assumptions; methods, procedures, and material used in analyses; alternatives evaluated; the appropriateness of data used and level of data obtained; constructability and operability; reasonableness of the results, including whether the product meets the customer’s needs; and consistency with law and existing SFWMD and USACE policies. The Certificate includes a statement that the independent technical review was accomplished by an independent team made up of personnel from the SFWMD, USACE, other agencies and/or external consultant staff.

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 1165-2-214 and ER 1110-1-12. An ATR will be performed on the Intermediate and Final Plans and Specifications for these projects.

Because these projects are being designed and constructed by the local sponsor and have not involved USACE-CESAJ staff in the design or previous reviews, the ATR will be conducted by individuals and organizations that are internal to the Jacksonville District. The ATR Team Leader is a Corps of Engineers employee external to South Atlantic Division. The required disciplines and experience are described below. The projects are currently being funded by the SFWMD and cost share is not anticipated. Therefore, Cost Estimation by the USACE is not required.

ATR comments are documented in the DrCheckssm model review documentation database. DrCheckssm is a module in the ProjNetsm suite of tools developed and operated at ERDC-CERL (www.projnet.org).

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;
- Disclose the names of the reviewers, their organization affiliations, and include a short paragraph on both the credentials and relevant expertise of each reviewer;
- Include the charge to the reviewer;
- Describe the nature of their review and their findings and conclusions; including if the comment is considered to be an error, omission, oversight, conflicts within the documents, coordination issues, QA, discrepancies, deficiencies, etc.
- Identify and summarize each unresolved issues (if any); and

Include a verbatim copy of each reviewers comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

b. ATR Disciplines. As stipulated in ER 1110-1-12, ATR members will be sought from the following sources: appointed SME or senior level experts from the responsible district; 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.

Hydrogeology and Geology. The team member will review subsurface geologic data and interpretations to support embankment and foundation design and integrity. The team member also will review hydrogeologic data and interpretations to support hydrologic and seepage modeling, should have a working knowledge of the models used, and an evaluation of characteristics of the existing levee. The team member should possess Professional Geologist certification; have a minimum of 10 years professional experience, especially focused in South Florida applications. Experience with the USACE Levee Safety Program is desired.

Water Management (Project Operating Manual). The team member should have 10 or more years experience in water resources engineering with heavy emphasis on water management. Experience should include preparation and review of water management operating criteria for reservoir/impoundment projects and the Central & Southern Florida system, and knowledge of real-time water control activities based on approved water control plans and regulation schedules at multi-purpose water resource projects. The team member should also be familiar with the regulations concerning the format and content of water control plans and project operating manuals.

Hydrology and Hydraulics. One team member will be required to review the hydraulic design and hydrologic-hydraulic modeling. The team member 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 flood routing methodologies in reservoirs and channels, seepage flow processes, hydrologic-hydraulic modeling, surface water-groundwater interaction modeling, wind/wave analysis, and performance of risk assessments is required. Knowledge on hydrologic and hydraulic analyses in terms of water quantity and quality in a water resources system is expected and should have a working knowledge of the models used. Experience with the USACE Levee Safety Program is desired.

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. Should have a working knowledge of the models used in the design. Experience with the USACE Levee Safety Program is desired.

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, components and instrumentation and control. Experience with the USACE Levee Safety Program is desired.

Structural Engineering. The team member should be a registered professional engineer and have 10 or more years experience in structural engineering and should have a working knowledge of the models used in the design. Experience needs to include the engineering and design of flood risk management project features such as pump stations, conveyance culverts, and spillways. Experience with the USACE Levee Safety Program is desired.

Civil Engineering. The team member should be a registered professional engineer and have 7 or more years experience with civil/site work projects to include embankments, roads and highways, relocations, paving and drainage.

NEPA Compliance. The team member should have 7 or more years experience in NEPA compliance activities and preparation of Environmental Assessments and Environmental Impact Statements for complex civil/site work projects.

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. The ATR Team Leader should have experience with the USACE Levee Safety Program. ATR Team Leader can also serve as one of the review disciplines. Professional registration is as a requirement for the ATR leader.

Scheduled Review	Review Team Members Required										
	ATR/IEPR Lead	Water Manager/	NEPA Compliance	H&H Engineer	Structural Engineer	Geotechnical Engineer	Civil Engineer	Geologist	Mechanical Eng.	Electrical Eng.	Real Estate
ATR – L-8 FEB	X	X	X	X	X	X	X	X	X	X	X
ATR – L-8 Divide	X	X	X	X	X	X	X	X			X
ATR – S-375 Expansion	X	X	X	X	X	X	X	X			X

5. INDEPENDENT EXTERNAL PEER REVIEW (WRDA 2007 Section 2035 Safety Assurance Review)

a. General. EC 1165-2-214 provides implementation guidance for both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114). Sections 2034 and 2035 call for peer review procedures for both the Planning and the Design and Construction (PED) phases. The EC terms the Section 2034 Independent Peer Review, Type I Independent External Peer Review and the Section 2035 Safety Assurance Review, Type II Independent External Peer Review.

b. Type I Independent External Peer Review (IEPR) Determination (Section 2034). Type I IEPR is generally for decision documents. No decision documents or other applicable Section 2034 products are addressed by this Review Plan. Therefore Type I IEPR is not applicable to the implementation documents addressed by this Review Plan.

c. Type II Independent External Peer Review (IEPR). A Type II IEPR determination is based on the responses to the questions below. Based on the responses relative to the Restoration Strategies projects, a Type II IEPR is not applicable.

(1) Does it include any design (structural, mechanical, hydraulic, etc)?

Response: Yes, the projects include design of a short channel, concrete control structures and a pump station with associated civil, mechanical and electrical works.

(2) Does it evaluate alternatives?

Response: No. The alternatives had previously been vetted by the SFWMD and final design features are already determined.

(3) Does it include a recommendation?

Response: No. The projects' features are already determined and are beyond the recommendation phase.

(4) Does it have a formal cost estimate?

Response: Yes. There are current working estimate for the L-8 Divide Structure and S-375 Expansion (G-716). The L-8 FEB is already under contract as a Design-Build with a fixed price.

(5) Does it have or will it require a NEPA document?

Response: An Environmental Assessment will be prepared by the SFWMD. If any additional NEPA documents are required, they will be coordinated with the USACE's Regulatory Branch.

(6) Does it impact a structure or feature of a structure whose performance involves potential life safety risks?

Response: The work and proposed operation is within existing operational limits and design parameters of the existing L-8 system. The level of protection from these projects is consistent with the originally federally authorized project. The L-8 FEB component is a below ground reservoir that is a former mining pit which is surrounded by a privacy levee. This levee height exceeds the design elevations of the L-8 levee and will function as a secondary containment in the unlikely event of a breach. The chance of breach is negligible as water elevations will not reach a stage where breach is an issue. The normal operating range of the L-8 borrow pit are between 12 and 14 feet NGVD, which is within the authorized operating limits of the L-8 system and the Design Levee Grade of the L-8 Levee is at 24 feet NGVD. The maximum recorded stage in this reach of the L-8 was 19.7' NGVD based on an instantaneous reading in DBHydro and occurred in August 2012 as a result of Tropical Storm Isaac. Based on existing topographic data obtained by the design team, there is a substantial amount of additional spoil material that expands the footprint of the original levee beyond what the design levee is, making it much wider than originally designed. As a result, the ground elevations outside the existing mound are between 18.5' and 22' NGVD on both sides of the canal. In the unlikely event of a breach,

the water elevations capable of passing through the breach would be of negligible depth and on the order of inches. The L-8 Divide Structure is a concrete gated structure designed consistent with other structures throughout the SFWMD jurisdiction with little to no risk of failure that would result in loss of life. Given the location of the project, the area is mostly agricultural in the vicinity of the FEB with some utility power generation plant infrastructure. Any economic losses would be minimal. There is no change to the risk of significant threat to human life.

(7) What are the consequences of non-performance?

Response: Non-performance of the project will not affect the current operation of the system as these features are designed to supplement enhancements to stormwater treatment prior to discharge into the Water conservation Areas in accordance with Federal requirements. If these new components do not perform, the system will continue to operate as currently intended. However, non-performance will prevent the SFWMD from fulfilling the Federal lawsuit requirements outlined under the Restoration Strategies Program.

(8) Does it support a significant investment of public monies?

Response: Yes. The total project cost will be paid for with State funds out of the SFWMD's budget and other sources.

(9) Does it support a budget request?

Response: No Federal funds are being requested, so a budget request out of the Federal budget is not anticipated.

(10) Does it change the operation of the project?

Response: The projects will keep the existing system operating within the current upper and lower bounds. The SFWMD will operate these new features with the flexibility needed to achieve the overall project goals. Any changes to the overall Water Control Plan will be coordinated with the CESAJ's operations staff. The operation of the L-8 FEB will not affect the water levels in the L-8 Canal which range from elevation 12 to elevation 14 feet. The project itself redirects water from canal C-51 to the L-8 FEB and is different from the current water routing in the system and therefore changes the operation of the system for STA-1E and STA-1E may require a minor Water Control Plan update.

(11) Does it involve excavation, subsurface investigations (drilling or sampling or both), or placement of soil?

Response: Yes, the L-8 FEB will include excavation of an existing levee in order to install new pipes, remove existing pipes and channelize inflow water to a new control structure. The L-8 Divide Structure will include some excavation in the L-8 Borrow Pit for installation of the new structure. The new G-716 structure will include excavation of an internal berm within the STA-1E Distribution cells for construction of the new structure. Excavation and backfill will be constructed consistent with previously approved specifications and traditional construction methods.

(12) Does it affect any special features, such as cultural resources, historic properties, survey markers, etc, that should be protected or avoided?

Response: No, there are no special features that will be impacted by this work.

(13) Does it involve activities that trigger regulatory permitting such as Section 404 or stormwater/NPDES related actions?

Response: Yes, the work involved in the L-8 FEB, L-8 Divide Structure and G-716 Structure will require Section 404 and Section 10 approval.

(14) Does it involve activities that could potentially generate hazardous wastes and/or disposal of materials such as lead based paints or asbestos?

Response: No activities are expected to generate or require disposal of hazardous materials.

(15) Does it reference use of or reliance on manufacturers' engineers and specifications for items such as prefabricated buildings, playground equipment, etc?

Response: There is a possibility of requirements for manufacturers' engineers to be utilized for some minor components. These items include, but are not limited to, prefabricated control buildings and stainless steel gates. These specifications and requirements are consistent with normal construction and design activities used on previous SFWMD and USACE projects.

- (16) Does it reference reliance on local authorities for inspection/certification of utility systems like wastewater, stormwater, electrical, etc?

Response: Yes. The L-8 FEB project includes the relocation of a Palm Beach County Water Utilities water line within the Federal project right-of-way. Electrical service to the sites will be performed by the local utility company.

- (17) Is there or is there expected to be any controversy surrounding the Federal action associated with the work product?

Response: No. The work proposed is consistent with other similar projects that have been built by the SFWMD on public lands.

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

Response: The work proposed is within existing operational limits and design parameters of the existing system. The level of protection provided by these projects is not changing from the originally federally authorized project. The normal operating range for the L-8 borrow pit are between 12 and 14 feet NGVD while the Design Levee Grade for the L-8 Levee is at 24 feet NGVD. Any chance of breach would be negligible and in the unlikely event of a breach, the water depths would not approach significant levels to pose a threat to human life. Any impacts to the adjacent, mostly agricultural, lands would have minimal economic impacts as well. There is no change to the risk of significant threat to human life.

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

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

- (20) The project design lacks redundancy.

Response: The projects do not require the addition of redundant project features or redundancy design considerations beyond those required of professional certification.

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

Response: This projects construction activities do not have unique sequencing or a reduced or overlapping design. The installation sequence and schedule has been used successfully by the SFWMD on other similar works.

6. POLICY AND LEGAL COMPLIANCE

The SFWMD Office of Counsel reviews all contract actions for legal sufficiency in accordance with Florida Law and SFWMD policy. The subject implementation documents and supporting environmental documents will be reviewed for legal sufficiency prior to advertisement. Once approved, SFWMD will post the applicable documents for viewing by the public.

7. ENGINEERING MODELS UTILIZED

Engineering Models. The Restoration Strategies Projects do not use any engineering models (listed below) that have not been approved for use by USACE.

- HEC-RAS 4.1.0 and 4.2.0 Beta: 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.

- HEC-HMS 3.5: Used for rainfall analysis to determine peak rainfall and stages.
- ICPR (Interconnected Channel and Pond Routing) Model (Version 3.01): The ICPR model utilizes the SCS type rainfall-runoff parameters such as Curve Number, Time of Concentration, Directly Connected Imperviousness, Rainfall, Area, etc. to generate the hydrology of the subject watershed. The hydraulics of canals and contributing surface areas were evaluated using the ICPR model. This model is a nationally accepted hydraulic model with FEMA.
- SLOPE/W and SEEP/W (GeoStudio 2007 Suite, Version 7.20, Build 5033): SEEP/W is a two-dimensional finite element program that performs seepage analyses for hydrogeologic models and determines seepage paths, seepage flow rates, phreatic surfaces, pore water pressures, and exit gradients for steady state and transient state seepage problems. SLOPE/W performs a limit-equilibrium analysis using a method-of-slices search routine to look for the critical failure surface, which is the surface with the minimum factor of safety.
- CWALSHT, 1990: This model was developed by the USACE for the design and analysis of sheetpile walls using classical methods.

8. PROJECT DELIVERY TEAM DISCIPLINES

Discipline/Expertise
Project Manager
Cost Estimation
Procurement
Survey
Civil Site Design
Mechanical Engineering
Electrical Engineering
Structural Engineering
Environmental Engineering
Hydrogeology & Geology
Geotechnical Engineering
Reservoir Modeling
Hydraulic & Hydrologic Engineering
Water Mgt (Project Operations Manual)
NEPA Compliance
Real Estate
Field Stations – Operation and Maintenance

9. SCHEDULE AND BUDGET

Below table summarizes the ATR review start dates identified as part of the review:

L-8 FEB SCHEDULE

Start

Finish

SFWMD Preliminary Design Review	1/29/2013	3/22/2013
ATR Review	3/22/2013	6/21/2013
D/B Submittal to SFWMD	3/22/2013	3/22/2013
SFWMD QA Review	3/25/2013	3/27/2013
SFWMD Submittal to ATR Team	3/28/2013	3/28/2013
ATR Review	5/13/2013	5/31/2013
D/B Review Comment Evaluation	6/3/2013	6/14/2013
ATR Review Backcheck/Close	6/17/2013	6/21/2013
Prepare final submittal	6/21/2013	7/19/2013
SFWMD Final Design Review	7/19/2013	9/20/2013
ATR Review	9/20/2013	9/30/2013
D/B Submittal to SFWMD	9/20/2013	9/20/2013
SFWMD QA Review	9/20/2013	9/23/2013
SFWMD Submittal to ATR Team with Certification	9/23/2013	9/24/2013
ATR Review	9/25/2013	10/15/2013
D/B Review Comment Evaluation	10/15/2013	10/30/2013
ATR Review Backcheck/Close	10/30/2013	11/6/2013
QAR & ATR certification	11/6/2013	11/15/2013
QAR & ATR CERTIFIED	11/15/2013	11/22/2013

L-8 DIVIDE STRUCTURE SCHEDULE	Start	Finish
SFWMD Preliminary Design Review	7/1/2013	8/29/2013
ATR Review	8/29/2013	11/14/2013
Design Submittal to SFWMD	8/29/2013	8/29/2013
SFWMD QA Review	8/29/2013	8/30/2013
SFWMD Submittal to ATR Team	9/3/2013	9/3/2013
ATR Review	10/1/2013	10/15/2013
Design Review Comment Evaluation	10/15/2013	10/29/2013
ATR Review Backcheck/Close	10/29/2013	11/14/2013
Prepare final submittal	11/14/2013	1/2/2014
SFWMD Final Design Review	1/2/2014	2/28/2014
ATR Review	2/28/2014	4/10/2014
Design Submittal to SFWMD	2/28/2014	2/28/2014
SFWMD QA Review	2/28/2014	2/28/2014
SFWMD Submittal to ATR Team with Certification	2/28/2014	2/28/2014
ATR Review	3/3/2014	3/14/2014
Design Review Comment Evaluation	3/14/2014	3/21/2014
ATR Review Backcheck/Close	3/21/2014	3/28/2014
TRB and Review Verification Conf.	4/4/2014	4/4/2014
QAR & ATR certification	4/4/2014	4/9/2014
QAR & ATR CERTIFIED	4/10/2014	4/10/2014
Corrected Final Submittal	4/1/2014	5/15/2014

S-375 EXPANSION (G-716) SCHEDULE	Start	Finish
SFWMD Preliminary Design Review	8/1/2013	10/2/2013

ATR Review	9/26/2013	11/14/2013
Design Submittal to SFWMD	9/26/2013	9/26/2013
SFWMD QA Review	9/26/2013	9/27/2013
SFWMD Submittal to ATR Team	9/30/2013	9/30/2013
ATR Review	10/1/2013	10/15/2013
Design Review Comment Evaluation	10/15/2013	10/29/2013
ATR Review Backcheck/Close	10/29/2013	11/14/2013
Prepare final submittal	11/14/2013	3/21/2014
SFWMD Final Design Review	3/21/2014	6/5/2014
ATR Review	6/5/2014	8/8/2014
Design Submittal to SFWMD	6/5/2014	6/5/2014
SFWMD QA Review	6/5/2014	6/6/2014
SFWMD Submittal to ATR Team with Certification	6/9/2014	6/9/2014
ATR Review	6/10/2014	7/1/2014
Design Review Comment Evaluation	7/1/2014	7/15/2014
ATR Review Backcheck/Close	7/15/2014	8/1/2014
TRB and Review Verification Conf.	8/4/2014	8/4/2014
QAR & ATR certification	8/5/2014	8/7/2014
QAR & ATR CERTIFIED	8/8/2014	8/8/2014
Corrected Final Submittal	8/1/2014	9/1/2014

L-8 FEB is currently under contract with a Design-Build Team. Construction on portions of the project not directly related to the Federal Project is ongoing. The construction The L-8 Divide Structure and S-375 Expansion will be competitively bid to a construction contractor individually.

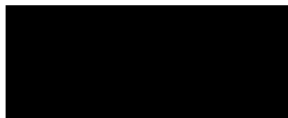
b. ATR Review Cost. The cost for ATR will range from \$45,000 to \$75,000 per review.

10. POINTS OF CONTACT

Their titles and responsibilities are listed below.

SFWMD Point of Contacts:

Section 408 Liaison:



L-8 FEB Project Manager:



L-8 Divide Structure Project Manager:



S-375 Expansion (G-716) Project Mgr:



[Redacted]

Jacksonville District POCs:

ATR Review Manager:

[Redacted]

Section 408 (PM) & (ETL):

[Redacted]

[Redacted]

ATTACHMENT A: APPROVED REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

Attachment B

“Draft” ATR Format and Certification RESTORATION STRATEGIES PROJECTS Review of Plans and Specifications (P&S), Design Report and Calculations

ATR REPORT FORMAT

- 1. Introduction:**
- 2. ATR Team Members:**
 - Hydrogeology and Geology.**
 - Water Management.**
 - Hydrology and Hydraulics.**
 - Geotechnical Engineering.**
 - Structural Engineering.**
 - Mechanical Engineering.**
 - Civil Engineering.**
 - NEPA Compliance.**
 - Real Estate Specialist.**
 - ATR Team Leader.**
- 3. ATR Objective:**
- 4. Documents Reviewed:**
- 5. Findings and Conclusions:**
- 6. Unresolved Issues:**

ATR Certification

The Agency Technical Review (ATR) has been completed for [Component] of the Restoration Strategies Project, including the design documents, plans and specifications, DDR and ECI. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-214 and ER 1110-1-12. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the SFWMD QA documentation and made the determination that the QA activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrChecks.

NAME
ATR Team Leader

Date

NAME
[Component] Project Manager

Date

NAME
SAD Review Management Office Representative

Date

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: Describe the major technical concerns and their resolution.

As noted above, all concerns resulting from the ATR of the project have been fully resolved.

NAME
Chief, Engineering Bureau
SFWMD

Date