



Coastal Protection and
Restoration Authority of Louisiana

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

2014 Annual Inspection Report

for

**WEST BELLE PASS BARRIER
HEADLAND RESTORATION
PROJECT (TE-52)**

State Project Number TE-52
Priority Project List 16

June 4, 2014
Terrebonne Parish

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I. Introduction

The West Belle Pass Barrier Headland Restoration Project (TE-52) is located in Lafourche Parish, Louisiana southwest of Port Fourchon, along the Chenier Caminada headland, between Belle Pass and Raccoon Pass, bordering Timbalier Bay to the southeast. The limits of the specific project area start approximately 2,800 feet from the west bank of Belle Pass and extend approximately 9,300 feet westward. The eastern project limits are based on the western limit of the USACE's beneficial disposal area for material dredged from Belle Pass (Project O&M Plan, 2014).

The Chenier Caminada headland experiences some of the highest shoreline retreat rates in the nation, measuring over 100 feet a year in some locations. As the gulf encroaches upon the shoreline, sand is removed and the headland erodes. What was once a continuous shoreline spanning several miles has been reduced to less than half its original length. In 2005, Hurricanes Katrina and Rita removed most of the remaining emergent headland and dunes west of Belle Pass, threatening the fragile bay habitat and infrastructure north of the project area (Project Completion Report, 2013). The objective of the project is to increase headland longevity by restoring the dune and marsh platforms and to repair the breaches in the shoreline and prevent creation of a new breach over the 20-year project life.

The project has a twenty (20) year project life, which began in March 12, 2013 (Final Acceptance). The principal project features include:

- 9,300 linear feet of dune/beach totaling approximately 182.8 acres
- 333.8 acres of march creation/nourishment
- 12,352 linear feet of sand fencing
- 10 settlement plates

II. Inspection Purpose and Procedures

The purpose of the annual inspection of the West Belle Pass Barrier Headland Restoration (TE-52) 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 West Belle Pass Barrier Headland Restoration (TE-52) project is outlined in Section IV.

The annual inspection of TE-52 project took place June 5, 2014. In attendance were Travis Byland and Darin Lee with CPRA and John Foret with the National Marine Fisheries Service. The attendees met at a launch near Port Fourchon and traveled to the project area by outboard. The inspection began around 10:00 am at the sheetpile structure within the northern containment dike and concluded around 11:30 a.m. at the same location. The trip included a visual inspection of the project features. Photographs of the inspection are located in Appendix B.

III. Project Description

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

Beach Fill (Sta. 45+00 to 150+00)

The beach fill consists of approximately 2,024,252 cubic yards of sandy sediment placed continuously along the length of the gulf shoreline of the project area. The fill had a berm crest elevation of approximately +6.5 feet (NAVD) from Sta 45+00 to 101+50, +7.5 feet (NAVD) from Sta 101+50 to 130+00, and +4.5 feet from Sta 130+00 to 150+00. The maximum berm crest width was 293 feet. The landward beach face was constructed with a slope of 1V:30H from the top of the berm crest to the pre-construction grade. The seaward beach face was constructed with a slope of 1V:30H from the top of the berm to +1 feet (NAVD) and a slope of 1V:60H from the +1 feet (NAVD) to the pre-construction grade.

Marsh Fill (Sta. 45+00 to 133+00)

The marsh fill consists of approximately 2,060,208 cubic yards of mixed sediment placed between the constructed dune within the beach fill and the primary dike along the length of the headland. This fill was constructed to an elevation of approximately +3.3 to +5.5 feet (NAVD). Marsh fill material was placed after completion of the beach so that the beach fill could act as the southern containment dike. The primary containment dike was constructed along the length of the northern segment of the marsh fill project limits.

Sand Fencing (Sta. 46+43 to 146+34)

Sand fencing was installed along the length of the constructed dune. A single row of fence was installed along the berm crest. The sand fence was comprised of 450-foot

sections with 30 feet of overlap between adjacent sections. At the overlaps, the sections were offset 8 feet to allow passage through the fence from the Gulf shoreline to the backing marsh habitats. The total length of installed sand fence was approximately 12,352 feet.

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

Beach Fill

Overall, the beach fill appears to be in good condition. The beach profile is making changes to adapt to the environmental conditions, as expected. A scarp of the beach dune has formed near Sta. 105 and progressively worsens towards Belle Pass. A large sand spit has formed to the west of the beach template and extends towards East Timbalier Island. There are no signs of immediate breaching of the beach dune. There are no recommendations for maintenance at this time.

Marsh Fill

Overall, the marsh fill appears to be in good condition. There are no signs of extensive settlement and vegetation is beginning to appear. All containment dikes are fully intact, with the exception of the outfall area near the eastern adjacent marsh. This gap in the containment dike is providing a hydrologic connection to the channel that has formed as a result of the containment dike borrow area. The northern containment dike will likely form some gaps over the next year and will provide additional connectivity to the interior marsh. The formation of these gaps should be monitored in the future. There are no recommendations for maintenance at this time.

Sand Fencing

The sand fencing from Sta. 45+00 to Sta. 105+00 appears to be in good condition. The fence is catching sand as designed and the vegetation is growing around it. The sand fencing from Sta. 105+00 to the eastern extend is badly damaged or non-existent. The scarp in the dune has reached the sand fencing and destroyed it. The fencing in this area will need to be replaced after the beach has stabilized to its natural position. There are no recommendations for maintenance at this time.

VI. Conclusions and Recommendations

The beach fill and marsh fill appear to be functioning as designed. Some scarping of the beach dune has begun to occur on the eastern portion of the project as a result of erosional shadowing from the Belle Pass jetty. This scarping has caused extensive damage to the sand fencing that was placed along this stretch of dune. The sand fencing will need to be replaced in the future after the beach and dune has stabilized into its natural position. A large spit of sand has formed on the western end of the headland as a result of longshore sediment transport. The formation of this spit was expected and provides excellent habitat for shorebirds and other marine species. The marsh fill appears to be in good condition and is not experiencing any excessive settlement. The northern containment dike is beginning to breach, which will help to provide a hydrologic connection to the interior portions of the marsh. If this breach does not occur, measures should be taken to breach the dike in strategic locations in the future. This should be noted during future inspections. There are no recommendations of maintenance to the beach fill, marsh fill, or sand fencing at this time.

References:

Project Completion Report. West Belle Pass Barrier Headland Restoration Project (TE-52). Coastal Planning & Engineering. August 21, 2013.

Appendix A
Project Features Map

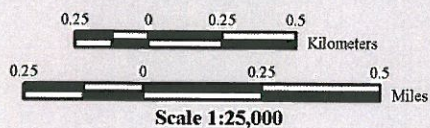


West Belle Pass Barrier Headland Restoration Project



- Crested Dune *
- Containment *
- Breakwater *
- Marsh Creation *
- Dune/Beach Fill *
- Project Boundary *

* denotes proposed features



Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA

Image Source:
2005 Digital Orthophoto Quarter Quadrangle

Map ID: USGS-NWRC 2006-11-0485
Map Date: July 19, 2006

Appendix B

Photographs



Photo 1: View of sheetpile plug in northern containment dike



Photo 2: View of northern containment dike, looking west



Photo 3: View of marsh fill and containment dike in northwest corner of fill area



Photo 4: View of vegetative plantings and sand fence on western dune, looking southeast



Photo 4: View of vegetative plantings and sand fence on western dune, looking south



Photo 6: View of vegetative plantings and marsh fill area, looking east



Photo 7: View of the western dune and sand fence with sand spit in background, looking south



Photo 8: View of the relocated dune on western end of beach face, looking east.



Photo 9: View of beach, dune, sand fencing and vegetative plantings, looking east



Photo 10: View of the western sand spit from southwest corner of fill, looking west



Photo 11: View of a beach, dune, and vegetative plantings, looking northeast



Photo 12: View of the beach and vegetative plantings, looking northeast



Photo 13: View of the western extent of the beach scarp that has formed, looking east.



Photo 14: View of beach/dune scarp destroying vegetative planting, looking east



Photo 15: Close up of beach scarp destroying vegetative plantings.



Photo 16: Destroyed sand fencing due to the erosion of the beach dune



Photo 17: View of the damaged sand fence along the beach dune, looking southwest



Photo 18: View of the scarping on the beach dune approaching more vegetative plantings



Photo 19: View of the eroding beach dune, looking east



Photo 20: View of the newly created marsh platform, looking northwest



Photo 21: View of a tidal creek that has formed within the marsh fill area, looking northwest



Photo 22: View of a tidal creek passing through the eastern containment dike near the outfall area, looking north



Photo 23: View of eastern containment dike and adjacent borrow area, looking northwest



Photo 24: View of the containment dike borrow channel and marsh fill area near the northeastern corner of the fill area, looking west



Photo 25: Close up of the erosion found on the northern containment dike



Photo 26: Overall view of the marsh fill area with scattered vegetation beginning to grow, looking southwest



Photo 27: View of the marsh fill area with some internal ponding, looking southwest

Appendix C

Three Year Budget Projection

WEST BELLE PASS BARRIER HEADLAND RESTORATION (TE-52)
Three-Year Operations & Maintenance Budgets 07/01/2014- 06/30/17

<u>Project Manager</u>	<u>O & M Manager</u>	<u>Federal Sponsor</u>	<u>Prepared By</u>
	Byland	USFWS	Byland

	2014/2015	2015/2016	2016/2017
Maintenance Inspection	\$ 10,600.00	\$ 10,600.00	\$ 10,600.00
Structure Operation	\$ -	\$ -	
Administration			
COE Administration	\$ -	\$ -	\$ -

Maintenance/Rehabilitation

14/15 Description	Vegetative Plantings and Engineering/Monitoring Survey
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E&D	\$ 148,371.00
Construction	\$ 806,494.00
Construction Oversight	\$ 44,840.00
Sub Total - Maint. And Rehab.	\$ 999,705.00

15/16 Description	Vegetative Planting Fertilization and Engineering/Monitoring Survey
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E&D	\$ 110,708.00
Construction	\$ 262,500.00
Construction Oversight	\$ 30,650.00
Sub Total - Maint. And Rehab.	\$ 409,564

16/17 Description:	Tidal Creek/Containment Dike Gapping, Sheet Pile Removal, and Engineering/Monitoring Survey
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E&D	\$ 115,116.00
Construction	\$ 323,750.00
Construction Oversight	\$ 62,270.00
Sub Total - Maint. And Rehab.	\$ 518,826.10

	2014/2015	2015/2016	2016/2017
Total O&M Budgets	\$ 1,010,305.00	\$ 420,163.71	\$ 529,426.10

O&M Budget (3 Yr Total)	\$ 1,959,894.81
Unexpended O&M Funds	\$ 2,103,851.95
Remaining O&M Funds	\$ 143,957.14

OPERATIONS & MAINTENANCE BUDGET WORKSHEET

Project: West Belle Pass Barrier Headland Restoration (TE-52)

FY 14/15 –

Administration	\$	0
O&M Inspection & Report	\$	10,600
Operation:	\$	0
Maintenance:	\$	999,705
E&D:	\$	148,371
Construction:	\$	806,494
Construction Oversight:	\$	44,840

Construction Cost Breakdown

Mobilization (Lump Sum):	\$	20,000
Vegetative Plantings:	\$	625,195
Contingency (25%):	\$	161,299
 TOTAL	\$	806,494

FY 15/16 –

Administration	\$	0
COE Administration	\$	0
O&M Inspection & Report	\$	10,600
Operation:	\$	0
Maintenance:	\$	409,564
E&D:	\$	110,708
Construction:	\$	262,500
Construction Oversight:	\$	30,650

Construction Cost Breakdown

Mobilization (Lump Sum):	\$	10,000
Fertilization:	\$	200,000
Contingency (25%):	\$	52,500
 TOTAL	\$	262,500

FY 16/17 –

Administration	\$	0
COE Administration	\$	0
O&M Inspection & Report	\$	10,600
Operation:	\$	0
Maintenance:	\$	518,826
E&D:	\$	115,116
Construction:	\$	323,750
Construction Oversight:	\$	62,270

Construction Cost Breakdown

<i>Mobilization (Lump Sum):</i>	\$ 75,000
<i>Dike Gapping:</i>	\$ 48,000
<i>Access Dredging:</i>	\$ 106,000
<i>Sheet Pile Removal:</i>	\$ 30,000
<i>Contingency (25%):</i>	\$ 64,750
 <i>TOTAL</i>	 \$ 323,750

O&M Accounting:

Total O&M Budget:	\$ 2,106,853.00
<u>OCPR Expenditures to Date:</u>	<u>\$ 3,001.05</u>
Unexpended O&M Budget:	\$ 2,103,851.95