



**State of Louisiana  
Department of Natural Resources  
Coastal Engineering Division**

**2005/2006 Annual Inspection  
Report**

for

**HOLLY BEACH SAND  
MANAGEMENT PROJECT  
(CS-31)**

State Project Number CS-31  
Priority Project List 11

October 24, 2005  
Cameron Parish

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## **I. Introduction**

The Holly Beach Sand Management Project (CS-31) consists of approximately 10,849 acres of brackish marsh, intermediate marsh and sand dune in Cameron Parish Louisiana. The project is located between the communities of Holly Beach and Constance Beach on the Gulf of Mexico shoreline in southwest LA and is divided into two areas separated by LA Hwy. 82 (See Appendix A).

The Holly Beach Sand Management 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 eleventh Priority Project List. Funding consisted of fifty percent NRCS funds, twenty-five percent CIAP (Coastal Impact Assistance Program of NOAA) funds, and twenty-five percent from the State of Louisiana. The Holly Beach Project has a twenty –year (20 year) economic life, which began in April 2003.

## **II. Inspection Purpose and Procedures**

The purpose of the annual inspection of the Holly Beach Sand Management Project (CS-31) 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, LDNR 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 (O&M Plan, 2003). The annual inspection report also contains a summary of maintenance projects, if any, 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.

In 2003, the CWPPRA Task Force determined, due to the fact that LDNR was responsible for the operation and maintenance phase of the vast majority of CWPPRA projects, that LDNR would be the responsible party for all Post Storm/Hurricane Assessments. After Hurricanes Katrina and Rita, every project appeared to have been impacted by the storms; therefore, LDNR determined that all projects should be assessed for damages (Broussard, 2006). With concurrence from the federal sponsor, LDNR has decided to use the information obtained during this post hurricane assessment in this Annual Maintenance Inspection.

An inspection of the Holly Beach Sand Management Project (CS-31) was held on October 24, 2005 under sunny skies and cool temperatures. In attendance were Stan Aucoin, Pat Landry, Dewey Billodeau, Garrett Broussard, Darrell Pontiff, Beau Tate, Ismail Merhi and Herbert Juneau from LDNR and Loland Broussard from NRCS. The annual inspection began at approximately 11:00 a.m. on the eastern boundary of the project area.

The field inspection included a complete visual inspection of all features. Staff gauge readings were used to determine approximate elevations of water, sand dunes, and sand

fencing. 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

Between 1991 and 1995, the Louisiana Department of Natural Resources partnered with the Louisiana Department of Transportation and Development, constructed 85 breakwaters along the Gulf of Mexico shoreline in southwest LA. In conjunction with the CS-31 project, funded separately, some maintenance/modifications were performed on several of these breakwaters.

The Holly Beach Sand Management Project (CS-31) was constructed between breakwaters 10 and 72 and was completed in April 2003. It involved the construction of a 5.3 mile long, 1.75 million cubic yard beach nourishment beginning approximately 3 miles west of the community of Holly beach and ending approximately 8.3 miles west of Holly Beach. Sand was being blown across La. Hwy. 82 so fencing, as a result of a contract change order, was installed along the first 18,730 linear feet of beach. Another 11,000 linear feet was installed under separate contract with the La. Department of Agriculture and Forestry through their subsidiary, Gulf Coast Soil and Water Conservation District of Lake Charles. Both sides of this sand fence were planted with bitter panicum under a DNR contract. Also involved was the removal of six experimental breakwaters. Construction of the project will help to protect LA Hwy. 82 and the vast marsh area north of same. The principle project features of the Holly Beach Sand Management Project include the following:

- A. **Beach Nourishment:** 5.3 miles of newly constructed beach beginning at approximately breakwater 72 and extending westward to approximately breakwater 10.
- B. **Sand Fence:** Approximately 29,730 linear feet of sand fencing with associated pedestrian and vehicle gaps.

Stabilization of this area is critical since this ridge is the only hydrological barrier separating thousands of acres of low energy, intermediate and brackish marsh along the southern boundary of the Sabine National Wildlife Refuge from the high energy, saline waters of the Gulf of Mexico. The highway revetment has already been undermined in some sections, and the underlying Chenier is in danger of being breached. A breach of this ridge would lead to direct wave erosion and saltwater intrusion into fragile wetlands to the north.

Re-establishing the beach profile using sediment dredged from an old deposited sand bar area approximately 5 miles offshore from what was once the Sabine River, will (1) maintain the integrity and functionality of the Chenier/beach ridge; (2) reduce over-wash occurrences of the Chenier/beach ridge during episodic higher wave energy events in the Gulf of Mexico; (3) provide storm protection to intermediate and brackish marsh habitats north of the Chenier/beach ridge; (4) restore the littoral drift system, thereby reducing down drift erosion

rates; and (5) allow for monitoring and quantification of beach profile changes and beach shape development.

The specific goals of the project are:

1. Protect approximately 8,600 acres of existing intermediate and brackish wetlands north of La. Hwy. 82 between Holly and Constance Beaches.
2. Protect approximately 300 acres of beach dune and coastal Chenier habitat along the shoreline of the Gulf of Mexico from erosion and degradation due to wave energies.

#### **IV. Summary of Past Operation and Maintenance Projects**

**General Maintenance:** No maintenance has been necessary on this project since construction was completed in April 2003. The US Dept. of Agriculture along with the Cameron Parish Police Jury installed approximately an additional 10,000 linear feet of sand fencing along with approximately 4,000 plants in April 2005.

**Structure Operations:** There are no structural components of the project therefore no operations are required.

#### **V. Inspection Results**

##### **Beach Nourishment**

The entire reach of the 28,000 linear feet of the beach fill area appeared very clean and was without significant areas of scattered debris. The sand fill was judged to be in excellent shape, considering the severity of the storm, with the majority of the “plateau area” that was initially constructed still in place. The top of the posts for the anchoring of the sand fencing was originally installed 4 feet out of the constructed beach sandfill or to Elevation +9.0 feet NAVD88. Some unbroken or undisturbed fence posts were still standing and observed to be 5 feet tall from the existing sand elevation. This observation allows a general conclusion to be made that approximately one foot of the sand fill that had been placed to Elevation +5.0 NAVD88 had been eroded from the action of the waves and tidal surge of the storm. On the western end of the project, we observed that some significant amounts of sand material had been deposited onto overbank areas of the beach. On the eastern portion of the project of the project, we observed that a minor amount of sand had been deposited across the highway to the north. All of the camps and residences in Holly Beach that existed prior to the storm have been completely destroyed. There is debris from these structures over much of the overbank areas of the beach, but none on the beach proper. The “vegetative plantings” portion of the project were severely impacted. Many of the plantings that were installed in areas where the

sand dunes had developed have been lost because the erosion of the dunes allowed the plants to be carried away by the tidal surge. Some scattered plants, however, remain and they are starting to “green” up. (Photos: Appendix B, Photos 1, 2 & 5).

### **Sand Fence**

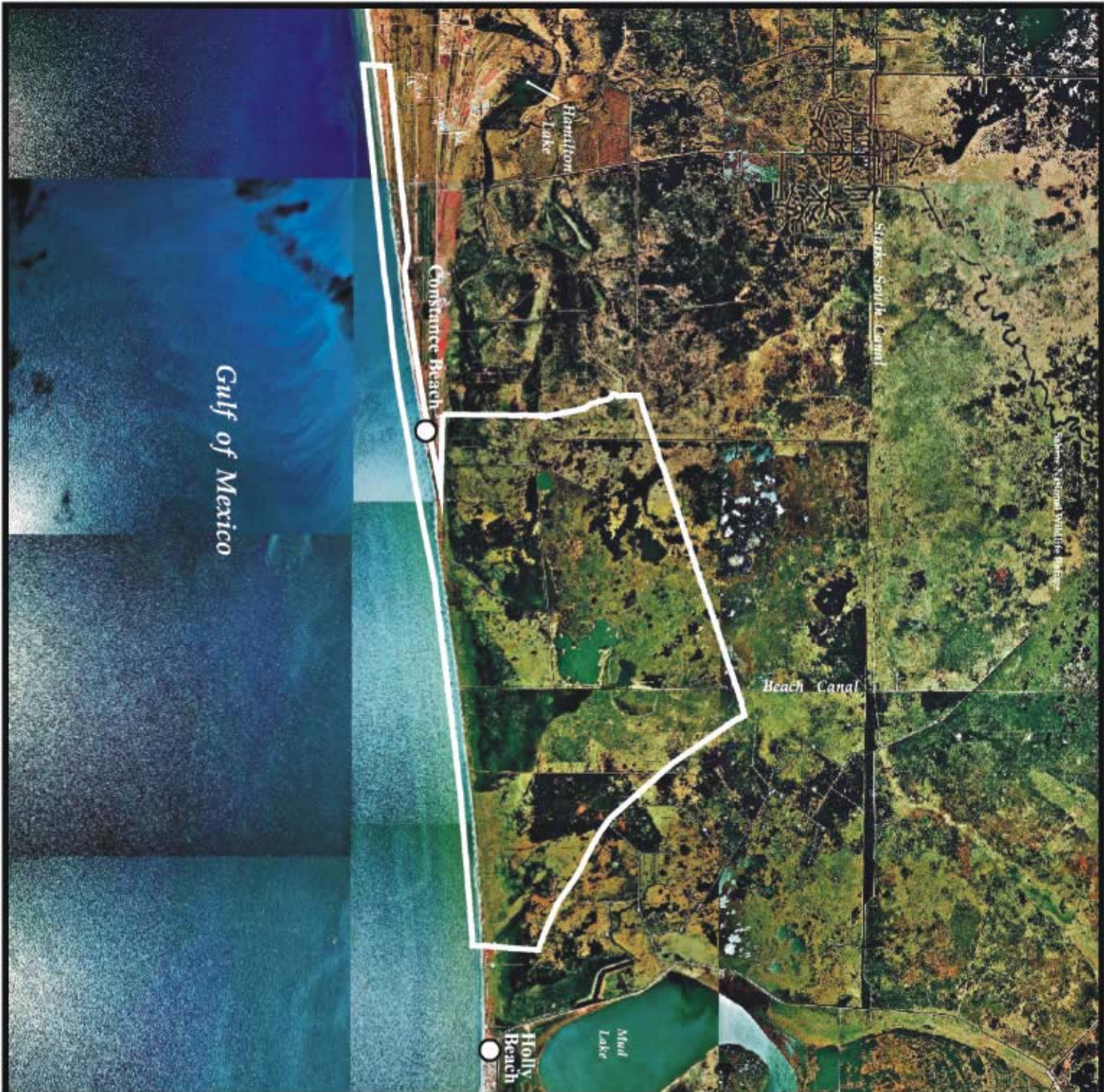
All of the previously constructed “sand fencing”, consisting of approximately 50,000 linear feet of 4 foot tall snow fencing attached to 4X4 inch treated posts was destroyed by Hurricane Rita. Many posts were just pulled out or broken off at or just above ground level and the fencing stripped off and deposited to the north of the beach across the highway or into adjacent marsh. The sand “dunes” that had accumulated adjacent to the sand fences to heights of approximately 2-4 feet were eroded such that it was not apparent that there had ever been dunes in the area. Some pieces of the fence portion of the sand fencing feature were discovered approximately 8-12 feet up in some trees north of Hwy LA 82. At several locations, some unbroken or undisturbed fence posts were still standing and observed to be 5 feet tall from the existing sand elevation. (Photos: Appendix B, Photos 2 & 3).

## **VI. Conclusions and Recommendations**

Overall, the Holly Beach Sand Management Project is in good condition and functioning as designed with problems as noted above. Recommendations are as follows for remedial work to restore the Holly Beach Sand Enhancement Project: (1) The Sand Fencing feature, approximately 50,000 linear feet in length, should be replaced, and the remaining but broken 4X4 posts should be removed by “pulling same from the beach fill” with a chain choker and equipment. The broken posts present a major hazard to the general public as the broken lumber with its many splinters, etc., can cause serious injury. The shifting sands may cover or expose the tops of the posts, but the hazards of tripping or encountering splinters will always remain. The foregoing will be the basis for a FEMA claim. (2) A limited cross-section survey of the project beach portion will be made and compared to a survey recently accomplished immediately pre-Hurricane Rita. This survey will provide much data concerning the damage to the sand fill that was caused by the storm. The quantity of sand that was eroded can also be computed and provide information to reviewers to determine if the sand needs to be replaced. This survey will be paid for by an existing NOAA Grant. (3) A FEMA claim has been submitted for damages of the sand fencing described in (1) above and also for replacement of the sand fill that was eroded by the storm.

**Appendix A**  
**Project Features Map**





# Holly Beach Sand Management (CS-31)



**Project Boundary**



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

Background Imagery:  
 1998 Digital Orthophoto Quarter Quadrangle  
 Map Date: December 23, 2003  
 Map ID: USGS-NWRC 2004-11-0012  
 Data accurate as of: December 23, 2003

Gulf of Mexico



**Appendix B**  
**Photographs**



Photo 1, View of sand enhancement project, looking west.



Photo 2, Close up view of beach head with rock breakwaters in the background.



Photo 3, View of missing sand fencing between few remaining posts and vegetative plantings.



Photo 4, East end of project showing few fence posts that remain, cleanliness of beach, and lack of vegetation.



Photo 5, View of sand accumulation near campsites on west end of project.

## **Appendix C**

### **Three Year Budget Projection**

**HOLLY BEACH SAND MANAGEMENT/ CS-31 / PPL 11**  
**Three-Year Operations & Maintenance Budgets 07/01/2005 - 06/30/08**

<u>Project Manager</u> Pat Landry	<u>O &amp; M Manager</u> Herb Juneau	<u>Federal Sponsor</u> NRCS	<u>Prepared By</u> Herb Juneau
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	2005/2006	2006/2007	2007/2008
<b>Maintenance Inspection</b>	\$ 4,955.00	\$ 5,250.00	\$ 5,407.00
<b>Structure Operation</b>			
<b>Administration</b>		\$ 10,000.00	\$ -

**Maintenance/Rehabilitation**

05/06 Description:

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

06/07 Description: Repair Sand Fencing

<i>E&amp;D</i>	\$ 10,000.00
<i>Construction</i>	\$ 217,395.00
<i>Construction Oversight</i>	\$ 10,000.00
<i>Sub Total - Maint. And Rehab.</i>	\$ 237,395.00

07/08 Description:

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

	2005/2006	2006/2007	2007/2008
<b><u>Total O&amp;M Budgets</u></b>	<b>\$ 4,955.00</b>	<b>\$ 252,645.00</b>	<b>\$ 5,407.00</b>

<b><u>O &amp; M Budget (3 yr Total)</u></b>	<b>\$ 263,007.00</b>
<b><u>Existing O &amp; M Budget</u></b>	<b>\$ 264,277.00</b>
<b><u>Remaining O &amp; M Budget (Projected)</u></b>	<b>\$ 1,270.00</b>



**OPERATION AND MAINTENANCE BUDGET WORKSHEET**  
**HOLLY BEACH SAND MANAGEMENT / PROJECT NO. CS-31 / PPL NO. 11**

DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
O&M Inspection and Report	EACH	1	\$5,250.00	\$5,250.00
General Structure Maintenance	LUMP	1	\$0.00	\$0.00
Engineering and Design	LUMP	1	\$10,000.00	\$10,000.00
Operations Contract	LUMP	1	\$0.00	\$0.00
Construction Oversight	LUMP	1	\$10,000.00	\$10,000.00

**ADMINISTRATION**

LDNR / CRD Admin.	LUMP	1	\$5,000.00	\$5,000.00
FEDERAL SPONSOR Admin.	LUMP	1	\$5,000.00	\$5,000.00
SURVEY Admin.	LUMP	0	\$0.00	\$0.00
OTHER				\$0.00
<b>TOTAL ADMINISTRATION COSTS:</b>				<b>\$10,000.00</b>

**MAINTENANCE / CONSTRUCTION**

**SURVEY**

SURVEY DESCRIPTION:					
Secondary Monument	EACH	0	\$0.00	\$0.00	
Staff Gauge / Recorders	EACH	0	\$0.00	\$0.00	
Marsh Elevation / Topography	LUMP	0	\$0.00	\$0.00	
TBM Installation	EACH	0	\$0.00	\$0.00	
OTHER				\$0.00	
<b>TOTAL SURVEY COSTS:</b>				<b>\$0.00</b>	

**GEOTECHNICAL**

GEOTECH DESCRIPTION:					
Borings	EACH	0	\$0.00	\$0.00	
OTHER				\$0.00	
<b>TOTAL GEOTECHNICAL COSTS:</b>				<b>\$0.00</b>	

**CONSTRUCTION**

CONSTRUCTION DESCRIPTION:						
Rip Rap	LIN FT	TON / FT	TONS	UNIT PRICE		
	0	0.0	0	\$0.00	\$0.00	
	0	0.0	0	\$0.00	\$0.00	
	0	0.0	0	\$0.00	\$0.00	
Filter Cloth / Geogrid Fabric	SQ YD	0	\$0.00	\$0.00		
Navigation Aid	EACH	0	\$0.00	\$0.00		
Signage	EACH	0	\$0.00	\$0.00		
General Excavation / Fill	CU YD	0	\$0.00	\$0.00		
Dredging	CU YD	0	\$0.00	\$0.00		
Sheet Piles (Lin Ft or Sq Yds)		0	\$0.00	\$0.00		
Timber Piles (each or lump sum)		0	\$0.00	\$0.00		
Timber Members (each or lump sum)		0	\$0.00	\$0.00		
Hardware	LUMP	0	\$0.00	\$0.00		
Materials	LUMP	0	\$0.00	\$0.00		
Mob / Demob	LUMP	0	\$0.00	\$0.00		
Contingency	LUMP	0	\$0.00	\$0.00		
General Structure Maintenance	LUMP	0	\$0.00	\$0.00		
Sand Fencing	LIN FT	46,000	\$4.50	\$207,000.00		
Removal of Existing Posts	LUMP	1	\$10,395.00	\$10,395.00		
OTHER			\$0.00	\$0.00		
<b>TOTAL CONSTRUCTION COSTS:</b>				<b>\$217,395.00</b>		

**TOTAL OPERATIONS AND MAINTENANCE BUDGET:**

**\$252,645.00**

## **Appendix D**

### **Field Inspection Form**

**MAINTENANCE INSPECTION REPORT CHECK SHEET**

Project No. / Name: CS-31 Holly Beach

Date of Inspection: March 17, 2005 Time:9:30am

Structure No.

Inspector(s): Stan Aucoin, Herb Juneau, Pat Landry, Garrett Broussard, Dewey Billodeau, Chris Knotts, Dave Burkholder (LDNR)

Structure Description: Sand beach

Brit Paul, Brad Sticker (NRCS)

Type of Inspection: Annual

Water Level

Weater Conditions:partly cloudy & cool; 10-15mph N. wind

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps					
Steel Grating					
Stop Logs					
Hardware					
Timber Piles					
Timber Wales					
Galv. Pile Caps					
Cables					
Signage /Supports					
Sand (fill)				1 & 2	Sand fill is in excellent post construction condition. Some depressions were noted, probably caused by high tidal events, but these were infrequent and considered to be not critical. No maintenance required at this time.
Eathern Embankment					

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

**MAINTENANCE INSPECTION REPORT CHECK SHEET**

Project No. / Name: CS-31 Holly Beach

Date of Inspection: October 24, 2005 Time: 12:00pm

Structure No.

Inspector(s): Stan Aucoin, Herb Juneau, Pat Landry, Garrett Broussard, Dewey Billodeau, Darrell Pontiff, Ismail Merhi Beau Tate (LDNR), Loland Broussard (NRCS)

Structure Description: Sand fencing

Type of Inspection: Annual

Weather Conditions: sunny & cool

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				
Sand Fencing	Poor			3,4	Fencing is completely destroyed from Hurricane Rita.
Signage /Supports	N/A				
Sand (fill)	Good			1,2,5	Approximately one foot of sand fill eroded from the storm.
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**