



Coastal Protection and Restoration Authority of Louisiana

Office of Coastal Protection and Restoration

2009/2010 Annual Inspection Report

for

MARSH ISLAND HYDROLOGIC RESTORATION PROJECT (TV-14)

State Project Number TV-14
Priority Project List 6

December 3, 2009
Iberia Parish

Prepared by:

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I. Introduction

The Marsh Island Hydrologic Restoration Project is located in Iberia Parish approximately six miles south of Cypremort Point. The project area encompasses approximately 6,697 acres (2,710 ha) of wetlands in the vicinity of the northwest area of Marsh Island east of Bayou Blanc.

The Marsh Island Hydrologic Restoration 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 and approved on the sixth Priority Project List. The Marsh Island Hydrologic Restoration Project has a twenty year (20 year) economic life, which began in December 2001.

II. Inspection Purpose and Procedures

The purpose of the annual inspection of the Marsh Island Hydrologic Restoration Project (TV-14) is to evaluate the constructed project features to identify any deficiencies and prepare a report detailing the condition of project features and recommended corrective actions needed. Should it be determined that corrective actions are needed, OCPR shall provide, in the report, a detailed cost estimate for engineering, design, supervision, inspection, and construction contingencies, and 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 completion of the Marsh Island Hydrologic Restoration Project are outlined in Section IV.

An inspection of the Marsh Island Hydrologic Restoration Project (TV-14) was held on December 3, 2009 under sunny skies and cold temperatures. In attendance were Darrell Pontiff and Stan Aucoin from OCPR, and Paul Provence and Damien Bourque representing LDWF. Representatives from the USACE were invited but could not attend. The annual inspection began at approximately 10:15 a.m. at Structure No. 9 and ended at Structure No. 1 at approximately 11:30 a.m.

The field inspection included a complete visual inspection of most of the project features. Staff gage readings and existing temporary benchmarks where available were used to determine approximate elevations of water, embankments and weir features. Photographs were taken at each project feature (see Appendix B) and Field Inspection notes were completed in the field to record measurements and deficiencies (see Appendix D).

III. Project Description and History

The Marsh Island Hydrologic Restoration Project is located in Iberia Parish approximately six miles south of Cypremort Point. The project area encompasses approximately 6,697 acres (2,710 ha) of wetlands on the northeast tip of Marsh Island east of Bayou Blanc. It comprises 5,034 acres (2,037 ha) of brackish marsh and 1,663 (673 ha) acres of open water, based on the Louisiana Department of Natural Resource's GIS data for 1984. Common plant species found in the project area include *Juncus roemerianus* (needlegrass rush), *Spartina patens* (saltmeadow cordgrass), *Schoenoplectus maritimus* (cosmopolitan bulrush), *Schoenoplectus americanus* (chairmaker's bulrush), *Spartina alterniflora* (saltmarsh cordgrass), and *Vigna luteola* (hairypod cowpea) (United States Department of Agriculture, Natural Resources Conservation Service. 2002, Chabreck and Linscombe 1988).

Between 1930 and the present, the hydrology of Marsh Island has changed due to tidal influenced erosion, subsidence, and oil and gas exploration (Orton 1959, SCS 1978). Several oil field canals were constructed to facilitate oil and gas exploration in the project area during the 1950's. Recent deterioration and subsidence of the spoil banks deposited in the 1950's have resulted in cuts in the spoil banks that have become conduits for rapid tidal exchanges between the surrounding bays and the interior marshes. These rapid exchanges have resulted in tidal scouring and the loss of marsh vegetation through erosion and subsidence. Lake Sand and a number of interior lakes also supported a significant amount of submerged aquatic vegetation (SAV). Today these lakes are almost devoid of SAV, presumably due to the effects of increased tidal exchange and increased turbidity. Erosion has also lead to the deterioration of the northeast end of Marsh Island and the north rim of Lake Sand, leaving exposed a highly organic brackish marsh.

During the life of the 20 year project, 408 acres (168 ha) of wetlands will be protected (USACE 1994). The project consists of the construction of 9 plugs in oil and gas canals at the northeast end of Marsh Island, the protection of the northeast shoreline of Marsh Island, and isolating Lake Sand from Vermilion Bay with a free-standing rock breakwater (figure 1). Project construction began on July 25, 2001 with the construction of approximately 4,000 linear feet (1291 m) of rock breakwater to protect the north shoreline on Lake Sand by contractor Tacon Company, Inc. of Bartlett, Tennessee and subcontractor Luhr Brothers, Inc. of Columbia, Illinois. A total of seven canals were plugged with rock armor. An additional closure, constructed of painted steel sheetpile and rock armor, was constructed at the mouth of an oil exploration canal on the eastern end of the project area. Construction of the \$2.9 million project was completed on December 12, 2001.

IV. Summary of Past Operation and Maintenance Projects

General Maintenance: Below is a summary of completed maintenance projects and operation tasks performed since December 2001, the construction completion date of the Marsh Island Hydrologic Restoration Project (TV-14).

2005 Maintenance Project–Grillot, Inc. (Through lease agreement with Bertucci Contracting Corp.) This maintenance project included the placement of paving stone (18” thick) spread out around the wingwalls of the plug at Lake Sand Canal No. 5 Closure to “harden” the area while still allowing flow in extreme tidal events to pass around the structure without washing away the existing bank. Also included was the extension of the rock dike on the southern end of Canal No. 5. Approximately 4,000 tons of 1000# stone was placed on Lake Sand Closure No. 4 to reconstruct the rock dike where stone was displaced. This maintenance project was a result of damages that occurred during Hurricane LILI in 2002. The costs associated with the engineering, design and construction of the Marsh Island Maintenance Project are as follows:

Construction (FEMA)	\$267,059.11*
Construction (CWPPRA)	\$ 64,092.00
E & D, construction oversight, as-builts	\$ 30,262.00
Project Total	\$361,413.11

- This cost was reimbursed by FEMA

2008 Repair of Closure No. 8 Breach – This repair work included placing spoil material on the southern end of the rock plug from the dredging of the north-south access canal adjacent to this closure. The work was performed by Renaissance Petroleum Co. as part of their CUP application for a new oil and gas well on the east end of Marsh Island. Additional dredge material was also placed along the entire reach of the west levee of the proposed TV-21 project as well as on the northern end of Closure No. 8 towards the bay connecting to an existing rock dike. Hydraulic dredge material was also pumped behind Structure No. 7 to create marsh behind the rock dike. In addition, spoil material from the bucket dredge operation was placed on the west side of the north-south access canal to bridge a small area of marsh that connects to Structure No. 7. This work was completed in November 2008 and was performed at no cost to CWPPRA and OCPR.

2009 Maintenance Project – Antill Pipeline Construction - This maintenance project included placing 175 tons of 130# rock at Closure No. 1, 370 tons of 130# rock at Closure No. 2, 2,270 tons of 130# rock at Closure No. 4, and 570 tons of 130 # rock at Closure No. 6. Bank paving (using 30# rock) was placed at the ends of all of the closures as part of this project which was completed in February 2009. This maintenance project was a result of damages sustained from Hurricane Rita in 2005

and other required routine maintenance. The costs associated with the engineering, design and construction of the Marsh Island Maintenance Project are as follows:

Construction (FEMA)	\$113,083.30•
Construction (CWPPRA)	\$358,041.70
E & D, construction oversight, as-builts	\$ 44,627.14
Project Total	\$515,752.14

- This cost was reimbursed by FEMA

Structure Operations: There are no operations associated with this project.

V. Inspection Results

Closure No. 1

The erosion problems and Hurricane Rita damages have been repaired through the recent maintenance project that was completed in February 2009. The dike was capped and bank paving installed on both ends of the closure. This site is in good condition since this work was performed. This site was not accessible except from a distance due to low water. (Photos: Appendix B, Photo 1).

Closure No. 2

The dike was capped and bank paving installed as noted above and is in good condition since the work was performed. This site was also not accessible except from a distance due to low water. (Photos: Appendix B, Photo 2).

Closure No. 3

The rock closure dike appears in good condition and was extended on the western end along with installing bank paving during the recent maintenance event. Also, it was observed (and confirmed with aerial photography post Hurricane RITA) that a large open water area has developed within the marsh near the western terminus of Closure No. 3 and that the bankline between that point and the eastern end of Closure No. 2 has eroded very severely and such that the “landbridge” between Vermilion Bay on the north of Marsh Island and the northwestern portion of Lake Sand proper is now narrow and may become subject to breaching thus allowing an undesirable water connection between the two bodies of water. OCPR and COE agree that this area is in poor condition and should be considered for maintenance at some point in time. It is recommended that an additional reach of shoreline protection dike be constructed, an estimated 1,500 to 1,800 linear feet, to connect the western end of Closure No. 3 to the eastern end of Closure No. 2. This reach of bank has been recently surveyed and the estimated cost for rock dike and flotation is approximately \$800,000. OCPR and COE agreed

that due to this area being of concern but not yet critical status; and budget constraints, this maintenance work would be undertaken at a later time.(Photos: Appendix B, Photo 3).

Closure No. 4

The Lake Sand Dike closure as originally constructed and recently repaired for Hurricane Rita damages, appears in good condition. The dike was capped in those areas where it was below elevation +3.0 as well as extended on the eastern end with bank paving. (Photos: Appendix B, Photos 4-5).

Closure No. 5

The steel sheet pile, rock riprap wingwalls, and stone bank/marsh paving placed as part of the Hurricane LILI repair project is in good condition and were apparently very effective in preventing additional damage by the erosive action of Hurricane RITA. The staff gage was re-set as part of the recent maintenance event. The overbank marsh areas paved to make same “hard” and paid for with O & M funding needs to be continually evaluated for its effectiveness. This site was also not accessible except from a distance due to low water. (Photos: Appendix B, Photo 6).

Closure No. 6

The breach on the southern end of the dike that had occurred prior to Hurricane Rita and subsequently worsened as a result of the tidal surge has been repaired as part of the recent maintenance event. The dike was extended on the northern end and bank paving was installed on both ends of the closure. This site is in good condition since the repairs have been made. This site was also not accessible except from a distance due to low water. (Photos: Appendix B, Photo 7).

Closure No. 7

This closure site is in good condition and spoil material from the dredging of the north-south canal in 2008 was placed along the eastern end of the rock dike in an effort to stabilize this section of shore. In addition dredge spoil material was pumped behind the rock dike as part of this same access dredging and a small area of marsh creation was formed which is now starting to vegetate. (Photos: Appendix B, Photos 8-9).

Closure No. 8

This closure site is in good condition since the existing breach on the south side of the closure was repaired as noted in the 2008 maintenance event noted above in Section IV. Spoil material was placed to close off the breach and also placed on top of the existing rock dike. Some of this spoil material has since washed away and at the low water condition on the outside of the

closure you could see water flowing through the rock. Spoil material was also placed from the north end of the rock dike towards the bay to make a connection to the existing mitigation rock dike along the bayshore. (Photos: Appendix B, Photos 10-12).

Closure No. 9

The rock riprap shoreline protection dike constructed on the south shoreline of Marsh Island was noted to now sit out further into the waters of the Gulf as discussed in the last inspection. Conditions were such that the feature was functioning well and that sediment had accreted and a growth of marsh vegetation had extended over the new fill. This rock shoreline feature will still function as a breakwater and extend the life of the earthen pipeline closure to the north. It was discussed that perhaps each end of the current rock riprap dike be extended to the east and to the west, or perhaps construct extensions on each end of the existing stone to the northwest and northeast alignment directions to the shoreline from erosion of the earthen pipeline closure. Conditions at this location need to be evaluated and a design for some east and west extensions of the current dike concluded after some study. The low water conditions during this inspection allowed a good view of the mudflat behind the rock dike and the existing bank. There does not appear to be any scour in this area. (Photos: Appendix B, Photos 13-14).

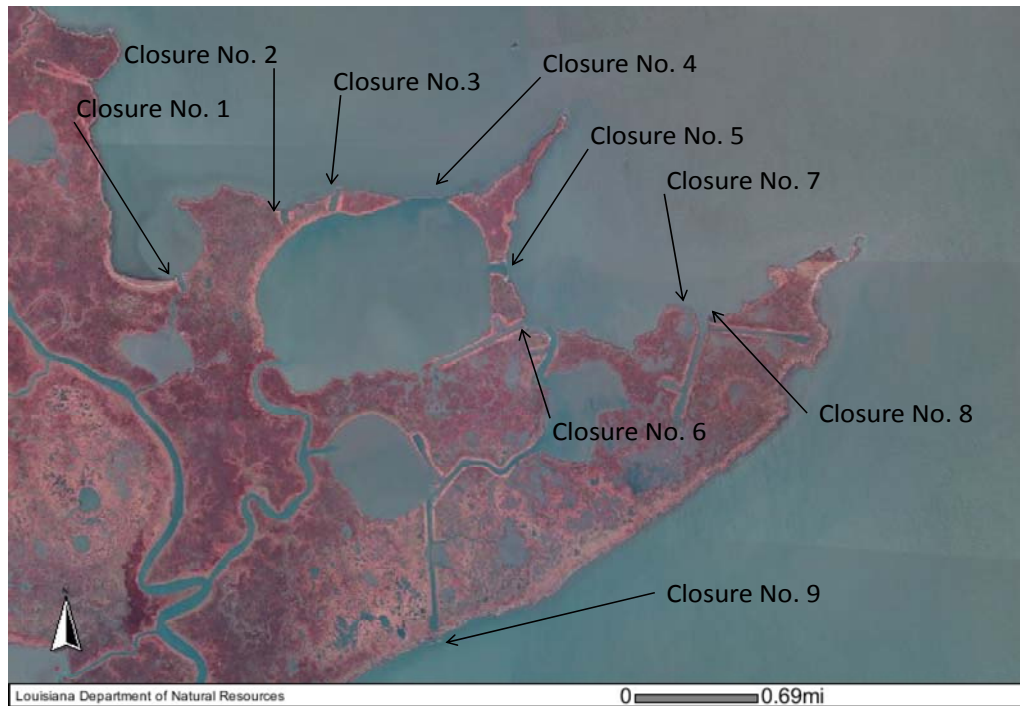
VI. Conclusions and Recommendations

Overall, the Marsh Island Hydrologic Restoration Project is in good condition with most features still functioning as designed after repair. The recent corrective work as described above to cap the existing dikes and provide bank paving should prevent further erosion and damage to occur.

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Appendix A
Project Features Map

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Appendix B

Photographs

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Photo No.1, Closure No.1



Photo No. 2, Closure No. 2

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Photo No. 3, Closure No. 3 bank paving west side



Photo No. 4, Closure No. 4 bank paving east side

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Photo No. 5, Closure No. 4 looking west



Photo No. 6, Closure No. 5

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Photo No. 7, Closure No. 6



Photo No. 8, Structure No. 7 spoil material connecting to rock dike

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Photo No. 9, Structure No. 7 marsh creation behind rock dike starting to vegetate



Photo No. 10, Closure No. 8 spoil material connecting to rock dike at bay shore

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Photo No. 11, Closure No. 8 rock covered with spoil material looking east



Photo No. 12, Closure No. 8, view showing water flowing through rock plug

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Photo No. 13, Structure No. 9 rock dike, fully exposed at low water conditions



Photo No. 14, Structure No. 9, view showing mudflat behind rock dike

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Appendix C

Three Year Budget Projection

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MARSH ISLAND/ TV-14 / PPL 6
Three-Year Operations & Maintenance Budgets 07/01/2010 - 06/30/2013

<u>Project Manager</u> Pat Landry	<u>O & M Manager</u> Darrell Pontiff	<u>Federal Sponsor</u> COE	<u>Prepared By</u> Darrell Pontiff
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	2010/2011	2011/2012	2012/2013
Maintenance Inspection	\$ 5,909.00	\$ 6,086.00	\$ 6,269.00
Structure Operation			
Administration	\$ -		\$ -
Maintenance/Rehabilitation			

10/11 Description:

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

11/12 Description :

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

12/13 Description:

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

	2010/2011	2011/2012	2012/2013
Total O&M Budgets	<u>\$ 5,909.00</u>	<u>\$ 6,086.00</u>	<u>\$ 6,269.00</u>

O & M Budget (3 yr Total)	<u>\$ 18,264.00</u>
Unexpended O & M Budget	<u>\$ 142,018.00</u>
Remaining O & M Budget (Projected)	<u>\$ 123,754.00</u>

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Appendix D

Field Inspection Form

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MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-14 Marsh Island Hydrologic Restoration

Date of Inspection: December 3, 2009 Time: 11:30

Structure No. 1

Inspector(s): Darrell Pontiff, Stan Aucoin (OCPR)
 Damien Bourque, Paul Provence (LDWF)

Structure Description: Rock Plug

Water Level Inside: _____ Outside: _____
 Weather Conditions: Sunny and cold temperatures

Type of Inspection: Annual

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Cables	N/A				
Signage / Supports	N/A				
Rip Rap (fill)	Good			1	
Earthen Embankment	N/A				

What are the conditions of the existing levees?
 Are there any noticeable breaches?
 Settlement of rock plugs and rock weirs?
 Position of stoplogs at the time of the inspection?
 Are there any signs of vandalism?

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MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-14 Marsh Island Hydrologic Restoration

Date of Inspection: December 3, 2009 Time: 11:20

Structure No. 2

Inspector(s): Darrell Pontiff, Stan Aucoin (OCPR)
 Damien Bourque, Paul Provence (LDWF)

Structure Description: Rock Plug

Water Level Inside: _____ Outside: _____

Type of Inspection: Annual

Weather Conditions: Sunny and cold temperatures

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Cables	N/A				
Signage / Supports	N/A				
Rip Rap (fill)	Good			2	
Earthen Embankment	N/A				

What are the conditions of the existing levees?
 Are there any noticeable breaches?
 Settlement of rock plugs and rock weirs?
 Position of stoplogs at the time of the inspection?
 Are there any signs of vandalism?

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MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-14 Marsh Island Hydrologic Restoration

Date of Inspection: December 3, 2009 Time: 11:10

Structure No. 3

Inspector(s): Darrell Pontiff, Stan Aucoin (OCPR)
 Damien Bourque, Paul Provence (LDWF)

Structure Description: Rock Plug

Water Level Inside: _____ Outside: _____
 Weather Conditions: Sunny and cold temperatures

Type of Inspection: Annual

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Cables	N/A				
Signage / Supports	N/A				
Rip Rap (fill)	Good			3	Hurricane RITA eroded the marsh between Str. No. 2 & 3, leaving a narrow piece of marsh, and it is recommended that the shoreline between Str. 3 & 4 (+/- 1,500 to 1,800 L.F.) be armored with a rock dike.
Earthen Embankment	N/A				

What are the conditions of the existing levees?
 Are there any noticeable breaches?
 Settlement of rock plugs and rock weirs?
 Position of stoplogs at the time of the inspection?
 Are there any signs of vandalism?

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MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-14 Marsh Island Hydrologic Restoration

Date of Inspection: December 3, 2009 Time: 10:50

Structure No. 4

Inspector(s): Darrell Pontiff, Stan Aucoin (OCPR)
 Damien Bourque, Paul Provenge (LDWF)

Structure Description: Rock Plug

Water Level Inside: _____ Outside: _____
 Weather Conditions: Sunny and cold temperatures

Type of Inspection: Annual

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Cables	N/A				
Signage / Supports	N/A				
Rock Dike	Good			4,5	
Earthen Embankment	N/A				

What are the conditions of the existing levees?
 Are there any noticeable breaches?
 Settlement of rock plugs and rock weirs?
 Position of stoplogs at the time of the inspection?
 Are there any signs of vandalism?

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Project No. / Name: TV-14 Marsh Island Hydrologic Restoration

Date of Inspection: December 3, 2009 Time: 10:40

Structure No. 5

Inspector(s): Darrell Pontiff, Stan Aucoin (OCPR)
 Damien Bourque, Paul Provence (LDWF)

Structure Description: Steel Sheet Pile with Rip Rap

Water Level Inside: _____ Outside: _____

Type of Inspection: Annual

Weather Conditions: Sunny and cold temperatures

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	Good			6	
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Cables	N/A				
Signage / Supports	N/A				
Rip Rap (fill)	Good			6	
Earthen Embankment	N/A				

What are the conditions of the existing levees?
 Are there any noticeable breaches?
 Settlement of rock plugs and rock weirs?
 Position of stoplogs at the time of the inspection?
 Are there any signs of vandalism?

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MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-14 Marsh Island Hydrologic Restoration

Date of Inspection: December 3, 2009 Time: 10:35

Structure No. 6

Inspector(s): Darrell Pontiff, Stan Aucoin (OCPR)
 Damien Bourque, Paul Provence (LDWF)

Structure Description: Rock Plug

Water Level Inside: _____ Outside: _____

Type of Inspection: Annual

Weather Conditions: Sunny and cold temperatures

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Cables	N/A				
Signage / Supports	N/A				
Rock Dike	Good			7	
Earthen Embankment	N/A				

What are the conditions of the existing levees?
 Are there any noticeable breaches?
 Settlement of rock plugs and rock weirs?
 Position of stoplogs at the time of the inspection?
 Are there any signs of vandalism?

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MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-14 Marsh Island Hydrologic Restoration

Date of Inspection: December 3, 2009 Time: 10:30

Structure No. 7

Inspector(s): Darrell Pontiff, Stan Aucoin (OCPR)
 Damien Bourque, Paul Provence (LDWF)

Structure Description: Rock Dike

Water Level Inside: _____ Outside: _____
 Weather Conditions: Sunny and cold temperatures

Type of Inspection: Annual

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Cables	N/A				
Signage / Supports	N/A				
Rock Dike	Good			8,9	
Earthen Embankment	N/A				

What are the conditions of the existing levees?
 Are there any noticeable breaches?
 Settlement of rock plugs and rock weirs?
 Position of stoplogs at the time of the inspection?
 Are there any signs of vandalism?

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MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-14 Marsh Island Hydrologic Restoration

Date of Inspection: December 3, 2009 Time: 10:25

Structure No. 8

Inspector(s): Darrell Pontiff, Stan Aucoin (OCPR)
 Damien Bourque, Paul Provence (LDWF)

Structure Description: Rock Plug

Water Level Inside: _____ Outside: _____
 Weather Conditions: Sunny and cold temperatures

Type of Inspection: Annual

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Cables	N/A				
Signage / Supports	N/A				
Rock Plug	Good			10,11,12	
Earthen Embankment	N/A				

What are the conditions of the existing levees?
 Are there any noticeable breaches?
 Settlement of rock plugs and rock weirs?
 Position of stoplogs at the time of the inspection?
 Are there any signs of vandalism?

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MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-14 Marsh Island Hydrologic Restoration

Date of Inspection: December 3, 2009 Time: 10:15

Structure No. 9

Inspector(s): Darrell Pontiff, Stan Aucoin (OCPR)
 Damien Bourque, Paul Provence (LDWF)

Structure Description: Rock Plug

Water Level Inside: _____ Outside: _____
 Weather Conditions: Sunny and cold temperatures

Type of Inspection: Annual

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Cables	N/A				
Signage / Supports	N/A				
Rock Dike	Fair			13, 14	The mudflat behind the rock dike was exposed. The rock dike needs to be extended on each end and tie back into existing shoreline.
Earthen Embankment	N/A				

What are the conditions of the existing levees?
 Are there any noticeable breaches?
 Settlement of rock plugs and rock weirs?
 Position of stoplogs at the time of the inspection?
 Are there any signs of vandalism?

Appendix E

Locations to be Monitored