Coastal Protection and Restoration Authority of Louisiana

State of Louisiana
Office of Coastal Protection and Restoration

2010 Annual Inspection Report

for

POINT AU FER ISLAND HYDROLOGIC RESTORATION

State Project Number TE-22
Priority Project List 1

October 27, 2010
Terrebonne Parish

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I. Introduction

The Point Au Fer Island Hydrologic Restoration Project encompasses 5,230 acres of intermediate and brackish marsh and open water on Point Au Fer Island located approximately 30 miles south of Morgan City, Louisiana, in Terrebonne Parish. Point Au Fer Island lies approximately 6 miles southeast of the mouth of the Atchafalaya River. The island is bordered by the Gulf of Mexico to the south, Atchafalaya Bay to the west, Four League Bay to the north and northeast, and Oyster Bayou tidal pass to the east (See Appendix A).

Construction of the Point Au Fer Island Hydrologic Restoration Project is co-sponsored by the National Marine Fisheries Service (NMFS) and the Office of Coastal Protection and Restoration (OCPR). The project was authorized by Section 303(a) of Title III Public Law 101-646, the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) enacted on November 29, 1990 as amended. The Project was approved on the second Priority Project List.

The property associated with the Point Au Fer Island Hydrologic Restoration Project is owned by the Point au Fer LLC, and the Roman Catholic Church – Arch Diocese of New Orleans.

II. Inspection Purpose and Procedures

The purpose of the annual inspection of the Point Au Fer Island Hydrologic Restoration Project (TE-22) 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, LDNR shall provide, in the report, a detailed cost estimate for engineering, design, supervision, inspection, construction, and contingencies and an assessment of the urgency of such repairs (O&M Plan, 2002). 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 Point Au Fer Island Hydrologic Restoration Project is outlined in Section IV.

The annual inspection of the Point Au Fer Island Hydrologic Restoration Project (TE-22) took place on two, separate days. The first trip was held on May 4, 2010 to inspect the Phase II and Phase III rock shoreline protection along the Gulf of Mexico. In attendance were Shane Triche from the OCPR and Joy Merino with the National Marine Fisheries Service (NMFS). The second trip was held on May 5, 2010 to inspect the Phase I canal plugs located on the east side of the island. In attendance were Shane Triche from the OCPR and Joy Merino with NMFS.

The field investigation included a visual inspection of the constructed project features. Photographs taken during the inspection are shown in Appendix B.

III. Project Description and History

Approximately 8% of Louisiana's coastal marshes have been converted to open water canals and their associated spoil banks (Neill and Turner 1987). Canal construction likely alters wetland hydrology and contributes to wetland loss in coastal Louisiana (Turner et al. 1984). Similar alterations to the natural drainage pattern at Point au Fer Island have occurred from the dredging of oil and gas access canals through the interior of the island. Strong tidal flows occur between Locust Bayou in the southwest and Four League Bay in the northeast (NMFS n.d.). Point au Fer Island has experienced decreased salinities as sediments and fresh water from Atchafalaya Bay have circulated through the islands' interior marshes. Increased fresh water flow and sediment input have not been effectively utilized due to changes in hydrologic patterns and the presence of artificial levees (NMFS n.d.).

The marsh habitat on Point Au Fer Island is predominately brackish marsh with intermediate marsh in the interior of the island. In the years leading up to construction of the project, certain areas of Point Au Fer Island had become weakened with avenues for saltwater intrusion from the Gulf of Mexico threatening (Monitoring Plan, 1998). The Mobil Canal levee (Phase II area) had been breached during Hurricane Andrew, and the southern end of Transco Canal (Phase I area) had almost been breached by the Gulf of Mexico.

The project was designed and constructed in order to reduce marsh loss and the potential for saltwater intrusion from storm surges and high tides (Phase I), to restore hydrologic circulation close to conditions present before dredging of the pipeline canals (Phase I), and to reduce the chance of breaching of the shoreline between the Gulf of Mexico and Mobil Canal during overwash events (Phase II and III). The specific goals established to evaluate the effectiveness of the project were to (1) reduce the rate of marsh loss (Phase I), (2) reduce the rate of canal widening (Phase I), and (3) maintain or decrease local shoreline erosion rate within the project area (Phase II and III) (Comprehensive Monitoring Report No. 1, 2001).

The Point Au Fer Island Hydrologic Restoration Project was constructed in three (3) phases. Phase I consisted of seven (7) canal plugs located in two pipeline canals. Four (4) timber plugs, Plugs No. 1, 2, 7, and 8, were constructed in Hester Canal (east-west). One (1) timber plug, Plug No. 6, and two (2) reef shell plugs, Plugs No. 3A and 4, were constructed in Transco Canal (north-south). Construction of the Phase I canal plugs was completed in December 1995. Phase II consisted of approximately 3,600 linear feet of rock shoreline protection of Areas 1, 2, and 3 along the Gulf of Mexico adjacent to the Mobil Canal. Phase II construction was completed in May 1997. Phase III consisted of extending the rock shoreline protection 3,037 linear feet to the east (Area 4) and 625 linear feet to the west (Area 5). Prior to construction, a change order added an additional lift of rock over 388 linear feet of the Phase II shoreline protection to repair a breach area located near the east end of Phase II. Additionally, Phase I Plug No. 4 was rebuilt with dredged material. Also, the existing Transco Canal steel bulkhead/rock plug (Plug No. 4A), located approximately 200 feet south of Plug No. 4, was reinforced by placing Petraflex mats (articulated concrete mats, 8' x 20' x 9") along the Gulf shoreline to the west and east of the existing Plug No. 4A. A total of 67 mats were placed on the west side and 58 mats were placed on the east side of Plug No. 4A. Phase III construction was completed in June 2000 (Phase III Final Report, 2000).

The principle project features include:

Phase I: Construction of timber and shell plugs in Hester and Transco Canals.

- Plug No. 1 – 200 linear feet (LF), Timber bulkhead plug in the Hester Canal located near Mosquito Bay.
- Plug No. 2 – 270 LF, Timber bulkhead plug in Hester Canal just west of Transco Canal.
- Plug No. 3A – 240 LF, Reef shell construction located in the Transco Canal north of Hester Canal.
- Plug No. 4 – 225 LF, Reef shell construction located in Transco Canal near the Gulf of Mexico.
- Plug No. 6 – 180 LF, Timber bulkhead plug located in Transco Canal just south of Hester Canal.
- Plug No. 7 – 200 LF, Timber bulkhead plug located in Hester Canal just east of Transco Canal.
- Plug No. 8 – 180 LF, Timber bulkhead plug located at the east end of Hester Canal near Bay Castagnier.

Phase II: 3,600 linear feet of rock shoreline protection of the beach separating the Gulf of Mexico from the Mobile Canal.

- Area 1 – 1,800 linear feet of rock dike protecting the beach along the Gulf of Mexico separating Mobil Canal and the Gulf.

- Area 2 – 400 linear feet of rock dike protecting the beach along the Gulf of Mexico near the west end of Mobil Canal.

- Area 3 – 1,400 linear feet of rock dike along the shoreline of the Gulf between Area 1 and Area 2, constructed with funds provided by Mobil Oil Company.

Phase III: Modifications/additions to the rock shoreline protection of the beach separating the Gulf of Mexico from the Mobil Canal.

- Area 4 – 3,037 linear feet extension of the Phase II rock structure on the east end.

- Area 5 – 625 linear feet extension of the Phase II rock structure on the west end.

- Additional 16 inch lift of rock placed over 388 feet of the Phase II rock structure near the east end of Phase II.

- Plug No. 4A (Transco Canal steel bulkhead/rock plug) – Petraflex mats (articulated concrete mats, 8’ x 20’ x 9”) placed along the Gulf shoreline to the west (67 mats) and east (58 mats) of the existing steel sheet pile bulkhead (Plug No. 4A).

The Point Au Fer Island Hydrologic Restoration Project (TE-22) has a twenty-year (20 year) economic life which began in December 1995 (Phase I), May 1997 (Phase II), and June 2000 (Phase III). Attached is the three (3) year projected budget for the project (See Appendix C).

IV. Summary of Past Operation and Maintenance Projects

Below is a summary of completed maintenance projects and operation tasks performed since completion of the Point Au Fer Island Hydrologic Restoration Project (TE-22).

June 2000 – Phase I Plug No. 4 was rebuilt with dredged material, and Petraflex mats (articulated concrete mats, 8' x 20' x 9") were placed along the shoreline to the west and east of the existing Transco Canal steel bulkhead/rock plug (Plug No. 4A) at the Gulf. A total of 67 mats were placed on the west side and 58 mats were placed on the east side of Plug No. 4A. This work was performed by Johnny F. Smith Truck & Dragline Service, Inc. of Slidell, LA as part of the Phase III construction contract and funded out of the project O&M budget. The total construction cost for this maintenance event was $237,874.

August 2005 – The east end of Phase III (Area 4) rock dike was extended approximately 300 linear feet to the shoreline using LaDOTD Class 250 lbs. riprap on geotextile fabric. At Plug No. 4A (Transco Canal steel bulkhead/rock plug) the east mats were capped with LaDOTD Class 250 lbs. riprap. Also, a rock dike (approximately 200 linear feet of 250 lbs riprap on geotextile fabric) was constructed from the east end of the mats to the shoreline. At Plug No. 8 (Phase I) in Hester Canal, in order to close a breach around the south end, the bulkhead was extended approximately 60 linear feet to the south using vinyl sheet pile bulkhead. Also, three Submar mats (articulated concrete mats, 8' x 20' x 4.5") were placed at the end to prevent scour. It should be noted that a small breach repair to Weir No. 3 of the TE-26 Lake Chapeau project, extending the rock to the south bank, was also included in this maintenance activity. This project was surveyed, designed, and inspected by Picciola & Associates, Inc. of Cutoff, Louisiana. The project was constructed by Luhr Bros., Inc. of Alexandria, LA. The total construction cost for this maintenance event was $391,382.

V. Inspection Results

Plug No. 1 – Timber Bulkhead Plug (Photos 17 – 18, Appendix B)

The timber bulkhead plug located on the west end of Hester Canal near Mosquito Bay appeared to be in good condition with no noticeable structural defects. The tie-ins at the banks had no apparent signs of erosion. The warning signs and supports were also in good condition. No maintenance will be required at Plug No. 1.

Plug No. 2 – Timber Bulkhead Plug (Photos 15 – 16, Appendix B)

The timber bulkhead plug located across Hester Canal just west of Transco Canal appeared to be in good condition with no noticeable structural defects. The tie-ins at the banks had no apparent signs of erosion. The warning signs and supports were also in good condition. No maintenance will be required at Plug No. 2.

Plug No. 3A – Shell Plug (Photos 26 – 28, Appendix B)

The shell plug located across Transco Canal north of Hester Canal is in poor condition. As noted in previous years' inspection reports, the shell plug has eroded in the center of the structure. According to the as-built and construction plans, the shell plug was constructed to elevation +4.0 NGVD. The shell tie-ins at the banks had no apparent signs of erosion. The west warning sign and supports were in good condition, but the east warning sign was missing. At this time repairing the shell plug is not recommended due to construction access constraints; however, this plug should continue to be monitored on future site visits.

Plug No. 4 – Shell Plug

The crest elevation along most of the plug was below water elevation at the time of inspection as it has been for several years. No maintenance is recommended for the reef shell plug; instead, maintenance efforts have been concentrated on Plug 4A (Transco Canal bulkhead) located approximately 200 feet south of Plug No. 4 at the Gulf.

Plug No. 4A – Transco Canal Gulf bulkhead (Photos 1 – 9, Appendix B)

To the east of the bulkhead, the erosion directly behind the east mats noted on inspections prior to 2006 has been slowed or halted since the rock lift placed in 2005. Material has accreted behind the rock lift, and that deposited material is now vegetated. However, continued shoreline erosion was noted at the shoreline tie-in of the 2005 maintenance rock (east end of extension dike). On the west side, the west mats appear to have settled and are beginning to be over washed during normal tidal events. The west end of the mats is no longer connected to the shoreline due to erosion of the shoreline around the tie-in. Consequently tidal exchange is now occurring behind the mats, and erosion of the shoreline behind the mats was noted similar to that observed behind the east mats prior to the 2005 maintenance event. At the existing bulkhead, the exchange between the Gulf and Transco Canal where water is passing behind the bulkhead and over the rocks into Transco Canal seems to be getting slightly larger every. The steel sheetpile and tie-rods are heavily corroded and should continue to be monitored.

Immediate maintenance recommendations include surveying of the shoreline and shoreline protection along both the west and east mats and tie-ins in order to determine the best course of action to prevent breaching of the Gulf into the Canal. Preliminary recommendations would include constructing a rock lift on the west mats, closing off the connection behind those mats with a rock dike extension back to the shoreline, and for the east extending and constructing a rock lift on the 2005 extension dike.

Plug No. 6 – Timber Bulkhead Plug (Photos 10 – 12, Appendix B)

The deflection of the timber bulkhead appears to be more apparent than what occurred during construction. Both tie-ins appear intact with no apparent signs of erosion. However there is a separation of the bulkhead (or missing board) near the eastern tie in. This separation was noticed when looking at the photographs after the inspection was complete. We were not able to get close to the structure because the canal had silted in. The warning signs and supports were in good condition. At this time no maintenance is recommended at Plug No. 6; however, the condition of the timber bulkhead should continue to be monitored on future site visits.

Plug No. 7 – Timber Bulkhead Plug (Photo 13 – 14, Appendix B)

The timber bulkhead plug located across Hester Canal east of Transco Canal appeared to be in good condition with no noticeable structural defects. The tie-ins at the banks had no apparent signs of erosion. The warning signs and supports were also in good condition. No maintenance will be required at Plug No. 7.

Plug No. 8 – Timber Bulkhead Plug (Photos 19 – 23, Appendix B)

The timber bulkhead and vinyl sheet pile extension are in good condition. However there is a breach around the southern tie-in of the vinyl sheet pile. The breach measured 2' in width and 11' in depth and occurs adjacent to the sheetpile. Also there were a couple of sections of concrete mats that were no longer visible adjacent to the structure. It is assumed that these sections were undermined from the water rushing through the breach and may lie somewhere on the bottom of the breach. The remaining concrete mats (scour pad) seem to have limited the erosion at the south tie-in. The north tie-in at the canal bank had no apparent signs of erosion. The warning signs and supports were in good condition. No maintenance will be required at Plug No. 8 at this time, however the breach should be monitored on future inspections to ensure that it is not getting any wider or deeper.

Phase II – Areas 1, 2 & 3, Rock Dike

Some areas appear low. Also, the shoreline or south bank of Mobil Canal is narrow behind the rock dike. Immediate maintenance recommendations include surveying the rock dike.

Phase III – Area 4, Rock Dike

This area of the rock dike could not be inspected due to the silting in of the east end of Mobil Canal. However it is assumed that the rock dike is in nearly the same condition as last year and the maintenance recommendations will be the same. Immediate maintenance recommendations include surveying the rock dike.

Phase III – Area 5, Rock Dike (Photos 24 – 25, Appendix B)

The rock dike along Area 5 of Phase III appeared to be in good condition with no noticeable settlement of the structure. Beyond the west end of the dike, erosion of the beach face has increased and the shoreline has moved inland. Consequently tidal exchange is now occurring behind the mats, and erosion of the shoreline behind the mats was observed. Immediate maintenance recommendations include surveying the rock dike and shoreline at tie-in.

VI. Conclusions and Recommendations

Overall, the Phase I canal plugs were in good condition with the following deficiencies noted in the inspection results. Shell Plugs No. 3A and 4 have been eroding in the center of the plugs since the end of construction. No maintenance is recommended for Plug No. 3A because of the construction access constraints. No maintenance is recommended for Plug No. 4 as maintenance efforts are being concentrated on Plug No. 4A located to the south. The timber bulkhead Plug No. 6 has been out of alignment in the center of the structure since construction, and the deflection does appear to be increasing some. Also there is a possible separation occurring on the eastern side of the structure. Since the structure is still intact, no maintenance is recommended at this time. Timber bulkhead Plug No. 8 has been breached

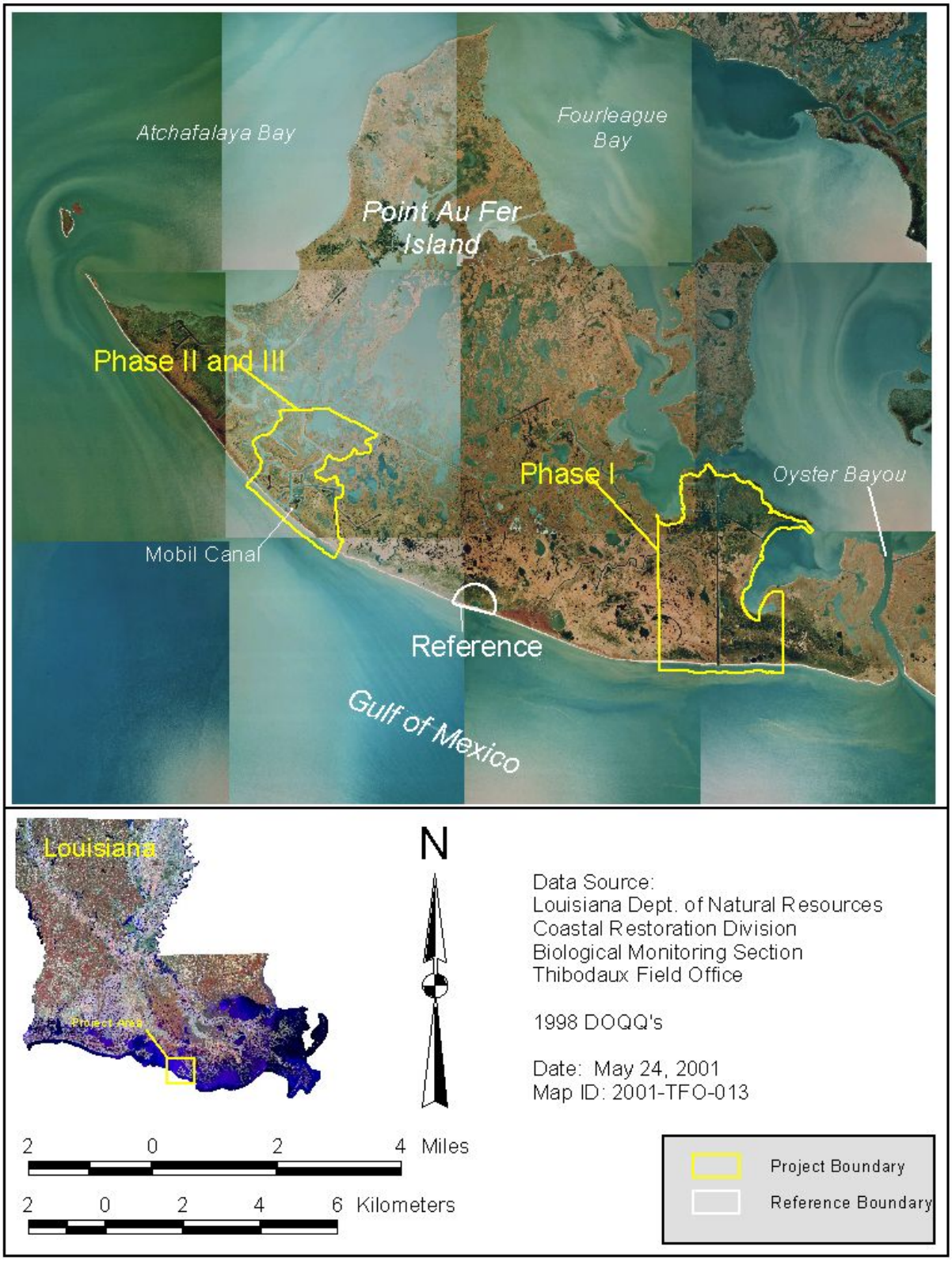
along its southern tie-in. The breach is fairly small in nature (2' wide x 11' deep) and should be monitored for any widening or deepening.

At Plug No. 4A (Transco at Gulf) in order to address the continued erosion at the west shoreline tie-in, behind the west mats, and at the east shoreline tie-in, recommendations include surveying of the west mats and tie-in area and the east rock dike extension and shoreline tie-in. Depending on the results of the survey, maintenance activity recommendations may include constructing a rock lift on the west mats, closing off the connection behind those mats with a rock dike extension back to the shoreline, and for the east extending and constructing a rock lift on the 2005 extension dike (See Appendix D).

For the Phase II and III rock dikes, several areas appear to be low. Also, the Gulf shoreline continues to erode where the project rock terminates. This is true of the Phase III Area 4 and Area 5 rock dike. Immediate maintenance recommendations include surveying the entire rock dike and tie-in areas. Depending on the results of the survey, maintenance activity recommendations may include a rock lift along low areas of the dike and extension of the ends back to the shoreline (See Appendix D).

Appendix A

Project Features Map


Atchafalaya Bay
Fourleague Bay
Point Au Fer Island
Phase II and III
Phase I
Oyster Bayou
Mobil Canal
Reference
Gulf of Mexico
Louisiana
Project Area
N
Data Source:
Louisiana Dept. of Natural Resources
Coastal Restoration Division
Biological Monitoring Section
Thibodaux Field Office
1998 DOQQ's
Date: May 24, 2001
Map ID: 2001-TFO-013
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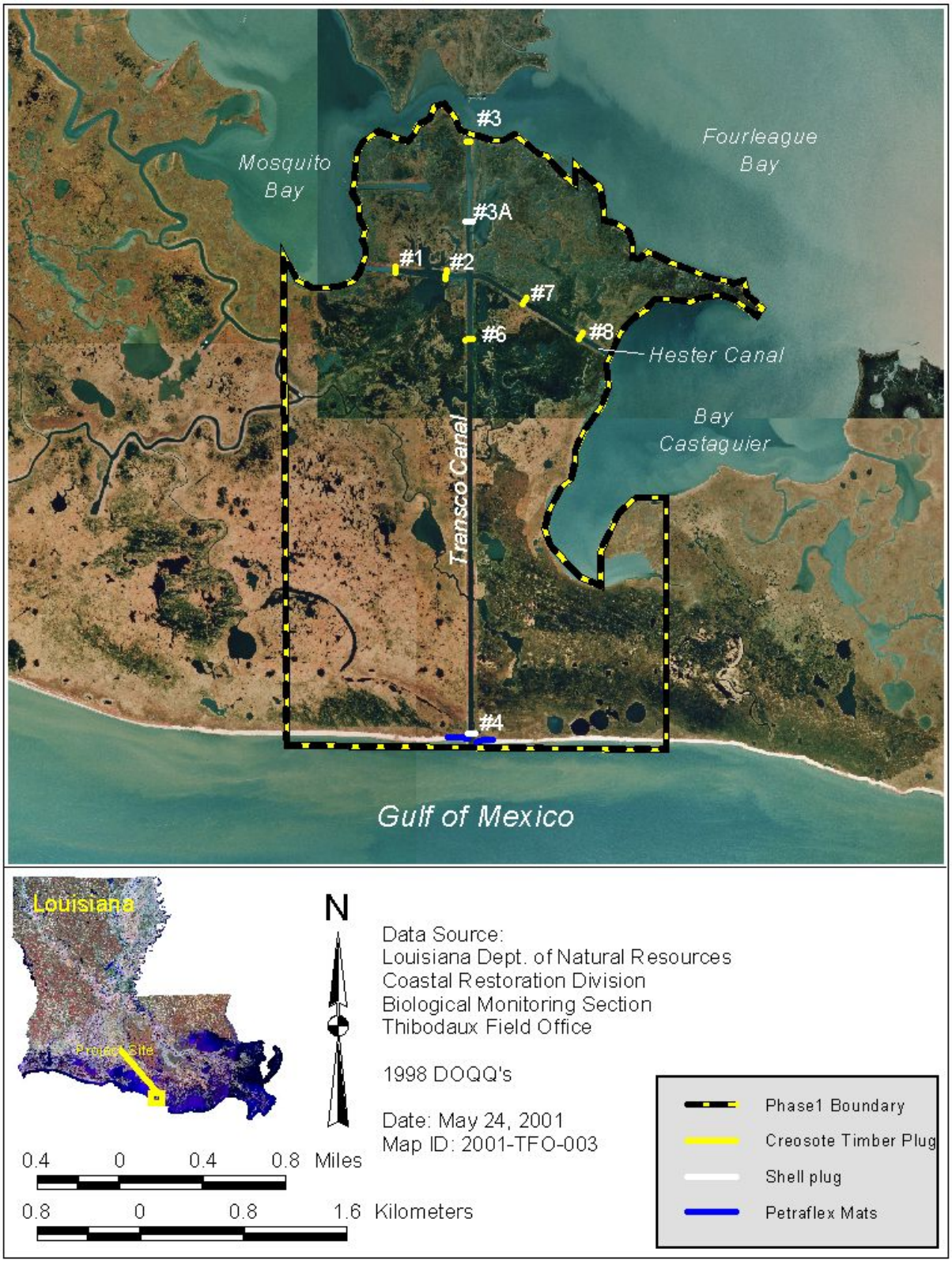
2 0 2 4 6 Kilometers
Project Boundary
Reference Boundary


Mosquito Bay
Fourleague Bay
#3
#3A
#1
#2
#7
#6
#8
Hester Canal
Bay Castaguier
Transco Canal
#4
Gulf of Mexico
Louisiana
Project Site
N
Data Source:
Louisiana Dept. of Natural Resources
Coastal Restoration Division
Biological Monitoring Section
Thibodaux Field Office
1998 DOQQ's
Date: May 24, 2001
Map ID: 2001-TFO-003
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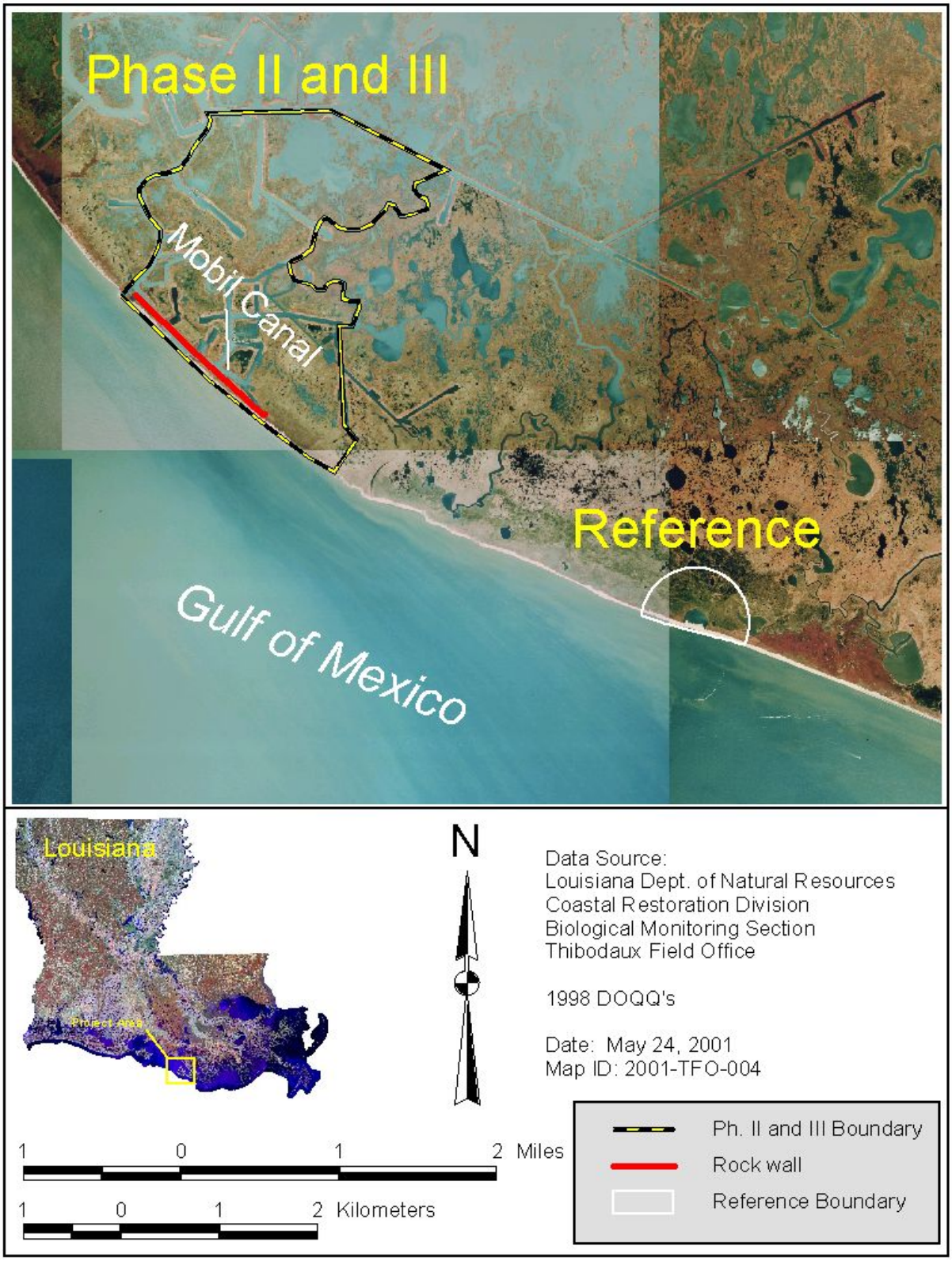
0.8 0 0.8 1.6 Kilometers
Phase1 Boundary
Creosote Timber Plug
Shell plug
Petraflex Mats


Phase II and III
Mobil Canal
Reference
Gulf of Mexico
Louisiana
Project Area
N
Data Source:
Louisiana Dept. of Natural Resources
Coastal Restoration Division
Biological Monitoring Section
Thibodaux Field Office
1998 DOQQ's
Date: May 24, 2001
Map ID: 2001-TFO-004
1 0 1 2 Miles
1 0 1 2 Kilometers
Ph. II and III Boundary
Rock wall
Reference Boundary

Appendix B

Photographs

Photo No. 1 (3420) – view of Petraflex mats on the west side of Plug No.4A looking west.

Photo No.2 (3419) – view of marsh behind Petraflex mats on the west side of Plug No. 4A looking east. Erosion can be seen behind the mats.

Photo No.3 (3422) – view of Petraflex mats on the west side of Plug No. 4A looking west along the shoreline. The shoreline has retreated as a result of erosion around the mats.

Photo No.4 (3416) – view of Plug No. 4A looking east. The rock material behind the sheet pile placed by the pipeline company has been displaced by recent topical events.

Photo No.5 (3417) – view of tidal channel connecting Transco Canal to the Gulf behind Plug No. 4A looking north.

Photo No.6 (3424) – rock covering the existing Petraflex mats on the east side of Plug No. 4A. The rock installed by the pipeline company has been displaced along the shoreline.

Photo No.7 (3426) – dispersed rock installed by the pipeline company on the east side of Plug No. 4A looking north.

Photo No.8 (3427) – Rock dike extension at shoreline on the east side of Plug No. 4A.

Photo No.9 (3430) – vegetation on accreted material behind the rock dike on the east side of Plug No. 4A.

Photo No.10 (3413) – Plug No.6 – view of timber bulkhead plug looking north in Transco Canal.

Photo No.11 (3412) – Plug No.6 – view of east tie-in of plug looking north in Transco Canal. A separation in the bulkhead can be noticed to the right of the warning sign.

Photo No. 12 (3411) – Plug No.6 – view of west tie-in of plug looking north in Transco Canal.

Photo No. 13 (3401) - Plug No.7 – view of plug and tie-in at south bank from inside looking southeast in Hester Canal.

Photo No. 14 (3400) – Plug No.7 – view of plug and tie-in at north bank from inside looking southeast in Hester Canal.

Photo No.15 (3398) – Plug No.2 – view of the north tie-in of timber bulkhead plug in Hester Canal from inside (east side).

Photo No.16 (3397) – Plug No.2 – view of the south tie-in of timber bulkhead plug in Hester Canal from inside (east side).

Photo No. 17 (3409) – Plug No.1 – view of timber bulkhead plug and north bank tie-in from inside (east side) in Hester Canal looking west.

Photo No.18 (3408) – Plug No.1 – view of timber bulkhead and south bank tie-in from inside (east side) in Hester Canal looking west.

Photo No.19 (3432) – Plug No.8 - view of plug looking west in Hester Canal.

Photo No.20 (3433) – Plug No.8 – View of south tie-in of 2005 maintenance extension of sheet pile wall. Scour has occured on the southern end of the structure.

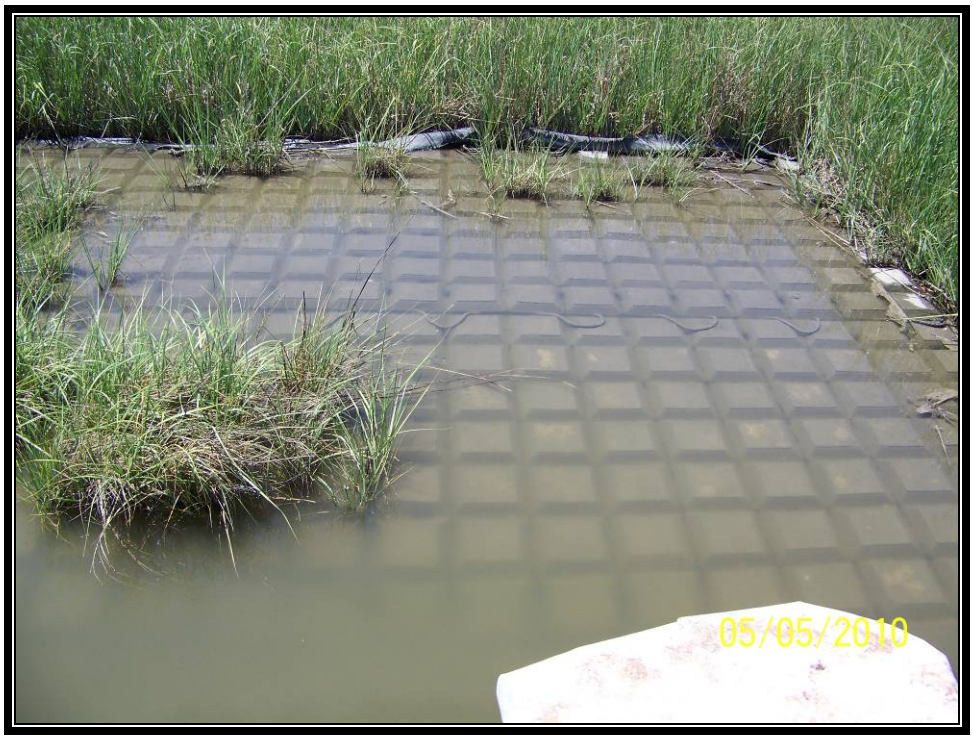


Photo No.21 (3434) - Plug No.8 – view of the Submar scour mats on the southern end of the vinyl bulkhead extension constructed under the 2005 maintenance project. Erosion adjacent to the vinyl bulkhead had taken place. Some of the Submar scour mats were missing.

Photo No.22 (3440) - Plug No.8 – view of the Submar scour mats on the west side of the southern end of the vinyl bulkhead extension. Some of the Submar scour mats were missing.

Photo No.23 (3440) – Plug No.8 – View of timber bulkhead at north bank tie-in looking northwest from Hester Canal.

Photo No.24 (3375) – Shoreline Protection, Phase III, Area 5end of rock dike along the Gulf of Mexico looking west.

Photo No.25 (3377) – Shoreline Protection - Phase III, Area 5 rock dike along the Gulf of Mexico looking east from end of dike.

Photo No.26 (3506) – Plug No.3 – View of shell plug from Transco Canal looking north.

Photo No.27 (3505) – Plug No.3 – View of west bank tie-in from Transco Canal looking northwest.

Photo No.28 (3507) – Plug No.3 – View of east bank tie-in from Transco Canal looking north.

Appendix C

Three Year Budget Projection

POINT AU FER ISLAND HYDROLOGIC RESTORATION / TE22 / PPL2

Three-Year Operations & Maintenance Budgets 07/01/2010 - 06/30/2013

Project Manager	O & M Manager	Federal Sponsor	Prepared By
	Dearmond	*NMFS*	*Triche*

	2009/2010	2010/2011	2011/2012
Maintenance Inspection	$ 6,103.00	$ 6,304.00	$ 6,512.00
Structure Operation	$ -	$ -	$ -
Administration	$ 2,000.00	$ 10,000.00	$ -
NMFS Administration	$ 4,000.00	$ 7,000.00	$ 2,205.00
Maintenance/Rehabilitation			

10/11 Description: Survey of Mobil Canal and Transco Canal Shoreline

E&D	$ 10,000.00
Construction	$ -
Construction Oversight	$ -
Sub Total - Maint. And Rehab.	$ 10,000.00

11/12 Description: Conduct Rock Lift for Mobil Canal and Transco Canal Bulkhead

E&D	$ 60,000.00
Construction	$ 2,150,390.00
Construction Oversight	$ 80,000.00
Sub Total - Maint. And Rehab.	$ 2,290,390.00

12/13 Description:

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

	2010/2011	2011/2012	2012/2013
Total O&M Budgets	**$ 22,103.00**	**$ 2,313,694.00**	**$ 8,717.00**

O&M Budget (3 yr Total) **$ 2,344,514.00**

Unexpended O&M Funds **$ 2,347,486.65**

Remaining O&M Budget (Projected) **$ 2,972.65**

OPERATIONS & MAINTENANCE BUDGET WORKSHEET

Project: **TE-22 Point Au Fer Island Canal Plugs**

FY 10/11 –

Administration (NMFS)		$ 4,000
O&M Inspection & Report		$ 6,103
Surveys – Mobil and Transco Canal Shore Protection		$ 12,000
Operation:		$ 0
Maintenance:		$ 0
E&D:	$ 0	
Construction:	$ 0	
Construction Oversight:	$ 0	

Operation and Maintenance Assumptions:
1. O&M Inspection and Report – Annual Inspection Field Trip Rate for 1-day trip with NMFS of $4,691 (2002 price level) and annual inflation rate of 2.7% through 2007 and 3.3% for 2008 and beyond taken from PPL12 Project Cost Summary compiled by NRCS dated 8/6/2002.

2. Surveys – Survey cost for Mobil and Transco Canal Shoreline Protection based on 3-days of surveying with an approximate cost of $12,000 ($10,000 survey consultant cost and $2,000 LDNR Admin costs).

FY 11/12 –

Administration (NMFS)	$ 7,000
O&M Inspection & Report	$ 6,304
Surveys – Marsh Creation & Rock Settlement Plates	$ 0
Operation:	$ 0
Maintenance:	$ 2,300,390

Operation and Maintenance Assumptions:
Includes an unplanned maintenance event to cap 7,500 linear feet of rock shoreline protection along the gulf near Mobil Canal, and to cap 450 linear feet of petroflex mats on the western side of the Transco Canal Bulkhead (Structure 4A). Method of construction includes placing a single lift of 440 class DOTD stone on top of the existing rock and petroflex mats.

Construction Cost:	Mobilization and Demobilization:	$ 200,000
	Rock Rip Rap (25,000 Tons @ $70/ton)	$ 1,750,000
	Geotextile Fabric (700 Yards @ $7.00/ yd)	$ 4,900
	Sub-Total Construction:	$ 1,954,900
	10% contingency:	$ 195,490
	Total Estimated Construction Cost:	**$ 2,150,390**

Engineering and Design:	$ 50,000
Surveying	$ 10,000
Construction Oversight:	$ 80,000
LDNR Construction Administration:	$ 10,000

Overall Project Budget for Rock Shoreline Refurbishment: $ 2,300,390

O&M Inspection and Report – Annual Inspection Field Trip Rate for 1-day trip with NMFS of $4,691 (2002 price level) and annual inflation rate of 2.7% through 2007 and 3.3% for 2008 and beyond taken from PPL12 Project Cost Summary compiled by NRCS dated 8/6/2002.

FY 12/13 –

Administration (NMFS)	$ 2,205
O&M Inspection & Report	$ 6,512
Surveys – Marsh Creation & Rock Settlement Plates	$ 0
Operation:	$ 0
Maintenance:	$ 0

Operation and Maintenance Assumptions:
O&M Inspection and Report – Annual Inspection Field Trip Rate for 1-day trip with NMFS of $4,691 (2002 price level) and annual inflation rate of 2.7% through 2007 and 3.3% for 2008 and beyond taken from PPL12 Project Cost Summary compiled by NRCS dated 8/6/2002.

Unexpended funds from Lana Report:	$ 2,347,486.65
FY10 Expenditures by LDNR	$ 0
Estimated Unexpended Funds:	$ 2,347,486.65

Appendix D

Work Plan Maps

REV.	DATE	DESCRIPTION	BY

OFFICE OF COASTAL PROTECTION & RESTORATION
ENGINEERING BRANCH
450 FLORIDA STREET
BATON ROUGE, LOUISIANA 70801

DRAWN BY: SJT | DESIGNED BY: BJB

POINT AU FER ISLAND
CANAL PLUGS

STATE PROJECT NUMBER: TE-22

FEDERAL PROJECT NUMBER: PTE-22/24

APPROVED BY: DMB

2010/2013
WORK PLAN MAP

DATE: JUNE 2009

SHEET 1 OF 2

STRUCTURE NO. 1
NO MAINTENANCE REQUIRED

STRUCTURE NO. 2
NO MAINTENANCE REQUIRED

STRUCTURE NO. 7
NO MAINTENANCE REQUIRED

STRUCTURE NO. 8
NO MAINTENANCE REQUIRED

STRUCTURE NO. 6
NO MAINTENANCE REQUIRED

STRUCTURE NO. 4A
CAP WEST PETRO-FLEX MATS WITH ROCK,
CREATE WESTERN TIE-IN AND CAP AND
EXTEND EASTERN TIE IN IF NECESSARY

FOUR LEAGUE BAY

BAY CASTANIER

TRANSCO CANAL

OYSTER BAYOU

GULF OF MEXICO

N

2000' 1000' 0' 2000' 4000'

REV.	DATE	DESCRIPTION	BY

OFFICE OF COASTAL PROTECTION & RESTORATION
ENGINEERING BRANCH
450 FLORIDA STREET
BATON ROUGE, LOUISIANA 70801

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