



Coastal Protection and
Restoration Authority of Louisiana

**State of Louisiana
Coastal Protection and Restoration
Authority**

2013 Annual Inspection Report

for

**North Lake Mechant Landbridge
Restoration Project (TE-44)**

State Project Number TE-44
Priority Project List 10

July 10, 2013
Terrebonne Parish

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I. Introduction

The North Lake Mechant Landbridge Restoration Project (TE-44) is located in Terrebonne Parish, Louisiana approximately 15 miles southwest of Theriot, Louisiana and lies within the Penchant sub-basin of the Terrebonne hydrologic basin. The project area is bounded by Lake Mechant to the south, by Lake Pagie to the west, by Bayou DeCade to the north, and by the natural levee of Small Bayou LaPointe to the east. The project encompasses approximately 7,570 acres of predominantly open water and intermediate marsh habitat with some fresh marsh in the northwest and brackish marsh in the southeast.

These marshes form a critical land bridge barrier that separates the fresh and intermediate marshes north of Bayou DeCade from the brackish waters and marine, tidally-dominated Lake Mechant system to the south. The TE-44 project is intended to protect and restore the north Lake Mechant land bridge and the Small Bayou LaPointe Ridge. Construction involves creation and nourishment of approximately 901 acres of marsh north of Lake Mechant using dredged material from northern Lake Mechant; construction of approximately 89,270 linear feet of earthen containment dike; construction and maintenance of approximately 2,200 linear feet of armored earthen dike; repair and maintenance of an existing earthen plug; and construction and maintenance of 8 canal plugs including the replacement of an existing fixed-crest weir.

The project has a twenty (20) year project life, which began in December, 2010. The principal project features include:

- Earthen Plug No. 1
- Earthen Plug No. 2
- Rebuilt Earthen Plug (No. 3)
- Earthen Plug No.4
- Rock Plug No. 1
- Rock Plug No. 2
- Sheetpile Plug No. 1
- Sheetpile Plug No. 2
- Sheetpile Plug No. 3
- Sheetpile Weir (existing weir replacement)
- Armored Earthen Dike (2,200 Linear Feet)
- Hydraulic-Dredged Fill Material (901 acres of marsh)

II. Inspection Purpose and Procedures

The purpose of the annual inspection of the North Lake Mechant Landbridge Restoration Project is to evaluate the constructed project features in order to identify any deficiencies. The inspection results are used to prepare a report detailing the condition of the project features and recommending any corrective actions considered necessary. Should it be determined that corrective actions are needed, the CPRA shall provide, in the report, a detailed cost estimate for

engineering, design, supervision, inspection, construction, and contingencies, as well as an assessment of the urgency, of such repairs. The annual inspection report also contains a summary of maintenance projects which were completed since completion of constructed project features and an estimated projected budget for the upcoming three (3) years for operation, maintenance, and rehabilitation. The three (3) year projected operation and maintenance budget is shown in Appendix C. A summary of past operation and maintenance projects completed since construction of the North Lake Mechant Landbridge Restoration is outlined in Section IV.

The annual inspection of North Lake Mechant Landbridge Restoration Project TE-44 took place on May 14, 2013. In attendance were Adam Ledet and Todd Hubble with CPRA, and Robert Dubois and Ronnie Paille with US Fish and Wildlife Services. The inspection began around 10:00 am at Rock Plug 2 and concluded around 1:30 near Sheetpile Plug 2. The trip included a visual inspection of the project features, structures and marsh creation areas. Photographs of the inspection are located in Appendix B.

III. Project Description

The following completed, structural components jointly accepted by CPRA and USFWS will require operation, maintenance, repair, and/or rehabilitation throughout the twenty (20) year life of the project.

Earthen Plug No. 1

This canal plug is located at Lat. 29°20'36.3", Long. 90°59'36.3" along the eastern shoreline of Lake Pagie in an existing canal. It was constructed from dredged material from the canal on a geotextile fabric layer. The plug is 165 feet long (direction along the shoreline) by 50 feet wide. The plug was constructed to an elevation of 4.0 feet NAVD88.

Earthen Plug No. 2

This plug is located at Lat. 29°21'31.3", Long. 90°53'40.0" along the southern bank of Small Bayou LaPointe. It was constructed from dredged material on a geotextile fabric layer. The borrow area is located in the open water area south of the plug. The plug is 105 feet long (direction along the bank) by 60 feet wide. The plug was constructed to an elevation of 3.0 feet NAVD88.

Earthen Plug No. 3 (Rebuilt)

This existing plug is located at Lat. 29°20'24.5", Long. 90°56'04.4" at the south end of a canal south of Raccourci Bay. The existing earthen plug was rebuilt using dredged material placed on geotextile fabric to an elevation of 4.0 feet NAVD88.

Earthen Plug No.4

This plug is located at Lat. 29°20'55.2", Long. 90°55'14.7" across the Small Bayou LaPoint between Rock Plug No. 1 and Earthen Plug No.3. The earthen plug was constructed using dredge material from Small Bayou LaPoint to an elevation of approximately 4.0' NAVD. This plug was not included in the original design of the project but was added to the proposed features during construction.

Rock Plug No. 1

This plug is located at Lat. 29°21'10.9", Long. 90°54'24.6" along the southern bank of Small Bayou LaPointe. The plug was constructed using DOTD Class 250 lb Riprap to an elevation of 4.0 feet NAVD88 with a 10-foot crest width and 3 to 1 side slopes on a geotextile fabric base. The plug is 260 feet long.

Rock Plug No. 2

This canal plug is located at Lat. 29°21'40.9", Long. 90°53'28.9" just east of Small Bayou LaPointe in an intersecting pipeline canal. The plug was constructed using DOTD Class 250 lb Riprap to an elevation of 4.0 feet NAVD88 with a 10-foot crest width and 3 to 1 side slopes on a geotextile fabric base. The plug is 166 feet long.

Sheet Pile Plug No. 1

This plug is located at Lat. 29°20'22.2", Long. 90°59'09.2" along the southern bank of an access canal between Lake Pagie and Lake Mechant. The plug was constructed using PDA-27 Grade 42 steel sheet pile sections to an elevation of 4.0 feet NAVD88. The sheet pile was installed to a maximum depth of -35.0 feet NAVD88. The plug is 207 feet long with earthen wingwalls constructed at both ends to an elevation of 5.0 feet NAVD88. The wingwalls were constructed from dredged material and armored with articulated concrete mats on geotextile fabric.

Sheet Pile Plug No. 2

This canal plug is located at Lat. 29°20'00.2", Long. 90°58'32.2" in an access canal between Lake Pagie and Lake Mechant. The plug was constructed using PDA-27 Grade 42 steel sheet pile sections to an elevation of 4.0 feet NAVD88. The sheet pile was installed to a maximum depth of -23.0 feet NAVD88. The plug is 282 feet long with earthen wingwalls constructed at both ends to an elevation of 5.0 feet NAVD88. The wingwalls were constructed from dredged material and armored with articulated concrete mats on geotextile fabric.

Sheet Pile Plug No. 3

This canal plug is located at Lat. 29°20'22.2", Long. 90°56'12.3" in an access canal south of Raccourci Bay. The plug was constructed using PDA-27 Grade 42 and 50 steel sheet pile sections to an elevation of 4.0 feet NAVD88. The sheet pile was installed to a maximum

depth of -44.5 feet NAVD88. The plug is 177 feet long with earthen wingwalls constructed at both ends to an elevation of 5.0 feet NAVD88. The wingwalls were constructed from dredged material and armored with articulated concrete mats on geotextile fabric.

Sheet Pile Weir (existing weir replacement)

This canal plug/weir is located at Lat. 29°20'19.8", Long. 90°57'19.5" in a natural channel north of Lake Mechant. An existing timber pile, timber sheeting weir was removed near this location. The new weir was constructed using PDA-27 Grade 42 steel sheet pile sections to an elevation of 4.0 feet NAVD88. The sheet pile was installed to a maximum depth of -34 feet NAVD88. A 40-foot wide weir opening was constructed to an elevation of 0.0 feet NAVD88 near the center of the channel. The plug is 116 feet long with earthen wingwalls constructed at both ends to an elevation of 5.0 feet NAVD88. The wingwalls were constructed from dredged material and armored with articulated concrete mats on geotextile fabric.

Armored Earthen Dike

This dike is located along the east bank of Bayou Raccourci, a natural channel between Raccourci Bay and Lake Mechant, along the western boundary of Fill Area 6. The dike was constructed using dredged in-situ material from within Fill Area 6 to an elevation of 4.0 feet NAVD88 with a 4-foot crest width, 4 to 1 foreslope, and 4 to 1 backslope on a geotextile fabric base. The earthen dike was armored with articulated concrete mats. The mats are 20 feet long by 8 feet wide and consist of individual 4.5-inch thick concrete cells cast onto a copolymer fiber rope. The dike is 2,200 feet long. This site includes aluminum warning signs mounted on a 30' treated timber piling with galvanized hardware.

Dredged Material Fill Areas

Marsh creation target fill elevations of +3.5 and +4.0 NAVD 88 and marsh nourishment target fill elevations of +2.5 were met. All earthen containment dikes were constructed to an elevation of 4.0 feet NAVD88 with a 3-foot crest width and 4 to 1 sideslopes. Although these project features have been constructed as part of the North Lake Mechant Landbridge Restoration Project, there are no provisions in the O&M Plan for marsh nourishment of the newly created marsh areas.

Fill Area 1 – 57.7 acres located east of Lake Pagie bordered by a constructed, continuous earthen containment dike to the north and east; a pipeline canal to the south; and the shoreline of Lake Pagie to the west.

Fill Area 2A – 141.0 acres located north of Lake Mechant along the eastern shoreline of Lake Pagie. This area is bordered by constructed earthen containment dikes and the eastern shoreline of Lake Pagie to the west; a pipeline canal to the north; existing marsh and a constructed earthen containment dike to the east; and Fill Area 2B to the south..

Fill Area 2B – 108.7 acres located north of Lake Mechant along the eastern shoreline of Lake Pagie. This area is bordered by constructed earthen containment dikes and the eastern shoreline of Lake Pagie to the west; Fill Area 2A to the north; existing marsh and a constructed earthen containment dike to the east; and Lake Mechant to the south.

Fill Area 2/3 – 24.7 acres bordered by existing marsh and a constructed earthen containment dike to the south; a pipeline canal to the north; Fill Area 2A to the west and Fill Area 3 to the east.

Fill Area 3 – 134.0 acres bordered by Lake Mechant to the south; a pipeline canal to the north and east; and a constructed, continuous earthen containment dike to the west.

Fill Area 4 – 124.8 acres bordered by Lake Mechant and existing marsh to the south; a pipeline canal to the west; a constructed, continuous earthen containment dike to the north; and a natural channel and existing marsh to the east. This fill area includes approximately 24 acres of marsh nourishment at the east end where fill placement was limited to a maximum of 6 to 12 inches above existing marsh.

Fill Area 5 – 28.6 acres located north of Lake Mechant bordered by a constructed, continuous earthen containment dike to the west and a natural channel to the east.

Fill Area 5-1 – 90.1 acres located south of Bay Raccourci bordered by Bayou Raccourci to the west and a natural channel to the east, and existing marsh and a constructed earthen containment dike to the west.

Fill Area 6 – 47.8 acres located north of Lake Mechant bordered by Bayou Raccourci and a constructed armored earthen dike to the west; a constructed earthen containment dike along the southern shoreline of Raccourci Bay to the north; and existing marsh to the east. This fill area includes approximately 16 acres of marsh nourishment at the southern end where fill placement was limited to a maximum of 6 to 12 inches above existing marsh.

Fill Area 7 – 31.0 acres bordered by a constructed earthen containment dike along the southern shoreline of Raccourci Bay to the north, existing marsh to the south, and an access canal to the east.

Fill Area 8 – 113.2 acres bordered by a constructed, continuous earthen containment dike to the north and the Small Bayou LaPointe ridge to the south.

IV. Summary of Past Operation and Maintenance Projects

As of now there have been no maintenance events or project features that require routine operation. This section will be used to reference all maintenance activities on future inspection reports.

V. Inspection Results

Earthen Plug No. 1

The Earthen Plug 1 structure located on the eastern edge of Lake Pagie appeared to be in good overall condition. The plug was viewed from the “Y” canal and from directly on top of the structure at the southern embankment tie-in. It appears to be densely vegetated with no signs of erosion or washout around the embankment tie-ins. Earthen Plug 1 is in good shape and there are no recommendations for corrective action at this time. (See Appendix B, Photo 31 through 32)

Earthen Plug No. 2

The Earthen Plug 2 structure located along the southern edge of Small Bayou LaPointe is difficult to access and difficult to locate now that the structure is fully vegetated. Besides the slightly higher elevation than the adjacent marsh, the structure doesn't have any identifying characteristics. This structure is in good overall condition with no observed settlement or erosion of the plug. Also, there is no evidence of washouts around the structures embankment tie-ins. There are no recommendations for maintenance at this time. (See Appendix B, Photos 9 through 11)

Earthen Plug No. 3

The Earthen Plug 3 structure appears to be in good condition. This structure located between fill areas 7 & 8 appears to be fully vegetated with none of the original construction material visible from the airboat. This structure also has no observed settlement or erosion of the plug and no signs of erosion around the embankment tie-ins. There are no recommendations for corrective actions at this time. (See Appendix B, Photo 19)

Earthen Plug No. 4

Earthen Plug No. 4 was not included in the original design of the project but was added to the proposed features during construction. It is located in Small Bayou LaPointe between Rock Plug 1 and Fill Area 8. Since its construction, this earthen plug has been damaged by vandals and water now passes through the earthen plug. Due to the location of this structure and low volume of fill material, a repair of the embankment would be extremely expensive. Until there is a cost effective method to replace the feature and prevent the vandalism from reoccurring, there are no recommendations for corrective action.

Earthen Plug No. 5

There was a breach identified during this year's annual inspection in the southern bank of Small Bayou LaPointe located approximately 400 feet north east of Earthen Plug 2. This is

a new breach, and at the time of this report, it remains breached. Once repaired, this breach will be referred to as Earthen Plug 5. (See appendix B, Photo 12)

Rock Plug No. 1

The Rock Plug 1 structure located along the south bank of Small Bayou LaPointe appeared to be in very good condition. There is no observable settlement since the end of construction and there is no evidence of erosion or washouts around the embankment tie-ins. The rock plug is still functioning as designed; therefore there are no recommendations for corrective action at this time. (See Appendix B, Photos 6 through 8)

Rock Plug No. 2

Rock plug 2 appears to be in good overall condition. During construction, the structure experienced some settlement of the rock riprap material and erosion causing a breach around its northern embankment tie-in. In order to repair this situation and prevent further breaching, extra rock riprap material was placed on this northern end of the structure raising its elevation. The as-built drawings indicate the north end was constructed to an elevation of approximately 5.5' NAVD with a gradual slope to the southern end at an elevation of approximately 3.0' NAVD. Our observations during the 2013 annual inspection are consistent with the as-built drawings, as the northern end is approximately 2.0'-3.0' higher in elevation than the southern end. The warning signs for the structure are up right and visible, but the southwest sign has been damaged by a shotgun. Overall this structure is in good condition. (See Appendix B, Photos 1 through 2, and Photo 5)

On the southern end of the structure, it appears the geofabric on which the rock riprap was placed was not properly trimmed to the edge of the structure. The excess of geofabric has prevented the native vegetation to grow around this end of the structure. With the lack of vegetation, standing water can be seen wrapping around the southern embankment tie-in. Although there was no flow of water around the structure observed during the inspection indicating a breach, this scenario would be plausible during an elevated tide or high water event. Due to the location of this structure and low volume of fill material, a repair of the embankment would be extremely expensive. Since this area does not pose an immediate threat, there are no recommendations for corrective action at this time, but CPRA will continue to monitor this location and would like to begin conversation with USFWS to discuss the feasibility of repairing this location.

Sheetpile Plug No. 1

Sheet pile plug 1 is in good condition. There are no signs of settlement or excessive corrosion of the sheet pile, cap, warning signs and supports. The embankment tie-ins are armored with articulated concrete mats and also show no signs of settlement or erosion around its ends. The structure appears to be stable and functioning as intended. There are no recommendations for corrective actions at this time. (See Appendix B, Photos 33 through 36)

Sheetpile Plug No. 2

The Sheetpile Plug 2 suffered catastrophic structural damage due to Hurricane Isaac in August 2012. It appears a large water level differential during the storm caused the free standing structure to fail and fall over. A section of the top cap is missing and the sheet

Sheetpile Plug No. 2

The Sheetpile Plug 2 suffered catastrophic structural damage due to Hurricane Isaac in August 2012. It appears a large water level differential during the storm caused the free standing structure to fail and fall over. A section of the top cap is missing and the sheet pile is bent below the water line allowing water to pass through/over the structure. Sheetpile Plug 2 is damaged in such a way that there are minimal options for repairing the structure, it must be removed and then replaced. CPRA has initiated a claim with the Federal Emergency Management Agency (FEMA) as the structure was damaged during a natural disaster. As of June 2013, CPRA has provided FEMA personnel with design plans, replacement estimates, supporting documentation, and site visits to help advance the claims procedure and are currently waiting a response from FEMA claims processing. (See Appendix B, Photos 37 through 40)

Sheet Pile Plug No. 3

Sheet Pile Plug No. 3 appears to be in good overall condition. The sheet pile and top cap showed no signs of damage or excessive corrosion, and the embankment tie-ins had no signs of erosion or washouts. Photo comparison from previous annual inspections display the articulated concrete mat used to armor the embankment tie-ins are stable with no signs of settlement. In addition, the warning signs were intact and visible. There are no recommendations for corrective action at this time. (See Appendix B, Photos 13 through 17)

Sheetpile Weir (existing weir replacement)

The Sheetpile Weir structure appears to be in good overall condition. There are no signs of excessive corrosion or damage to the sheet pile or top cap. There appears to be no erosion or washouts around the embankment tie-ins. Photo comparison from previous annual inspections display the articulated concrete mat used to armor the embankment tie-ins are stable with no signs of settlement. The warning signs and supports are also in good condition. There are no recommendations for corrective action at this time. (See Appendix B, Photos 26 through 29)

Armored Earthen Dike

The Armored Earthen Dike on the west bank of Bayou Raccourci appears to be in good overall condition. The warning sign and its support timber show no signs of damage. The articulated concrete mats are still coupled by the copolymer rope with vegetation emerging through the seams and in front of the concrete mats. As expected, there is some variation in height along the length of the armored earthen dike. This is believed to be caused by a difference in dredged material settling at different rates under the weight of the articulated concrete mats in addition to placement of the mats on earthen material that was not fully compacted. Although there are some slight variations in elevation, the armored earthen dike is still performing as designed; therefore, there are no recommendations for corrective actions at this time. (See appendix B, Photos 20 through 24)

Dredged Material Fill Areas

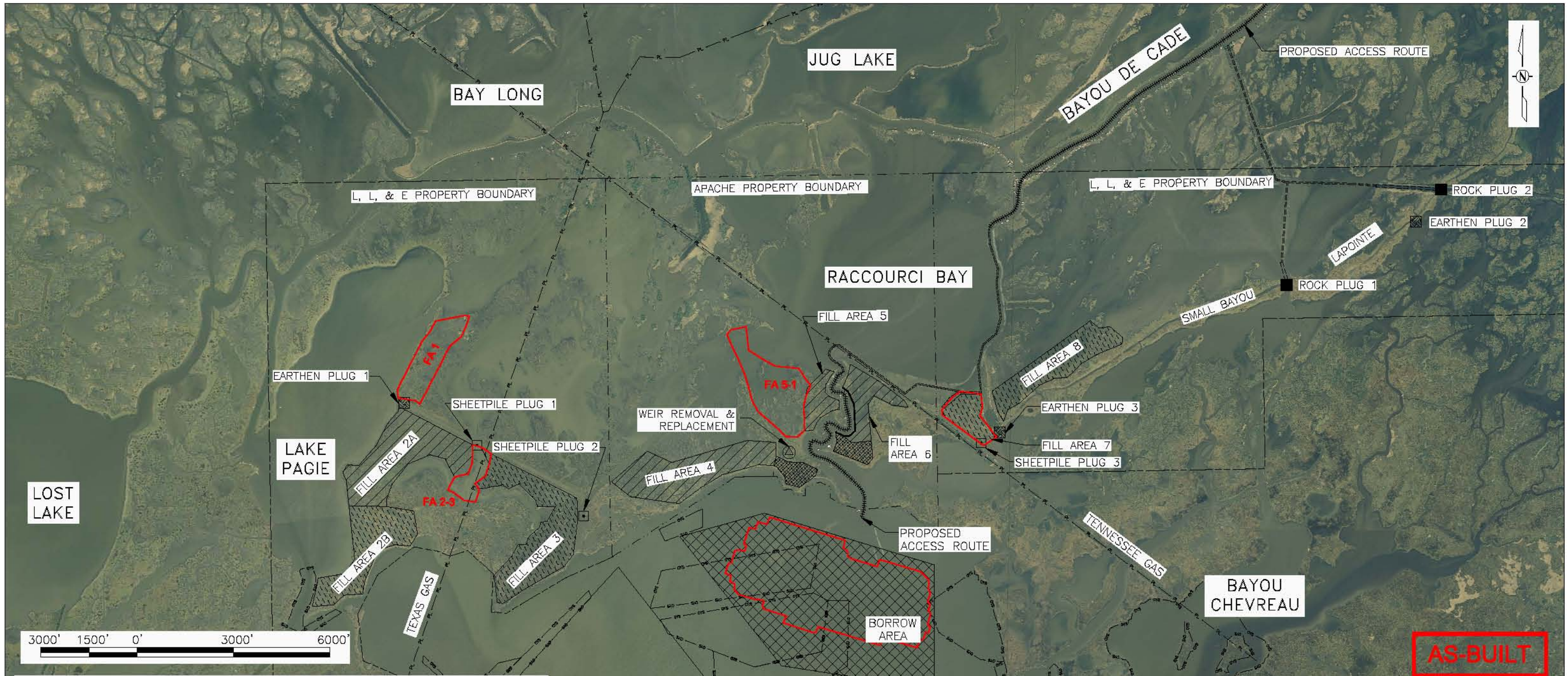
From our observations during the annual inspection, it appears the fill areas are promoting the growth of vegetation with the majority of the areas fully vegetated. All of the fill areas were visually inspected from the perimeter of the individual areas, but with the capabilities

of the airboat, we were able to see the interior of Fill Areas 2A, 2-3, 4, and 5. There are no signs of extreme settlement of the fill material, as the elevation of the dredged material remains fairly consistent with the typical spikes in elevation where the dredge pipe was located during construction. Overall the fill areas appear to be in very good condition and there are no recommendations for corrective actions at this time. (See Appendix B, Photos 18, 25 and 30)

VI. Conclusions and Recommendations

Other than the catastrophic structural failure of Sheetpile Plug 2 caused by Hurricane Isaac, the project features that create the TE-44 North Lake Mechant Landbridge Project are all in good overall condition. There are minor deficiencies stated previously, but the structures are operating as designed and the dredged material fill areas are promoting vegetation growth. Earthen Plug 1 is fully vegetated and shows no signs of settlement or erosion. Earthen Plug 2 is also fully vegetated and blends in well with the natural surrounding as its only identifying characteristic is its increased elevation from the adjacent marsh. Earthen Plug 3 is semi vegetated, but shows no signs of erosion of the plug or settlement of the plug material. Earthen Plug 4 has been damaged by vandals and it is recommended the plug remains this way until a cost effective solution can be determined to repair the plug and prevent the damage from reoccurring. There is no observed settlement of Rock Plug 1 and no evidence of erosion or breaches around its embankment tie-ins. The variance in elevation along Rock Plug 2 is due to the further prevention of breaching along the northern embankment tie-in, and it appears to be working as intended as there are no signs of erosion or breaching around the structure. Sheetpile Plug 1 & 3 look to be in good condition; all of their structural components are free of damage and severe corrosion, there is no evidence of erosion or breaching around their armored embankment tie-ins, and remain stable with no signs of settlement or displacement of the plugs. The sheet pile weir was well marked in the existing canal, the only water flow was over the structure and not around the embankment tie-ins, and there is no damage or corrosion of its structural material. As expected, the armored earthen embankment has exhibited slight variation in elevation, but the articulated concrete mats remain connected and is allowing vegetation to grow through the structure. The dredged material fill areas also appear to be in very good condition. From the perimeter of the fill areas it can be observed that they are promoting the growth of vegetation throughout the area. The containment dikes as well as the interior marsh have the majority of its area covered by vegetation in a short time since construction. Also, the elevation of the fill area remains fairly consistent throughout the areas, with expected small spikes in elevation where the fill material was pumped in. All of these project features are in good overall shape and don't require maintenance or repair. There are no recommendations for corrective action at this time.

Appendix A
Project Features Map



AS-BUILT

- NOTES:**
1. SEE SHEET 13 FOR DIFFERENCES BETWEEN MARSH CREATION AND MARSH NOURISHMENT.
 2. ONLY ONE PIPELINE ACCESS CORRIDOR WILL BE ALLOWED FOR EACH FILL AREA WITH THE EXCEPTION OF FILL AREAS 2 AND 3. TWO PIPELINE ACCESS CORRIDORS WILL BE ALLOWED FOR FILL AREAS 2 AND 3. THE CONTRACTOR SHALL INCLUDE THE LOCATIONS OF THESE PROPOSED CORRIDORS WITH THE DREDGE DISPOSAL PLAN IN ACCORDANCE WITH TS-8.5 OF THE SPECIFICATIONS.
 3. DEPENDING ON DRAFT REQUIREMENTS OF THE CONTRACTOR'S EQUIPMENT, FLOTATION CHANNELS MAY NOT BE REQUIRED AT ALL LOCATIONS SHOWN. FLOTATION CHANNELS ARE PERMITTED TO A MAXIMUM DEPTH OF -6.0' NAVD 88 AND MAXIMUM BOTTOM WIDTH OF 40'. IT IS NOT MANDATORY THAT THE CONTRACTOR DREDGE TO THIS DEPTH AND WIDTH. THE CONTRACTOR SHALL DISPOSE OF FLOTATION SPOIL IN THE AREAS SHOWN ON THE PLANS. TEMPORARY SPOIL DISPOSAL SHALL BE PLACED INTO THE FLOTATION CHANNEL PRIOR TO DEMOBILIZATION IN ACCORDANCE WITH TS-9 OF THE SPECIFICATIONS.
 4. OPTIONAL TRAINING DIKES ARE NOT SHOWN. SEE PLAN SHEET 14 AND TS-7 OF THE SPECIFICATIONS FOR DETAILS.
 5. THE OWNER HAS ACQUIRED OYSTER LEASE AREAS IMPACTED BY PROPOSED PROJECT FEATURES. THE AREA ACQUIRED CONSISTS OF OYSTER LEASES WITHIN THE FILL AREA AND BORROW AREA BOUNDARIES, PLUS A 150.0' BUFFER AREA SURROUNDING THE BOUNDARIES. THE CONTRACTOR SHALL NOT IMPACT OYSTER LEASE AREAS OUTSIDE OF THE ACQUIRED LEASE AREA. WHERE THE CONTRACTOR CROSSES AN OYSTER LEASE AREA WITH THE DREDGE DISCHARGE PIPELINE, THE PIPELINE SHALL BE FLOATING ACROSS THE LEASE AREA.

LEGEND	
	FILL AREA (MAX. EL. 3.0')
	FILL AREA (MAX. EL. 2.5')
	BORROW AREA
	MARSH NOURISHMENT
	EARTHEN PLUG
	SHEETPILE PLUG
	ROCK PLUG
	WEIR
	ARMORED EARTHEN DIKE
	EARTHEN DIKE/SPOIL
	FLOTATION CHANNEL
	PROPOSED ACCESS ROUTE
	PIPELINE
	OYSTER LEASE
	L, L, & E PROPERTY BOUNDARY
	APACHE PROPERTY BOUNDARY

1	3/26/10	AS-BUILT	MJC
REV.	DATE	DESCRIPTION	BY

**LOUISIANA DEPARTMENT OF NATURAL RESOURCES
COASTAL ENGINEERING DIVISION**
617 NORTH 3RD STREET
BATON ROUGE, LOUISIANA 70802

DRAWN BY: SHANE FAUST **DESIGNED BY: JERRY CARROLL, P.E.**

NORTH LAKE MECHANT LANDBRIDGE RESTORATION PROJECT	PROJECT FEATURES
STATE PROJECT NUMBER: TB-44	
FEDERAL PROJECT NUMBER: N/A	DATE: JANUARY 2008
APPROVED BY: LUKE LB BAS, P.E.	SHEET 3 OF 65

Appendix B
Photographs



Photo 1: Overall view of Rock Plug 2 from the oilfield canal, looking east



Photo 2: Close up view of Rock Plug 2 warning sign and damage caused by vandals



Photo 3: View of standing water and untrimmed geo-fabric on the southern end of Rock Plug 2



Photo 4: View of standing water and untrimmed geo-fabric on the southern end of Rock Plug 2



Photo 5: View of Rock Plug 2 from on top of the structure, looking north



Photo 6: Overall view of Rock Plug 1, looking south



Photo 7: View of the eastern embankment tie-in and warning sign of Rock Plug 1, looking south



Photo 8: View of the western embankment tie-in of Rock Plug 1, looking south



Photo 9: Overall view of Earthen Plug 2 from Small Bayou Lapointe, looking east



Photo 10: View of the western embankment tie-in of Earthen Plug 2, looking west



Photo 11: View of the eastern embankment tie-in of Earthen Plug 2, looking east



Photo 12: View of a breach in the southern bank of Small Bayou Lapointe, looking south. It is located between Earthen Plug 2 and Rock Plug 2.



Photo 13: Overall view of Sheetpile Plug 3, looking northwest



Photo 14: View of the articulated concrete mat used on the northeastern embankment tie-in of Sheetpile Plug 3

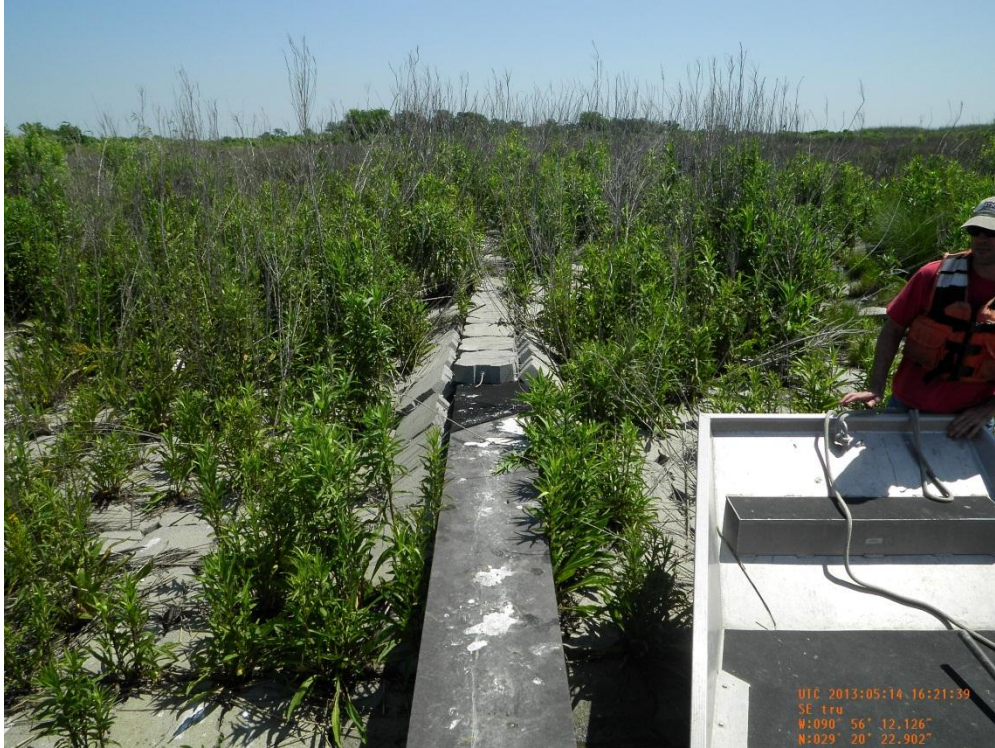


Photo 15: View of the articulated concrete mat used on the northeastern embankment tie-in on Sheetpile Plug 3 from on top of the structure



Photo 16: View along Sheetpile Plug 3 from on top of the structure, looking southwest



Photo 17: View of the articulated concrete mat used on the southwestern embankment tie-in on Sheetpile Plug 3 from on top of the structure



Photo 18: View of Fill Area 7 from Sheetpile Plug 3, looking northeast



Photo 19: Overall view of Earthen Plug 3, looking northwest



Photo 20: View of the articulated concrete mats along the southern end of Bayou Raccourci



Photo 21: View of the warning signs in front of the articulated concrete mats along Bayou Raccourci



Photo 22: View of the articulated concrete mats along the eastern bank of Bayou Raccourci, looking east



Photo 23: View of the articulated concrete mats along the eastern bank of Bayou Raccourci, looking east



Photo 24: View of the articulated concrete mats along the northern end of Bayou Raccourci



Photo 25: View of Fill Area 5 from the western bank of Bayou Raccourci, looking west



Photo 26: Overall view of the Sheetpile Weir replacement, looking north



Photo 27: Close-up view of the warning signs on top of the Sheetpile Weir, looking north



Photo 28: View of the articulated concrete mat used on the western embankment tie-in of the Sheetpile Weir, looking northwest



Photo 29: View of the articulated concrete mat used on the eastern embankment tie-in of the Sheetpile Weir, looking northeast



Photo 30: View of Fill Area 4 from the Sheetpile Weir, looking west



Photo 31: Overall view of Earthen Plug 1 from the Y canal, looking northwest



Photo 32: View along Earthen Plug 1 from on top of the plug, looking north



Photo 33: Overall view of Sheetpile Plug 1 from the Y canal. Looking south



Photo 34: View of the articulated concrete mats used on the western embankment tie-in of Sheetpile Plug 1, looking south



Photo 35: View of the articulated concrete mats used on the eastern embankment tie-in of Sheetpile Plug 1, looking south



Photo 36: View of the warning sign installed on top of Sheetpile Plug 1, looking south



Photo 37: View of structural damage to Sheetpile Plug 2 caused by Hurricane Isaac, looking south



Photo 38: View of western embankment tie-in of Sheetpile Plug 2, looking west



Photo 39: View of eastern embankment tie-in of Sheetpile Plug 2, looking east



Photo 40: View of structural damage to Sheetpile Plug 2 caused by Hurricane Isaac, looking west

Appendix C

Three Year Budget Projection

**North Lake Mechant Landbridge Restoration (TE-44)
Three-Year Operations & Maintenance Budgets 07/01/2013- 06/30/16**

Project Manager	O & M Manager	Federal Sponsor	Prepared By
	Ledet	USFWS	Ledet

	2013/2014	2014/2015	2015/2016
Maintenance Inspection	\$ 4,292.00	\$ 4,421.00	\$ 4,554.00
Structure Operation	\$ -	\$ -	
Administration	\$ 15,000.00	\$ -	\$ 3,000.00
COE Administration	\$ -	\$ -	\$ -

Maintenance/Rehabilitation

13/14 Description: Sheet Pile Replacement (Sheet Pile Plug No.2)

E&D	\$ 80,813.00
Construction	\$ 1,206,875.00
Construction Oversight	\$ 101,500.00
Sub Total - Maint. And Rehab.	\$ 1,389,188.00

14/15 Description:

E&D	\$ -
Construction	\$ -
Construction Oversight	\$ -
Sub Total - Maint. And Rehab.	\$ -

15/16 Description: Earthen Embankment Refurbishment

E&D	\$ 9,925.00
Construction	\$ 59,375.00
Construction Oversight	\$ 9,800.00
Sub Total - Maint. And Rehab.	\$ 79,100.00

	2013/2014	2014/2015	2015/2016
Total O&M Budgets	\$ 1,408,480.00	\$ 4,421.00	\$ 86,654.00

O&M Budget (3 Yr Total)	\$ 1,499,555.00
Unexpended O&M Funds	\$ 309,635.24
Remaining O&M Funds	\$ (1,189,919.76)

OPERATIONS & MAINTENANCE BUDGET WORKSHEET

Project: North Lake Mechant Landbridge Restoration (TE-44)

FY 13/14 –

Administration	\$ 15,000
O&M Inspection & Report	\$ 4,292
Operation:	\$ 0
Maintenance:	\$1,389,188
E&D:	\$ 80,813
Construction:	\$1,206,875
Construction Oversight:	\$ 101,500

Steel Sheetpile Removal/Replacement (Sheet Pile Plug No.2):

(Construction based on additional 10' tip elevation on steel sheet pile and the lateral supports (vertical and batter H-piles) at 20' centers)

Mobilization:	\$ 200,000
Access Dredging:	\$ 70,000
Structure Removal:	\$ 50,000
Steel Sheet Piling: (7,500 sf. x \$80/ sf.)	\$ 637,500
Warning Signs: (2 signs/supports @ 4,000 each)	\$ 8,000
Construction Cost:	\$ 965,500
Contingency (25%):	\$ 241,375
Total Estimated Construction Cost:	\$1,206,875

Engineering: (6% Construction Cost)	\$72,413
Surveying: (3days @ 2,800/day)	\$ 8,400
Inspection: (900 hr. @ \$85/hr.)	\$76,500
Construction Admin:	\$25,000
CPRA Admin:	\$15,000
Total Professional Services	\$ 197,313

Overall Estimated Project Budget: \$1,404,188

Considering the extent of damage to the Steel Sheetpile Plug No.2, CPRA has submitted a claim to the Federal Emergency Management Agency (FEMA) for assistance in funding of corrective actions under Hurricane Isaac.

FY 14/15 –

Administration		\$	0
COE Administration		\$	
O&M Inspection & Report		\$	4,421
Operation:		\$	0
Maintenance:		\$	0
E&D:	\$		0
Construction:	\$		0
Construction Oversight:	\$		0

FY 15/16 –

Administration		\$	0
COE Administration		\$	
O&M Inspection & Report		\$	4,554
Operation:		\$	0
Maintenance:		\$	79,100
E&D:	\$	9,925	
Construction:	\$	59,375	
Construction Oversight:	\$	9,800	

General Breach Repairs: Since the project was completed, we have noticed that the earthen embankments along the Small Bayou Lapointe Ridge are thin and endanger of breaching (very little marsh protecting the ridge). Below are estimated costs for refurbishing sections of the embankment. At this time, the specific areas have not been identified. For 2013/2014, we are assuming that approximately 500 linear feet of embankment will require refurbishment.

Earthen Embankment Refurbishment

Construction Cost:	
Mobilization:	\$ 20,000
Embankment Construction:	\$ 25,000
(500 lf. @ \$50/ft.)	
Seeding/Fertilizing:	\$ 2,500
Construction Cost:	\$ 47,500
Contingency (25%):	\$ 11,875
Total Estimated Construction Cost:	\$ 59,375

Engineering:	\$7,125
(12% Construction Cost)	
Surveying:	\$2,800
(1days @ 2,800/day)	
Inspection:	\$6,800
(80 hr. @ \$85/hr.)	
Construction Admin:	\$3,000
CPRA Admin:	\$3,000
Total Professional Services	\$ 22,725
Total Overall Estimated Project Budget:	\$82,100

O&M Accounting:

Total O&M Budget :	\$ 331,443.00
<u>OCPR Expenditures to Date:</u>	<u>\$ 21,807.24</u>
Unexpended O&M Budget:	\$ 309,635.76