



Coastal Protection and
Restoration Authority of Louisiana

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

2015 Annual Inspection Report

for

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

State Project Number TE-44
Priority Project List 10

April 8, 2015
Terrebonne Parish

Prepared by:

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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 consisted of the 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 of approximately 2,200 linear feet of armored earthen dike; repair of an existing earthen plug; and construction 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 (TE-44) 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 recommendations of 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 the construction of the original 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 are outlined in Section IV.

The annual inspection of North Lake Mechant Landbridge Restoration Project TE-44 took place on March 19, 2015. In attendance were Brian Babin and Adam Ledet with CPRA, and Robert Dubois with US Fish and Wildlife Services. The inspection began around 10:00 am at Rock Plug 2 and concluded around 12:30 near Earthen Plug No.1. The trip included a visual inspection of the project features, structures and marsh creation areas. Photographs of the project features are shown 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 meet. 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

To date, there have been no maintenance events undertaken or project features rehabilitated. **This section will be used to reference all maintenance activities on future inspection reports.**

V. Inspection Results

Rock Plug No. 2

Rock plug 2 appears to be in good overall condition. During construction in 2009, the structure experienced some settlement after placement of the rock riprap material, causing erosion around its northern embankment tie-in. To mitigate erosion of the canal banks, additional rock rip rap was placed along the low areas, raising the crest elevation. The as-built drawings indicate the northern end of the structure was constructed to an elevation of 5.5' NAVD with a gradual slope to the southern end to an elevation of 3.0' NAVD. Observations during previous inspections revealed that the rock dike crest was consistent with the as-built drawings. The warning signs in front of the structure were in good condition with only slight damage to the southwest sign which has been vandalized and damaged by a shotgun.

Due to the excessive vegetative growth on and around the structure, it was difficult to visually determine if there was any settlement or the rock plug or water flow around the structure. It appears that the bank tie-ins are in good condition with no noticeable water bypassing the structure. CPRA will continue to monitor the earthen tie-ins for erosion and breaching on future site visits. (Appendix B, Photos 1 through 3)

Rock Plug No. 1

The Rock Plug 1 structure located along the south bank of Small Bayou LaPointe appears to be in very good condition. There are no visible signs of settlement since construction or evidence of erosion and washouts around the embankment tie-ins. There was also no visible damage to the warning signs on each end of the structure. There are no recommendations for corrective action at this time. (Appendix B, Photos 4 through 6)

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. At some point after construction, the earthen plug was vandalized by someone cutting a small breach in the earthen embankment. The breach has completely eroded away with a small portion of the earthen plug connecting the north bank. Due to the remote location of this structure, any corrective action would require a marsh excavator tracking long distances to make repairs. We will continue to work with the landowner and federal sponsor on identifying other areas of the ridge that may be breached or eroded and begin preparing a work plan for corrective actions. (Appendix B, Photo 7)

Earthen Plug No. 3

Earthen Plug No.3 was not accessible by outboard due to shallow water depths; therefore, the inspection team was unable to perform a close visual inspection of the structure. The earthen plug structure is located between fill areas 7 & 8 and from a distance appears to be fully vegetated with earthen fill material exposed. The inspection team will attempt to secure an airboat for next year's inspection to get a closer visual view of the structure. There are no recommended corrective actions at this time.

Sheet Pile Plug No. 3

Overall, Sheet Pile Plug No. 3 appeared to be in good condition with no damage or corrosion of the steel sheetpile or channel cap. The bank tie-ins and articulated erosion mats were also in good condition with not erosion or washouts present, and the warning signs on the structure were intact and visible. There are no recommendations for corrective action at this time. (Appendix B, Photos 8 through 10)

Armored Earthen Dike

The Armored Earthen Dike on the west bank of Bayou Raccourci appears to be in good overall condition. The warning signs and its timber supports were not damaged or missing. The articulated concrete mats are still coupled by the copolymer rope with woody vegetation emerging through the seams and in front of the concrete mats. The woody vegetation that is growing through the mats raises some concern as the trees/shrubs continue to grow. The vegetative growth will be monitored during future inspections. As expected, there is some variation in height along the length of the armored earthen dike. This is believed to be caused by differential settlement of the dredged material and the weight of the articulated mats. Despite the variations in elevation, the armored earthen dike is still in good condition; therefore, there are no recommendations for corrective actions at this time. (Appendix B, Photos 11 through 14)

Sheetpile Weir (existing weir replacement)

Overall, the sheetpile weir structure appears to be in good condition. There are no visual signs of corrosion or damage to the sheet pile or top channel cap. There doesn't appear to be any erosion or washouts around the embankment tie-ins, as well. The warning signs and supports are also in good condition. There are no recommendations for corrective action at this time. (Appendix B, Photos 15 through 17)

Sheetpile Plug No. 2

The Sheetpile Plug 2 suffered catastrophic structural damage due to Hurricane Isaac in August 2012. It appears that a large water level differential during the storm caused the bottom of the free standing wall to kick-out and the structure to fail. A section of the top cap is missing and the sheet pile is bent over below the water line, allowing water to pass through/over the structure. The structure 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. In May 2015, FEMA had rejected CPRA's claim for funding the repair of the steel sheetpile structure. CPRA has appealed

FEMA's decision and is currently awaiting a ruling on appeal. (Appendix B, Photos 18 through 20)

Earthen Plug No. 1

The Earthen Plug 1 structure is located on the eastern bank of Lake Pagie and appears to be in good overall condition. The plug was viewed from the east bank of Lake Pagie. Due to low water levels, we were unable to access the embankment plug from the boat (outboard). The plug 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. (Photos of structure not available)

Sheetpile Plug No. 1

Sheet pile plug 1 is located along the south bank of the northwest reach of the Y-Canal, just north of Lake Mechant. Unfortunately, the inspection team was unable to reach this structure by boat, so a visual inspection of the structure wasn't done. (Photos not available)

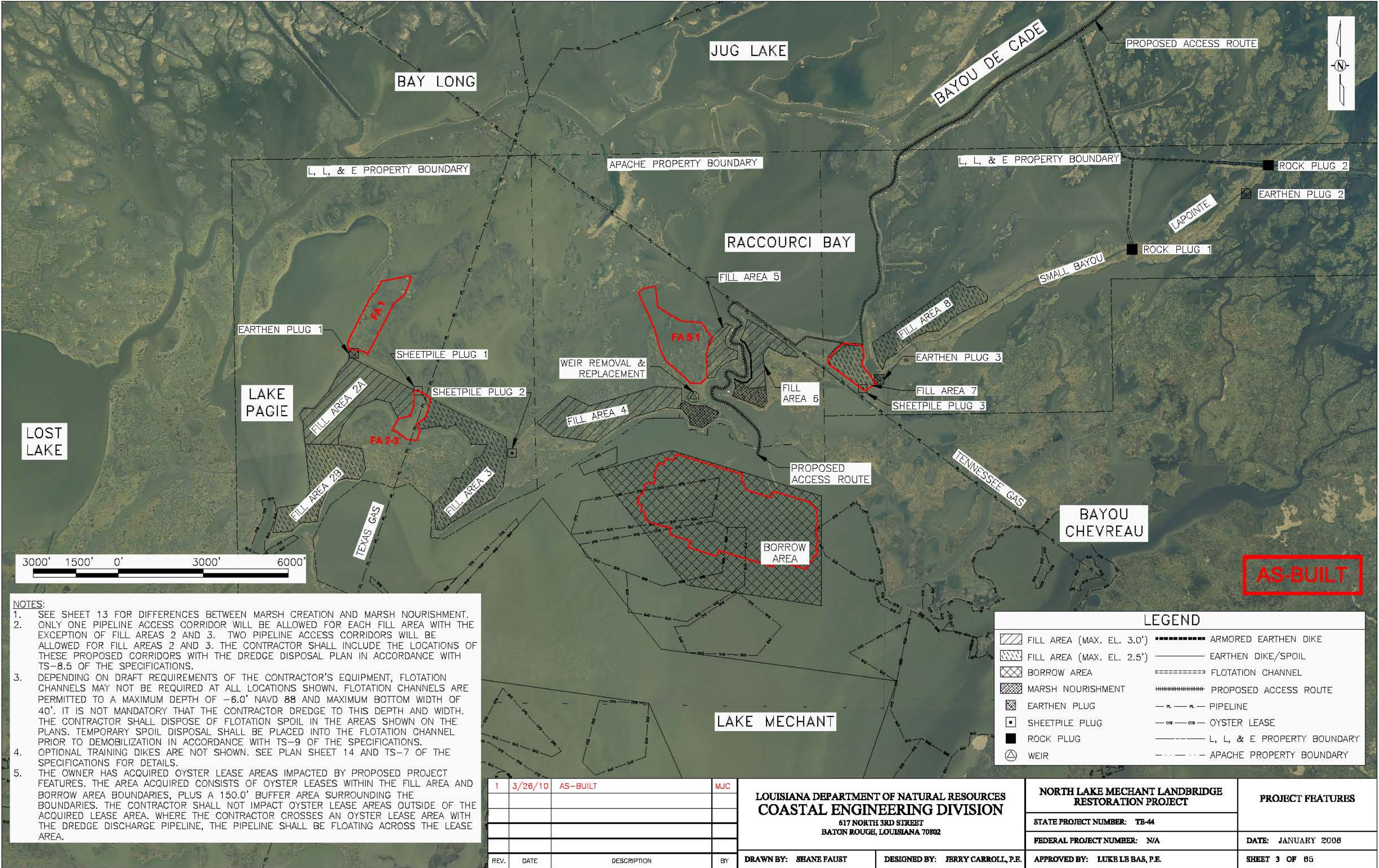
Dredged Material Fill Areas

In general, we did not inspect any of the dredge disposal areas other than visual observations from the perimeter of the fill sites. It appears that the fill areas are fully vegetated and are in very good condition. Although there is no maintenance of dredge fill areas, we will continue to document visual observations on future inspections. Overall the fill areas appear to be healthy and in very good condition.

VI. Conclusions and Recommendations

Other than the catastrophic structural failure of Sheetpile Plug 2 caused by Hurricane Isaac and the vandalism at Earthen Plug No.1 sometimes after construction, all of the project features/structures are in good overall condition. Although the inspection team was unable to access several of the earthen plugs and Sheetpile No.1, previous inspections indicate that these structures were in good condition with not obvious damage or defects. CPRA will attempt to secure an airboat for the next inspection so that the inspection team can access all of the structures related to the North Lake Mechant (TE-44) project. Regarding the FEMA claim for Sheetpile No.2, CPRA has received notification from FEMA that the initial claim has been denied. At this time, CPRA has filed an appeal and is awaiting a decision from FEMA on appeal. We will also continue to work with the landowner and the federal sponsor on developing a work plan for repairing Earthen Plug No.1 and any other areas of the LaPointe Ridge that are in need or maintenance.

Appendix A
Project Features Map



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. OPTIONAL TRAINING DIKES ARE NOT SHOWN. SEE PLAN SHEET 14 AND TS-7 OF THE SPECIFICATIONS FOR DETAILS.
4. 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.

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		NORTH LAKE MECHANT LANDBRIDGE RESTORATION PROJECT		PROJECT FEATURES
		STATE PROJECT NUMBER: TB-44		
				FEDERAL PROJECT NUMBER: N/A
DRAWN BY: SHANE FAUST	DESIGNED BY: JERRY CARROLL, P.E.	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: View of northern embankment on Rock Plug 2, facing northeast



Photo 3: View of southern embankment of Rock Plug No.2 looking southeast.



Photo 4: Overall view of Rock Plug No.1, looking south.



Photo 5: View of western bank tie-in for Rock Plug No.1 looking southwest.



Photo 6: View of eastern bank tie-in of Rock Plug No.1, looking southeast.



Photo 7: View of large breach in earthen plug along the Lapointe Ridge.



Photo 8: View of southwest bank tie-in along Sheetpile Plug No.3, looking northwest.



Photo 9: Overall view of Sheetpile Plug No. 3 , looking northwest.



Photo 10: View of northeast bank tie-in along Sheetpile Plug No.3, looking north.



Photo 11: View of articulated concrete mats along the east bank of Bayou Raccourci.



Photo 12: View of articulated concrete mats along the east bank of Bayou Raccourci



Photo 13: View of articulated concrete mats along the east bank of Bayou Raccourci



Photo 14: View of southern end of articulated concrete mats along Bayou Raccourci.



Photo 15: Overall view of weir replacement west of Bayou Raccourci.



Photo 16: view of east bank tie-in along the weir replacement structure west of Bayou Raccourci.



Photo 17: view of west bank tie-in along the weir replacement structure west of Bayou Raccourci.



Photo 18: view of the center section of the damaged sheet pile along Sheetpile Plug No.2.



Photo 19: view of the east bank tie-in along Sheetpile No.2, looking northeast.



Photo 20: View of the west bank tie-in along Sheetpile No.2, looking northwest.

Appendix C

Three Year Budget Projection

North Lake Mechant Landbridge Restoration (TE-44)
Three-Year Operations & Maintenance Budgets 07/01/2015- 06/30/18

<u>Project Manager</u>	<u>O & M Manager</u>	<u>Federal Sponsor</u>	<u>Prepared By</u>
	<i>Ledet</i>	<i>USFWS</i>	<i>Babin</i>

	2015/2016	2016/2017	2017/2018
Maintenance Inspection	\$ 20,217.00	\$ -	\$ 21,447.00
Structure Operation	\$ -	\$ -	
CPRA Administration		\$ 32,923.00	\$ -
COE Administration	\$ -	\$ -	\$ -

Maintenance/Rehabilitation

15/16 Description	

<i>E&D</i>	
<i>Construction</i>	
<i>Construction Oversight</i>	
<i>Sub Total - Maint. And Rehab.</i>	\$ -

16/17 Description	

<i>E&D</i>	\$ 19,725.00
<i>Construction</i>	\$ 59,375.00
<i>Construction Oversight</i>	\$ -
<i>Sub Total - Maint. And Rehab.</i>	\$ 79,100.00

17/18 Description:	Earthen Embankment Refurbishment

<i>E&D</i>	\$ -
<i>Construction</i>	\$ -
<i>Construction Oversight</i>	\$ -
<i>Sub Total - Maint. And Rehab.</i>	\$ -

	2015/2016	2016/2017	2017/2018
<u>Total O&M Budgets</u>	\$ 20,217.00	\$ 112,023.00	\$ 21,447.00

O&M Budget (3 Yr Total)	\$ 153,687.00
Unexpended O&M Funds	\$ 469,457.33
Remaining O&M Funds	\$ 315,770.33

OPERATIONS & MAINTENANCE BUDGET WORKSHEET

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

FY 15/16 –

Administration	\$	0
O&M Inspection & Report	\$	20,217
Operation:	\$	0
Maintenance:	\$	0
E&D:	\$	0
Construction:	\$	0
Construction Oversight:	\$	0

Operation and Maintenance Assumptions:

Annual Inspection/ Report

CPRA Direct Costs

Inspection:

CPRA Engineer 3 – 12 hrs@ \$60/hr.:	\$	720
CPRA Engineer 6 – 12 hrs @ \$73/hr.	\$	876
CPRA Scientist 4 – 10 hrs @ \$50/hr.	\$	500
		<u>\$ 2,096</u>

Report:

CPRA Engineer 6 – 60 hrs. @ \$73/hr.	\$	4,380
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Total Direct CPRA Costs: **\$ 6,476**

CPRA Indirect Costs

Inspection:

CPRA Engineer 3 – 12 hrs@ \$127.30/hr.:	\$	1,528
CPRA Engineer 6 – 12 hrs @ \$154.88/hr.	\$	1,859
CPRA Scientist 4 – 10 hrs @ \$106.08/hr.	\$	1,061
		<u>\$ 4,448</u>

Report:

CPRA Engineer 6 – 60 hrs. @ \$154.88/hr.	\$	9,293
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Total Indirect CPRA Costs: **\$13,741**

FY 16/17 –

CPRA Administration		\$ 32,923
Operation:		\$ 0
Maintenance:		\$ 79,100
E&D:	\$ 19,725	
Construction:	\$ 59,375	
Construction Oversight:	\$ 0	

Operation and Maintenance Assumptions:

O&M Inspection and Report – 3% inflation

Maintenance Event No.1

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 2016/2017, we are assuming that approximately 500 linear feet of embankment will require refurbishment.

Maintenance Event No.1**Earthen Embankment Refurbishment****Construction Cost:**

Mobilization: \$ 20,000

Embankment Construction: \$ 25,000

(500 lf. @ \$50/lf.)

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

Total Professional Services \$ 19,725**Total Overall Estimated Project Budget: \$79,100****CPRA Direct Costs****Maintenance No.1**

CPRA Engineer 4 – 50 hrs. @ \$60/hrs.: \$ 3,000

CPRA Engineer6 – 12 hrs. @ \$73/hr. \$ 876

\$ 3,876

Inspection:

CPRA Engineer 3 – 12 hrs@ \$60/hr.:	\$ 720
CPRA Engineer 6 – 12 hrs @ \$73/hr.	\$ 876
CPRA Scientist 4 – 10 hrs @ \$50/hr.	<u>\$ 500</u>
	\$ 2,096 x 3% = \$2,159

Report:

CPRA Engineer 6 – 60 hrs. @ \$73/hr.	\$ 4,380 x 3% = \$4,511
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Total Direct CPRA Costs: \$10,546

CPRA Indirect Costs

Maintenance No.1

CPRA Engineer 4 – 50 hrs. @ \$127.30/hrs.:	\$ 6,365
CPRA Engineer 6 – 12 hrs. @ \$154.88/hr.	<u>\$ 1,859</u>
	\$ 8,224

Inspection:

CPRA Engineer 3 – 12 hrs@ \$127.30/hr.:	\$ 1,528
CPRA Engineer 6 – 12 hrs @ \$154.88/hr.	\$ 1,859
CPRA Scientist 4 – 10 hrs @ \$106.08/hr.	<u>\$ 1,061</u>
	\$ 4,448 x 3% = \$4,581

Report:

CPRA Engineer 60 hrs. @ \$154.88/hr.	\$ 9,293 x 3% = \$9,572
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Total Indirect CPRA Costs: \$22,377

FY 17/18 –

Administration	\$ 0
O&M Inspection & Report	\$ 21,447
Operation:	\$ 0
Maintenance:	\$ 0
E&D:	\$ 0
Construction:	\$ 0
Construction Oversight:	\$ 0

Operation and Maintenance Assumptions:

O&M Inspection and Report – 3% inflation

CPRA Direct Costs

Inspection:

\$2,159 x 3% = **\$2,224**

Report:

\$4,511 x 3% = **\$4,646**

Total Direct CPRA Costs: \$6,870

CPRA Indirect Costs

Inspection:

\$4,581 x 3% = **\$4,718**

Report:

\$9,572 x 3% = **\$9,859**

Total Indirect CPRA Costs: \$14,577

O&M Accounting:

Total O&M Budget (Lana Report):	\$ 515,529.00
CPRA Expenditures to Date (LaGov)	<u>\$ 46,071.33</u>
Unexpended O&M Budget:	\$ 469,457.67