WHISKEY ISLAND ADDENDUM

to the

ENVIRONMENTAL ASSESSMENT

for

ISLES DERNIERES BARRIER ISLAND

RESTORATION AND COASTAL WETLAND CREATION

A Project of the

Coastal Wetlands Planning, Protection and Restoration Act, P.L. 101-646

Project PTE-15bii

Lead Task Force Agency: U.S. Environmental Protection Agency, Region 6

August, 1997

At Raccoon Island, splitter valves and baffles had to be used to disrupt the force of the slurry discharge and to try and reduce the washout scouring that contributed to sediment loss. The 4000 horsepower pump of the "Proteus" was excessive and resulted in a slurry velocity too high for effective sediment placement. Also, the ideal slurry specific gravity of 1.5, which maximizes the percentage of sediment in the slurry, could not be effectively maintained. The "Proteus" did not have a production meter for specific gravity control (Long and Cook, 1997).

Containment dikes. At the East Island FEMA repair project in 1996, two marsh buggy mounted backhoes constructed containment dikes away from the gulf shoreline and in the shallow bay on the north side. These dikes compacted very fast and provided the containment cell into which the dredged sediment was pumped. This pumped fill also dewatered and compacted very quickly (less than 24 hours) in most of the project's 15+ acres (Long and Cook, 1997).

Material placement. Material disposition, in cubic yards, was as follows (DWF, 1994).

	Estimated	Actual
Breach closures	129,000	349,280
Dunes and beach	421,914	1,071,494
Nodes	1,000,000	1,450,787

Costs. The Raccoon Island restoration used $2.4 million, of which over $250,000 was for mobilization/demobilization; the cost per cubic yard was $1.27 (Linscombe, 1994; Long and Cook, 1997).

Vegetation. A lot of vegetation was planted and did well after the emergency restoration of Raccoon Island (Linscombe, 1994). Oyster grass (Spartina alterniflora) was planted in gallon containers in five rows across the bayside width of the beach. Marshhay cordgrass (Spartina patens) was planted on the beach side of breach closures. Bitter panicum seed (Panicum amarum) (750 lbs) was planted on beaches and the upper end of closures. Elsewhere on the west end, some 7,000 mangroves have recently been planted. Additional plants were put in where sediment did not stack well. Fertilizer applications were very helpful, providing easily visible results compared to non-fertilized areas (Linscombe, 1994).

Loss of materials. Most of the sediment applied to the east end of Raccoon Island as beach would not stay in place due to strong wave action (Linscombe, 1994). An attempt to use silt screens was unsuccessful due to wave action. Waves were breaking off and removing vegetation from the east end of the island. Linscombe (1994) was convinced that unless wave energy can be dissipated offshore (e.g. by segmented breakwaters more or less parallel to the east end of the island) that further applications of sediment to the east end of Raccoon Island will be washed away and provide no protection.

Linscombe (1994) noted that he believes that Wine Island exists today only because it was ringed by rock to prevent loss of sediment. He also believes that any projects using hard structures would need to be funded to remove the structures if they failed to perform as predicted. He noted that the DWF has a permit from the Corps of Engineers to install ten offshore segmented breakwaters, on the condition that the structures are evaluated for one year before any more are installed; DWF does not have the funding for such a project however.

Design alternatives presently proposed include the use of in situ materials, shell and rock rip rap. Another alternative being considered for closures is the use of geotextile tubes. These would be filled with on site materials. Following dewatering of the dredged materials behind the closures, the tubes would be opened, the in situ material left in place, and the geotextiles removed.

Use of rock would be problematic, as the classic response of a seaward beach when rock is applied is excellerated erosion, if the rock is left in place (Stone, 1997). The rock dissipates wave energy to some extent, but some of the energy is reflected along the shore line. This reflected energy begins to erode sand from the base of the rip rap, which then becomes unstable and collapses. Also occurring with the reflection of energy is increased turbulence in the surf zone, which in turn acts as a barrier to sand coming in along the shoreline.

The use of imported materials such as rock could result in the rock being left exposed if the island continues to erode; the exposed rock could cause negative impacts to navigation as well as to the natural processes of barrier island morphology. In addition, "Stationary hard structures such as segmented breakwaters, seawalls, and revetments can not address the natural process of relative sea level rise, thus requiring more stringent design criteria and probably leading to a high cost/benefit ratio" (McBride and Byrnes, 1995).

It may be possible to use rock and then remove it after dewatering. However, use of rock would add to the cost of the project, could significantly disrupt the closure site upon removal, and would probably result in some rock spill and resultant navigational hazards. To avoid the potential for impacts associated with rock, it would be necessary to avoid its use altogether, instead using native (on-site) materials to mold closures with existing features.

Impacts to biologic features. Creation of marsh on the islands will provide direct habitat for fish and wildlife. As indicated in the EA, adverse impacts caused by dredging are expected to be minimal. Infilling of the back bay area will eliminate that existing subaqueous habitat and replace

it with marsh habitat. Any increase in height of the island will reduce the potential for overwash and thereby increase the island's usefulness as habitat.

Prior to construction, a survey of water bird colonies on Whiskey Island will be performed and appropriate measures will be taken to avoid impacting any colonies which may be present; the survey will be coordinated with the U.S. Fish and Wildlife Service and the Louisiana Department of Wildlife and Fisheries.

Impacts to cultural and socio-economic features. This project is supportive of local initiatives for coastal zone protection and restoration. This project, by reducing storm surge impacts, will enhance local flood protection programs.

6. AGENCY COORDINATION AND PUBLIC INPUT

Concurrence that the project complies with the Endangered Species Act and the National Historic Preservation Act has been provided to EPA by the U.S. Department of Interior, Fish and Wildlife Service, and by the Louisiana State Historic Preservation Officer (FWS, 1993 and Hobdy, 1993).

Applications for Coastal Zone Consistency, Water Quality Certification, and Clean Water Action Section 404 permit have been submitted and are under review by the Louisiana Department of Natural Resources, Louisiana Department of Environmental Quality, and the U.S. Army Corps of Engineers, respectively. Certification of compliance with CWPPRA, Section 303(e) has been provided to EPA by the U.S. Army Corps of Engineers (USACE, 1997)

Vegetation specifications, and a survey of bird colonies on Whiskey Island, will be performed by the Louisiana Department of Natural Resources in cooperation with the Louisiana Department of Wildlife and Fisheries.

7. REFERENCES

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A. A review of pertinent literature.

B. Conceptual and quantitative framework.
C. Assessment of resource status and trends.
D. Quantitative inventory and assessment of physical conditions and parameters.
E. Inventory and assessment of existing environmental resource conditions.
F. Inventory and assessment of existing economic resource conditions.
G. Forcasted trends in physical and hydrologic conditions.
H. Biological assessment.
I. Formulation of strategic options.
J. Assessment of management alternatives (not yet released).
K. Possible management and engineering techniques (not yet released).
L. Rationale for selecting a preferred plan (not yet released).
M. Preferred plan (not yet released).
N. Final report (not yet released).

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