

TE-39 - South Lake DeCade - CU 1

*Coastal Wetlands Planning,
Protection and Restoration Act*



**SOUTH LAKE DECADE
FRESHWATER INTRODUCTION
(TE-39)**

Phase II Request

*Technical Committee Meeting
December 6, 2006*

Project Overview

Project Location: Region 3, Terrebonne Basin, Terrebonne Parish, south shore of Lake Decade.

Problem: Interior marshes have suffered dramatic losses of emergent vegetation and currently consists of fragmented wetlands surrounded by open water areas. Shoreline erosion along the south shore of Lake Decade threatens to breach the existing levee that separates the lake from degraded marshes.

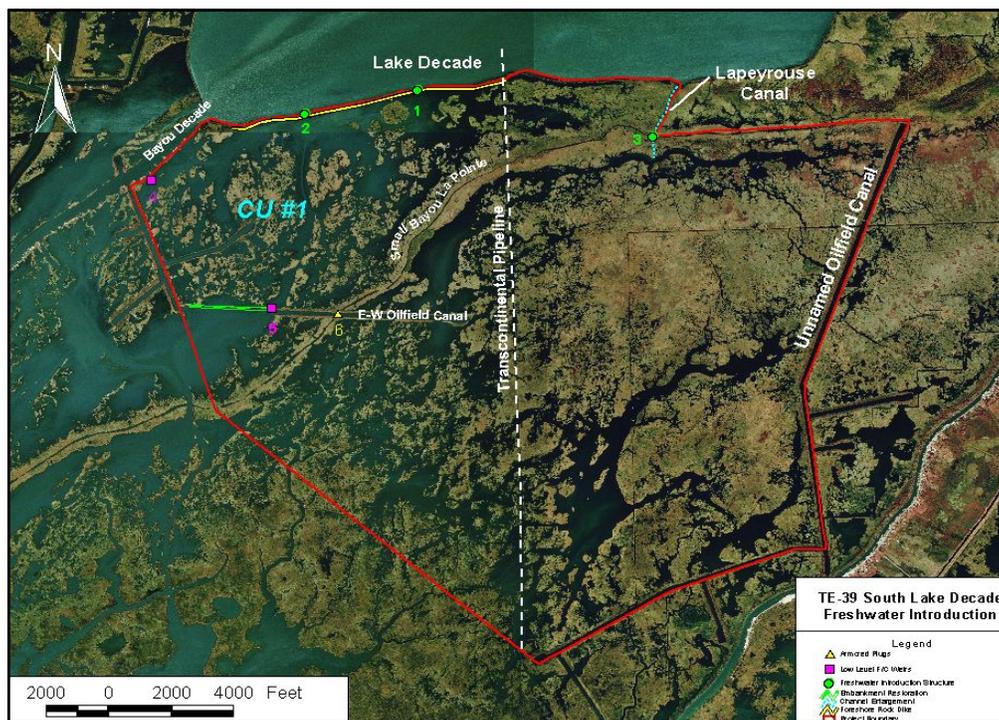
Goals:

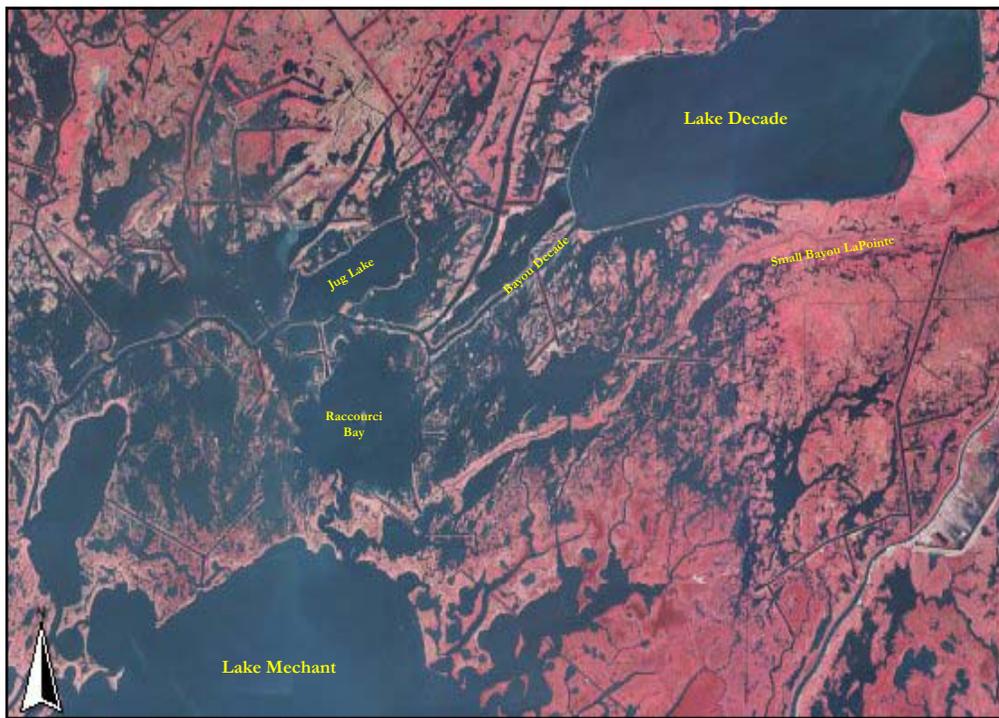
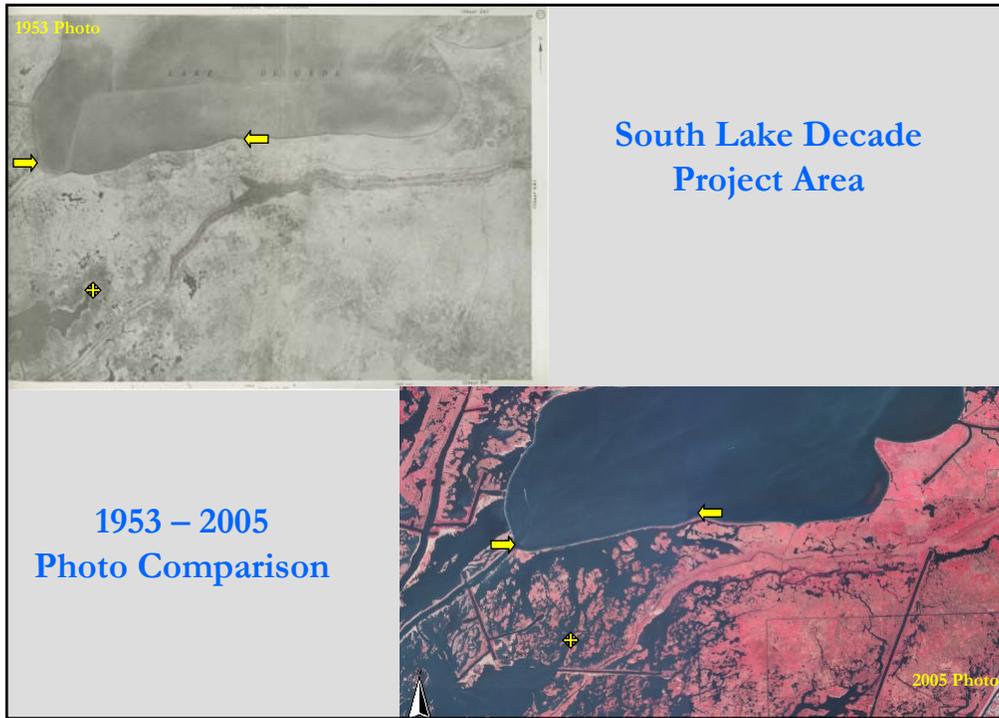
- 1) Reduce interior marsh loss rates.
- 2) Increase the occurrence and abundance of SAV's.

SOUTH LAKE DECADE – CU #1

PROJECT FEATURES

- Construction of 8,700 LF of Shoreline Rock Revetment along the south existing embankment of Lake Decade from the Transcontinental Pipeline crossing extending westward to the mouth of Bayou Decade.
- The revetment will have a crest elevation of (+)3.5 ft. NAVD88, blanket width of 2 feet, 2:1 side slope, and an average height of 4 feet.





SOUTH LAKE DECADE – CU #1

Project Benefits & Costs

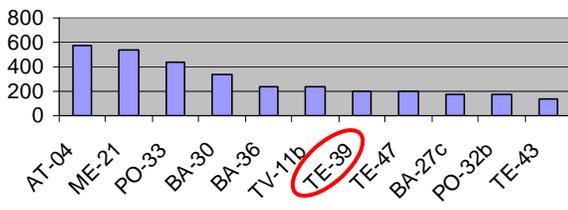
- The 8,700 LF of rock revetment will benefit 823 acres of intermediate/brackish marsh and 862 acres of open water (total 1685 ac.).
- Within the 20 year life of the project (@ TY20), interior marsh loss rates will be reduced and it's projected that 202 acres will be protected.
- The fully funded cost of the project is \$3,841,826. The Phase II request amount is \$2,221,042.
- The Prioritization Score is 74.95.

SOUTH LAKE DECADE – CU #1

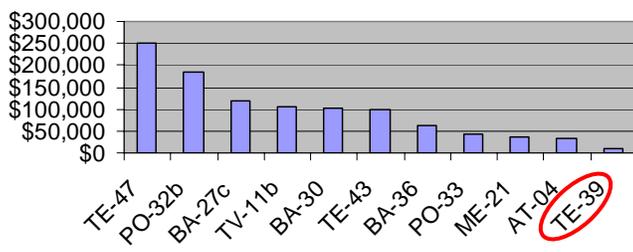
Why Should this Project be Funded This Year?

- Rapid Loss of Fresh/Interm/Brackish Marsh
- Immediate Need
- Initial Attention to a Critically Eroding Area
- 100% Landowner Support
- Low Cost <\$2,221,042>
- High Prioritization Score <74.95>
- Ready for Implementation

ACRES BENEFITTED

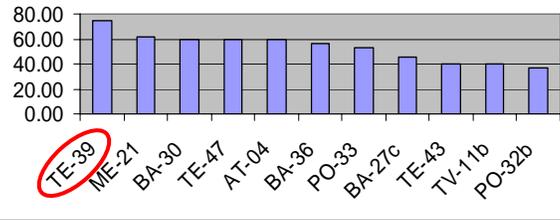


COST PER ACRE



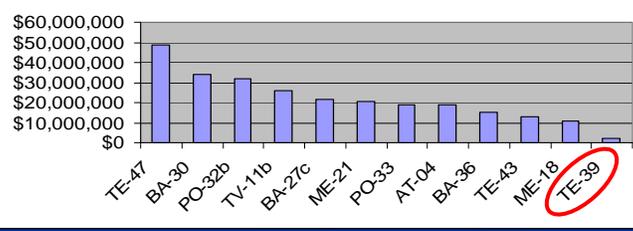
<Lowest>

PRIORITIZATION SCORE



<Highest>

Incr 1 Funds Requested



<Lowest>





Questions?





Natural Resources Conservation Service
3737 Government Street
Alexandria, LA 71302

December 3, 2006

Mr. Troy Constance, Acting Chairman
CWPPRA Technical Committee
U.S. Army Corps of Engineers
P.O. Box 60267
New Orleans, LA 70160-0267

Dear Mr. Constance:

RE: South Lake Decade Freshwater Introduction Project (TE-39)
Phase Two Authorization Request

Pursuant to Revision 11.0 of the CWPPRA Standard Operating Procedures (Section 6.j. and Appendix C), please find enclosed the Phase Two Authorization Request package. This request is for the construction of Construction Unit 1 (CU #1) of the South Lake Decade Freshwater Introduction Project (TE-39). This project was authorized in January 2000 under Priority Project List 9 (PPL9) by the Louisiana Coastal Wetlands Conservation Task Force under the authority of the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA).

If you or any members of the Planning and Evaluation Subcommittee, Technical Committee or Task Force have any questions regarding this matter, please contact Loland Broussard at (337) 291-3060.

Sincerely,

/s/ W. Britt Paul
Assistant State Conservationist
for Water Resources and Rural Development

Enclosures

2006 Phase II Authorization Request

South Lake Decade Freshwater Introduction Project (TE-39) Construction Unit 1

Description of Phase I Project

The South Lake Decade Freshwater Introduction Project (TE-39) was approved for Phase 1 funding by the CWPPRA Task Force on the 9th Priority Project List. This project is located in Terrebonne Parish, Louisiana, within the Terrebonne Hydrologic Basin, approximately ten miles southeast of the community of Theriot. The project is bordered on the north by the southern bank of Lake Decade and Small Bayou LaPointe ridge, to the east and southeast by an unnamed oilfield location canal, on the south and southwest by undifferentiated marsh, and to the west by an unnamed north - south oilfield canal and Bayou Decade. The purpose of the project is to reduce current interior marsh loss rates and increase the occurrence and abundance of submerged aquatic vegetation (SAV).

The proposed project, as selected for Phase I authorization, featured the construction of 5,200 linear feet of shoreline protection along the southern bank of Lake Decade, the installation of a freshwater introduction structure in the southern bank of Lake Decade, and removal of an existing weir in Lapeyrouse Canal. The Wetland Value Assessment (WVA) benefits attributed to these features were a net increase of 201 acres by the end of the 20 year project life.

The total fully funded cost of the project at the time of Task Force approval was \$3,968,577. The estimated amount for Phase 1 costs was \$396,489 and for Phase II costs was \$3,572,088. Individual budget item costs are listed in the second column in the table on page 9.

During the Phase I planning process, NRCS conducted several field trips with an interdisciplinary team of technical specialists to survey, evaluate, and collect data on vegetative marsh types, emergent/submergent vegetative communities and predominance of each, wildlife usage and habitat conditions, hydrologic conditions, and other physical and biological parameters. As a result of this planning effort, the revision of and addition to initial project features were identified (refer to Figure 1). The current proposed features for the TE-39 Project are as follows:

- (A) 3 Multi-gated Diversion Structures on south perimeter of Lake Decade;
- (B) Approximately 8,700 ft. of rock revetment along south shoreline of Lake Decade;
- (C) Enlargement of Lapeyrouse Canal from Lake Decade southward to interior open water areas;
- (D) Approximately 2,900 ft. of oilfield canal embankment restoration;
- (E) Installation of 2 low-level rock weirs;
- (F) Installation of 1 armored plug closure;
- (G) Vegetative protection.

Overview of Phase I Tasks, Process and Issues

It was proposed by NRCS and approved by the Engineering & Environmental Workgroups and Technical Committee (26 Mar 2003) to separate the TE-39 Project into two “independent” construction units. The purpose was to accelerate the E&D timetable on those project components requiring less planning and design effort. Construction Unit No. 1 (CU #1) involves the shoreline protection component of the project and Construction Unit No. 2 (CU #2) will encompass the remaining freshwater introduction and outfall management features.

To-date the following tasks have been completed for the Phase 1 portion of Construction Unit No. 1:

- 1) Plan of Work
- 2) Cost Share Agreement between NRCS and DNR
- 3) Cultural Resources & Oyster Investigations & Assessment
- 4) Landrights Work Plan
- 5) Prioritization Evaluation
- 6) Plan/Environmental Assessment & FONSI
- 7) Section 303(e) Approval
- 8) NRCS Overgrazing Determination
- 9) Draft Ecological Review
- 10) Design Surveys – NRCS
- 11) Geotechnical Investigation, Analysis, & Report
- 12) 30% Design Review
- 13) Draft Construction Plans & Specifications
- 14) Current Construction Cost Estimate
- 15) 95% Design Review
- 16) 404 and CUP Permits

Engineering and Design Tasks

Design surveys were completed by NRCS Construction Survey Crews and are included in the 95% Design Report posted on LDNR’s ftp server at the following link:

<ftp://ftp.dnr.state.la.us/pub/CED%20Project%20Management/NRCS/TE-39-CU1%20SLD/Phase2Request%20TC2005-12-07/>

The surveys were completed using Ashtech Z-Extreme Dual Frequency Receivers operating in RTK (Real-Time Kinematic) mode. The survey occupied DNR benchmark “TE-39-SM-A” for control. Design survey cross sections were taken at approximately 200’ intervals along the proposed earthen embankment and at 250’ intervals along the lake rim of the project area. From the survey data, an alignment was developed for the revetment and embankment. The survey cross sections, survey profiles, and proposed alignment were used for calculating quantities.

Initial pipeline investigations have been initiated with known pipeline companies as shown on the design drawings. Refer to the Design Drawings and LDNR Landrights Memo in the 95% Design Report for established pipeline information.

Geotechnical investigation and analyses have been performed. The geotechnical reports are included in the 95% Design Report. The initial geotechnical report (August 2001) prepared by Soil Testing Engineers, Inc. (STE) contains all boring and soils analysis along with predicted settlement and stability for the proposed project features. A supplemental report (May 2004) was provided by Burns Cooley Dennis, Inc. (BCD) with respect to additional settlement and stability analysis on a rock/lightweight aggregate weir section for the proposed fixed crested weir and rock revetment on the earthen embankment.

Evaluation of the two reports cited above resulted in a design decision to utilize the proposed armored earthen embankment to configure the geometry of a proposed weir section with a solid rock over flow section. A consideration given in the selection of the proposed weir design was that the structure could be easily modified in the event an O&M contingency plan must be implemented. The plan would be put in effect if the monitoring of interior wetland conditions showed progressive land loss and deterioration due to increased water levels.

The shoreline protection feature for the south bank of Lake Decade was changed to a foreshore dike during phase 1 planning and was analyzed in the STE report. However, after conducting additional site visits to the project area, an observation was made that the foundation area of the existing earthen embankment is pre-consolidated from the many years of direct loading applied by the embankment. Therefore, a revetment of the existing embankment was chosen as the preferred approach for shoreline protection.

Hydrologic and hydraulic calculations were performed by NRCS to insure that the proposed embankment restoration and weir project features would not adversely affect the marsh interior within construction unit number 1 (CU #1). A conservative approach was taken in the calculations. Only existing significant hydraulic conveyance openings within the system were used to compute discharge. The discharge area of the proposed weir was neglected. The calculations confirm that the existing additional openings along the perimeter of the marsh interior would adequately convey selected storm event capacities. Conversely, it was also determined that the discharge capacity of the weir alone is sufficient to provide adequate drainage for the identified watershed.

30% Design Review Meetings were held on September 17, 2003, and July 19, 2004. NRCS received a letter from LDNR, dated August 2, 2004, stating they concur with proceeding with the design of the project to the 95% design level. A 95% Design Review Meeting was held on September 2, 2004. No outstanding engineering issues were identified and minor comments were made regarding supporting data included in the 95% Design Report.

On October 13, 2004 the CWPPRA Task Force held their first annual funding cycle meeting to select projects for Phase 2 funding. The TE-39-1 South Lake Decade Project was submitted for funding consideration but was not selected. However, the TE-44 North Lake Mechant Project, sponsored by USFWS and serves as a southwest extension of the TE-39 Project, was selected for Phase 2 funding. It's anticipated that the TE-44 Project will have a synergistic effect in abating salinity and tidally induced problems that have direct impact to the CU #1 project area. The two lower structural components in CU #1 (i.e. weir & embankment restoration) were targeted to prohibit the same problems as stated above. As such, NRCS, DNR and landowner representatives have agreed to remove the two lower components from 2005 Phase 2 approval consideration for CU #1. These structural measures however, will remain as components of the project due to their "potential" need as outfall management features for construction unit no. 2.

Supplemental Tasks

Preliminary landrights have been executed with the landowner (Apache Louisiana Minerals Inc.). The landowner has acknowledged intent to sign necessary documents once the project has obtained Phase II Task Force approval. Landrights with affected utilities and pipelines are proceeding without interruption and are expected to be finalized in the near future. LDNR has determined that no oyster seed grounds or leases will be affected by project implementation.

A review of the Louisiana Department of Culture, Recreation & Tourism, Office of Cultural Development files indicated that two (2) cultural resource sites are located within the boundaries of the TE-39 Project. Both of the sites are described as shell middens experiencing deterioration due to many of the same impacts causing marsh loss (i.e. wave wash, scouring, subsidence, and physical disturbance from canal dredging). A letter, dated May 24, 2001, was received from the Louisiana Department of Culture, Recreation & Tourism stating that, due to the nature of this project the sites will not be affected, therefore they have no objections to its implementation.

Comments relative to other significant task items are addressed in the attached "Checklist of Phase Two Requirements".

Construction Unit No. 1 Project Issues

At the September 17, 2004, 30% Design Review Meeting, concerns were raised and post-meeting comments were received regarding the negative hydrologic impact the proposed embankment restoration and low level weir may have on affected wetlands (i.e. increased water levels). NRCS conducted an engineering survey of the CU #1 area which identified existing perimeter boundary conditions and normal marsh elevations within the interior. An onsite field trip was held on October 22, 2003, with various agency personnel to visually survey the perimeter and interior conditions of the area. NRCS conducted hydrologic and hydraulic mathematical modeling assessments on the proposed project features in question based on collected survey data. Results of these assessments indicated that discharge removal rates of the CU #1 area, with the proposed features in place, would not cause impoundment conditions that would in turn negatively impact emergent wetland vegetation.

A second 30% Design Review Meeting was held on July 19, 2004. DNR and attending federal agencies acknowledged their acceptance of NRCS's modeling assessments. Agency comments and NRCS responses, as a result of the 30% meeting are included in the 95% Design Report posted on LDNR's ftp server.

The 95% Design Review meeting for this candidate project was held on September 2, 2004. At this meeting, reviewing agencies had the opportunity to provide comments regarding the 95% Design Report and supporting documents that were posted on DNR's ftp server on August 19, 2004. No significant outstanding issues were identified at the meeting and only minor comments were made regarding Plans and Specifications in the Final Design Report.

NRCS consulted with DNR regarding the project changes made for CU #1 since the September 2004, 95% Design Review meeting. It was decided that another 95% Design Review meeting was not necessary due to the revisions made were only exclusions to the prior reviewed project. At NRCS's request, DNR has re-posted the 95% Design Report along with updated project plans and specifications at the following link:

Description of Phase II Candidate Project

The Phase II candidate project consists of constructing an 8,700 linear foot shoreline protection feature along the southern bank of Lake Decade (Figure 2). This shoreline protection feature shall be a rock revetment that is built upon the existing embankment along the lake shoreline. The revetment shall have 2(H):1(V) side slopes and be built to an elevation of +3.5' NAVD88 with a minimum rock thickness of 2 feet. All rock used in this construction shall be ASTM 6092-97 R-300 gradation.

Phase II Funding

Construction for this project is tentatively scheduled to commence in August 2007 and proceed for approximately 6 months. The estimated Phase II cost of the project at the 100% funding level is \$3,171,215. Individual budget item costs are listed in the seventh column in the table on page 9.

NRCS will formally request permission for Phase 2 approval and funding at the December 6, 2006 Technical Committee Meeting and subsequent approval from the Task Force at their January 31, 2007 meeting. The total 2006 funding request will be \$2,221,042. Individual budget item costs are listed in the eighth column in the table on page 9.

Sponsoring Agency and Contact Person

“USDA – Natural Resources Conservation Service”

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Project Manager
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(337) 291-3060 offc
(337) 291-3085 fax
Loland.broussard@la.usda.gov

“La. Department of Natural Resources”

Ismail Merhi
Project Manager
P. O. Box 44027
Baton Rouge, LA 70804-4027
(225) 342-4127 offc
(225) 342-6801 fax
ismailm@dnr.state.la.us

Checklist of Phase II Requirements

South Lake Decade Freshwater Introduction (TE-39) CU# 1

A. List of Project Goals and Strategies.

The goals of this project are to reduce interior marsh loss rates and increase the occurrence and abundance of submerged aquatic vegetation (SAV). The strategy proposed to accomplish these goals is the construction of a rock revetment along the south shoreline of Lake Decade.

B. A statement that the Cost Sharing Agreement between the Lead Agency and Local Sponsor has been Executed for Phase I.

A Cost Sharing Agreement has been executed between NRCS (NRCS Agreement No. CWPPRA-00-01) and DNR (DNR Agreement No. 2511-01-02), dated July 25, 2000.

C. Notification from the State or the Corps that landrights will be finalized in a short period of time after Phase II approval.

LDNR-CRD Land Manager sent a letter to the Chairman of the Planning and Evaluation Subcommittee, dated September 2, 2004, which stated substantial progress had been made regarding landrights acquisition, that no significant landrights acquisition problems are anticipated, and that DNR is confident that landrights will be finalized in a reasonable period of time after Phase Two Approval. A copy of the letter can be obtained by contacting one of the sponsoring agency persons listed on page 5.

NRCS re-confirmed the above with LDNR Landrights Section via email correspondence on November 9, 2005.

D. A favorable Preliminary Design Review (30% Design Level).

A 30% Design Review meeting was held on September 17, 2003. Issues were raised by DNR and some federal agencies concerning the hydrologic impact that the proposed project measures may have on interior wetlands. NRCS addressed these issues by conducting hydrologic and hydraulic mathematical modeling assessments which concluded no negative impacts are anticipated as a result of project construction. A second 30% Design Review Meeting was held on July 19, 2004, in which DNR and participating agencies concurred with NRCS's assessments. Concurrence to proceed with project designs to the 95% level was received by DNR in a letter dated August 2, 2004. A copy of the letter can be obtained by contacting one of the sponsoring agency persons listed on page 5. All written comments received from the 30% Design Review are addressed in the 95% Design Review Package posted on DNR's ftp server.

E. Final Project Design Review (95% Design Level).

A 95% Design Review Meeting was held on September 2, 2004. No substantial outstanding issues were identified and minor comments were made regarding supporting data to the Final Design Report. In 2005, NRCS revised the project plans, specifications, and construction cost estimate to reflect recent project changes. Revised data and the 95% Design Report are available on DNR's ftp server.

F. A draft of the Environmental Assessment of the Project, as required under the National Environmental Policy Act, must be submitted two weeks before the Technical Committee meeting at which Phase 2 approval is requested.

A Final Environmental Assessment of the TE-39 Project was released for public review on June 2001. The Final EA was developed after comments were received and incorporated in the draft Environmental Assessment which was submitted for interagency review in April 2001. A Finding of No Significant Impact (FONSI) was published in the Federal Register on July 25, 2001, and in the local newspaper on July 31, 2001. No comments were received regarding the FONSI. A copy of the Final Environmental Assessment can be obtained by contacting one of the sponsoring agency personnel listed on page 5 of this package.

G. A written summary of the findings of the Ecological Review.

A draft Ecological Review, submitted August 2004, stated that the "proposed strategies of the South Lake Decade Freshwater Introduction - CU 1 Project will likely achieve the desired ecological goals." A revised draft Ecological Review was submitted in August 2005, in which Section VII – Recommendations of the report concluded "At this time, the level of design of the project's physical effects and confidence in goal attainability warrant continued progress toward construction authorization (pending a second favorable 95% Design Review meeting, if required)".

H. Application for and/or issuance of the public notices for permits.

A Joint Permit Application with appropriate attachments, dated November 4, 2005, was submitted to LDNR-Coastal Management Division (CMD) for processing. A letter, dated January 19, 2006, was received from CMD stating the TE-39-1 Project was reviewed for consistency with the approved Louisiana Coastal Resources Program (LCRP) and complies. The COE 404 Permit was issued on July 17, 2006. The letter of consistency and 404 Permit are available upon request at the sponsoring agency offices listed on page 5.

I. A hazardous, toxic and radiological waste (HTRW) assessment, if required, has been prepared.

NRCS has determined that an HTRW assessment is not required.

J. Section 303(e) approval from the Corps.

Section 303e approval was granted by the Corps Real Estate Division on August 4, 2004. A copy of the approval letter can be obtained by contacting one of the sponsoring agency personnel listed on page 5 of this package.

K. Overgrazing determination from the NRCS (if necessary).

NRCS has determined that overgrazing is not a problem within the project area, nor is there future potential for such problem.

L. Revised fully funded cost estimate, approved by the Economic Work Group, based on the revised Project design and the specific Phase 2 funding request as outlined in below spreadsheet.

REFER TO ATTACHED FILE "South Lake Decade_PhII Revised_30 Nov 2006.xls"

1) The specific Phase 2 funding request (updated Phase 2 costs, three years of Corps Administration and O&M) is \$2,221,042.

2) The current estimated fully funded cost for TE-39 CU #1 is \$3,841,825. This cost was provided by Bill Waits (EconWG) and Loland Broussard (EngWG), and confirmed by John Petitbone (EngWG Chairman) and Allan Hebert (EconWG Chairman) on November 17, 2006. The revised fully funded budget spreadsheets, with the anticipated schedule of expenditures, are provided as an attachment.

M. A Wetland Value Assessment, reviewed and approved by the Environmental Work Group.

A Wetland Value Assessment (WVA) was specifically prepared for the CU #1 portion of the TE-39 South Lake Decade Project on March 20, 2003. A revised WVA was not necessary at the 30% or 95% level of review because no changes were made in project features that would have resulted in a change in projected project benefits.

Due to the removal of 2 structural components from CU #1 in 2005, NRCS revised the 2003 Wetland Value Assessment (WVA) accordingly. The result was a reduction in net acreage from 207 to 202 acres. Kevin Roy, Environmental Workgroup (EnvWG) Chairman, assisted in the re-assessment and determined the WVA revisions were minor enough to negate a review by the EnvWG. A copy of the revised WVA is available upon request by contacting the NRCS Lafayette Water Resources office at (337)291-3060.

N. A breakdown of the Prioritization Criteria ranking score, finalized and agreed upon by all agencies during the 95% review.

A revised Prioritization Fact Sheet was submitted to CWPPRA agencies for review on November 4, 2005. Based on comments received, no corrections to the submitted fact sheet were made. A final fully funded cost for the 2006 Phase II request was confirmed by the Economic Work Group on November 17th, therefore the Prioritization Fact Sheet dated 30 November 2005 was revised to reflect such cost.

Listed below are current prioritization criterion and associated scores for the TE-39 CU #1 Project:

Criteria	Score	Weight	Final Score
Cost Effectiveness	10	2	20
Area of Need	9.3	1.5	13.95
Implementability	10	1.5	15
Certainty of Benefits	8	1	8
Sustainability of Benefits	8	1	8
HGM – Riverine Input	0	1	0
HGM – Sediment Input	0	1	0
HGM – Landscape Features	10	1	10
Total Score			74.95

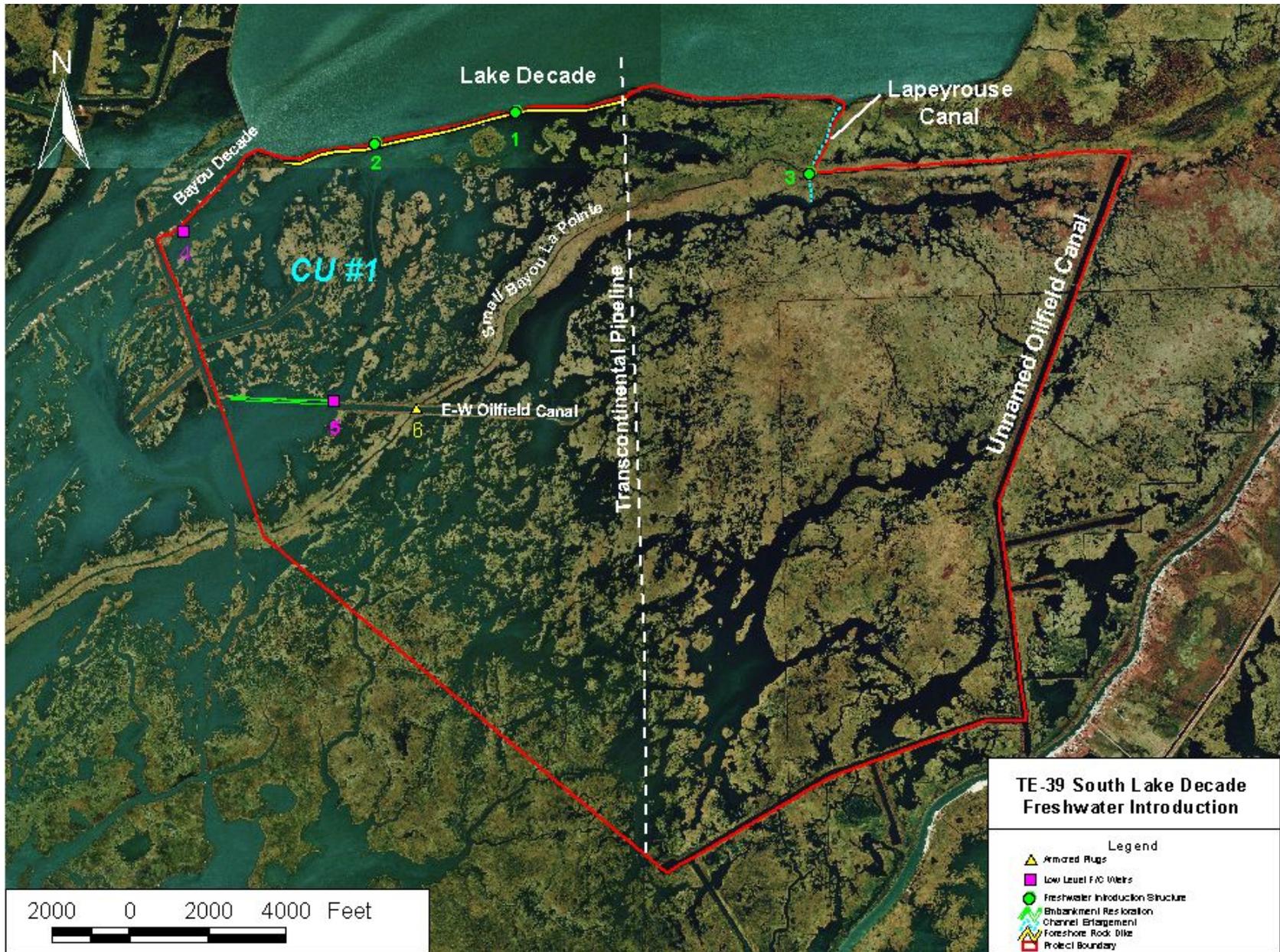
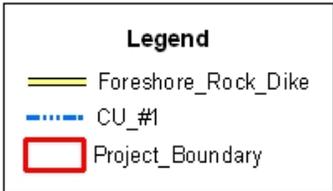
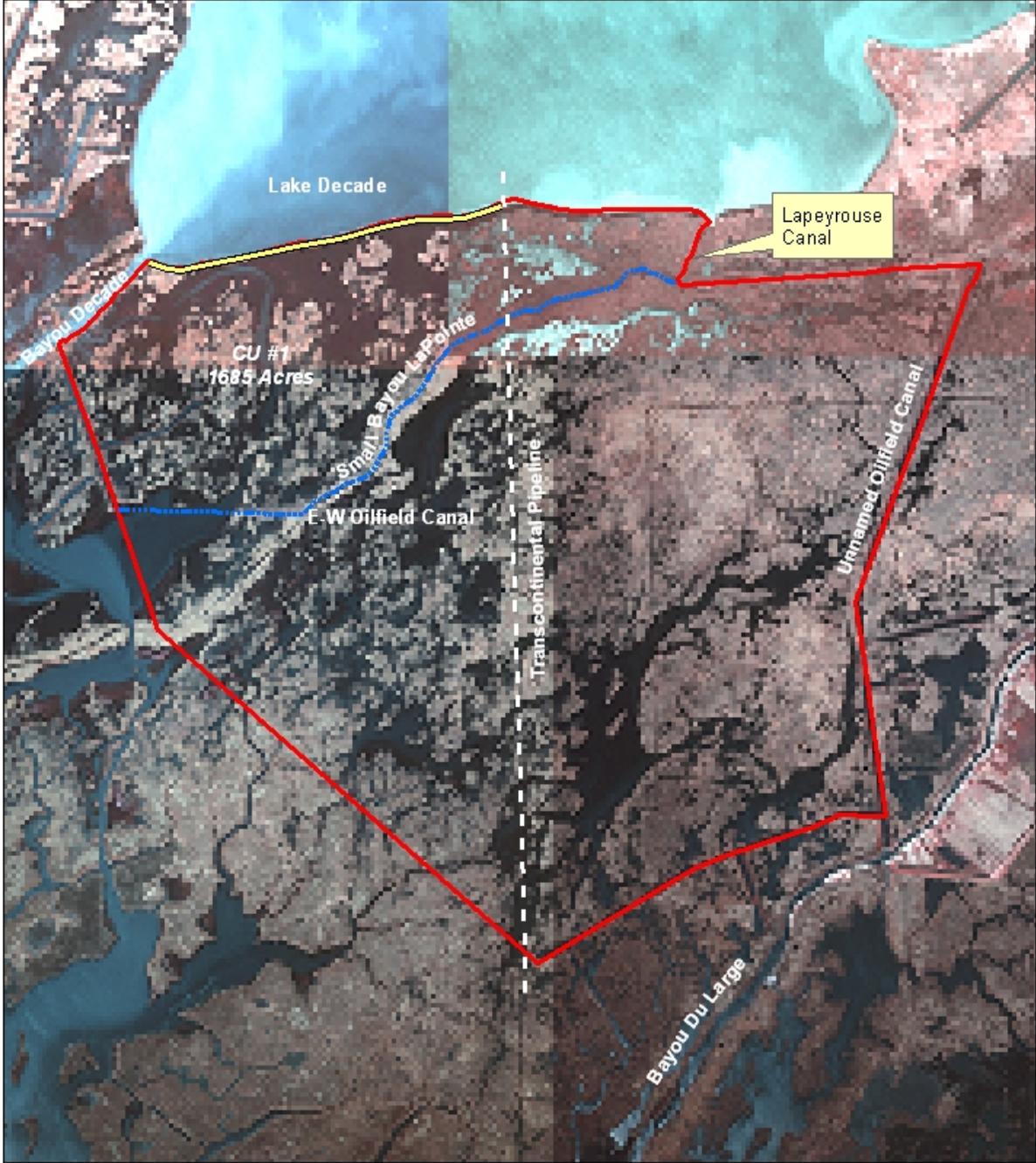


Figure 1



**TE-39 South lake Decade
Freshwater Introduction
(CU #1)
Project Plan Map**



Figure 2

REFER TO ATTACHED FILE “phase-2-Approval South Lake Decade-CU#1(TE-39-1) (3).xls”



2000 POST OAK BOULEVARD / SUITE 100 / HOUSTON, TEXAS 77058-4400

(713) 298 8000
WWW.APACHECORP.COM

December 1, 2005

Col. Richard Wagenaar
Department of the Army
New Orleans District, Corps of Engineers
Western Evaluation Section
P. O. Box 60267
New Orleans, Louisiana 70160-0267

RE: CWPBRA TE-39
South Lake Decade Project
Terrebonne Parish, Louisiana

Dear Colonel:

Apache Corporation owns approximately 267,000 acres of coastal marsh lands throughout south Louisiana in Cameron, Vermilion, Iberia, Terrebonne, Lafourche and Plaquemines parishes. These lands are managed and operated through the Apache Louisiana Minerals, Inc. office located in Houma, LA. This office staff has consistently conducted activities, with technical assistance from state and federal agencies, to develop and implement comprehensive marsh protection and enhancement programs for over 40 years throughout these properties. A portion of this activity has been to annually refurbish the perimeter shoreline levee of Lake DeCade in an effort to protect the adjacent fragile marshes from saltwater intrusion and erosion.

The extents and features of the subject CWPBRA project will positively affect our lands surrounding Lake DeCade. This Company is committed to the preservation of these fragile wetlands and would like to see this Project implemented as soon as possible. We are so excited about the positive aspects of this Project that we are willing to provide financial assistance to it. I am pleased to pledge Apache's commitment to assume the State's 15% of the cost share for Phase II funding of Conservation Unit #1 for this project.

We are respectfully requesting that this project be approved and implemented at the earliest time frame possible. Your favorable consideration of this request will be greatly appreciated.

Sincerely,
APACHE CORPORATION

Jon Jeppesen
Sr. Vice President - Gulf Coast Region

Jjja
TE-39 Apache Funding for Project - COE.doc:1
CC: Sam Hamilton - USFWS
Don Gohmert - NRCS
William Hooker - EPA
Dr. Erik Zobrist - NMFS
Sidney Coffee - LA Governor's Office