

APPENDIX D – ENGINEERING INFORMATION



Letter Report
Peanut Island Disposal Area
Cost Sharing of Dike Construction
Palm Beach, Florida

1. Project Description: The port of Palm Beach is the feeder port for South Florida and the interisland trade. Based on tonnage, Palm Beach is 6th largest port in Florida, handling approximately 2.3 million tons of cargo annually as well as tourist traffic. Approximately 26% of these quantities are fossil fuels (bulk petroleum products and coal). The existing channel is 35 to 33 feet deep and varies in width from 400 to 300 feet. Vessels currently using the harbor are constrained by this 33-foot depth. Peanut Island is an upland disposal site located at the mouth of Lake Worth inlet.

2. Issue: Currently, the Peanut Island disposal area has 180,000 cubic yards (CY) of capacity. Additional dike height/maintenance is required. The Florida Inland Navigation District (FIND), the Port of Palm Beach (Local Sponsor), and the U.S. Army Corps of Engineers (Corps) have acknowledged the need for creating new disposal capacity in a Preliminary Assessment (PA) dated 1997. These disposal sites on Peanut Island are required due to the quantity of material removed from Palm Beach Harbor and the IWW in the vicinity of Palm Beach. The Corps, FIND, and the Port of Palm Beach eventually plan to enter into a long term plan to cover all dike construction requirements and material removal necessary for disposal capacity to meet the 20 year requirement stipulated by the PA. Offloading dredged material from the island to an elevation of 4 feet above MLW, combined with the construction of 3200 linear feet of new dike on Peanut Island to an elevation of 32 feet above MLW is proposed to increase storage capacity by 730,000 CY.

3. Dredging Requirements: Historical records indicate maintenance dredging has occurred almost annually in Palm Beach Harbor since 1938. Shoals removal from 1995 to 2000 totaled 730,000 CY. The average annual shoaling rate is approximately 122,000 CY per year for the Palm Beach Harbor Navigation Project. Programmed disposal consistent with the 10-year Operations and Maintenance (O&M) program is 25,000 CY per year for Peanut Island. The material is predominantly beach quality and the majority would be deposited on the beaches south of the Lake Worth inlet. If Peanut Island is filled to capacity and the beach site is closed (turtle nesting, lack of capacity, etc.), then the beach and non-beach quality material have no designated disposal location.

Programmed Maintenance Dredging cost from 1996 to 2005 has been projected to be \$1,892,882 annually.

4. Economics: Palm Beach Harbor continues to be a viable port as shown in the following table of annual tonnage with an average annual 1 percent increase. Future projections indicate that this trend will continue. Failure to maintain Palm Beach Harbor would negatively impact the national economy based on increased transportation costs. Peanut Island plays a part in the ability to construct and maintain the harbor, with all construction dredge material designated for Peanut Island.



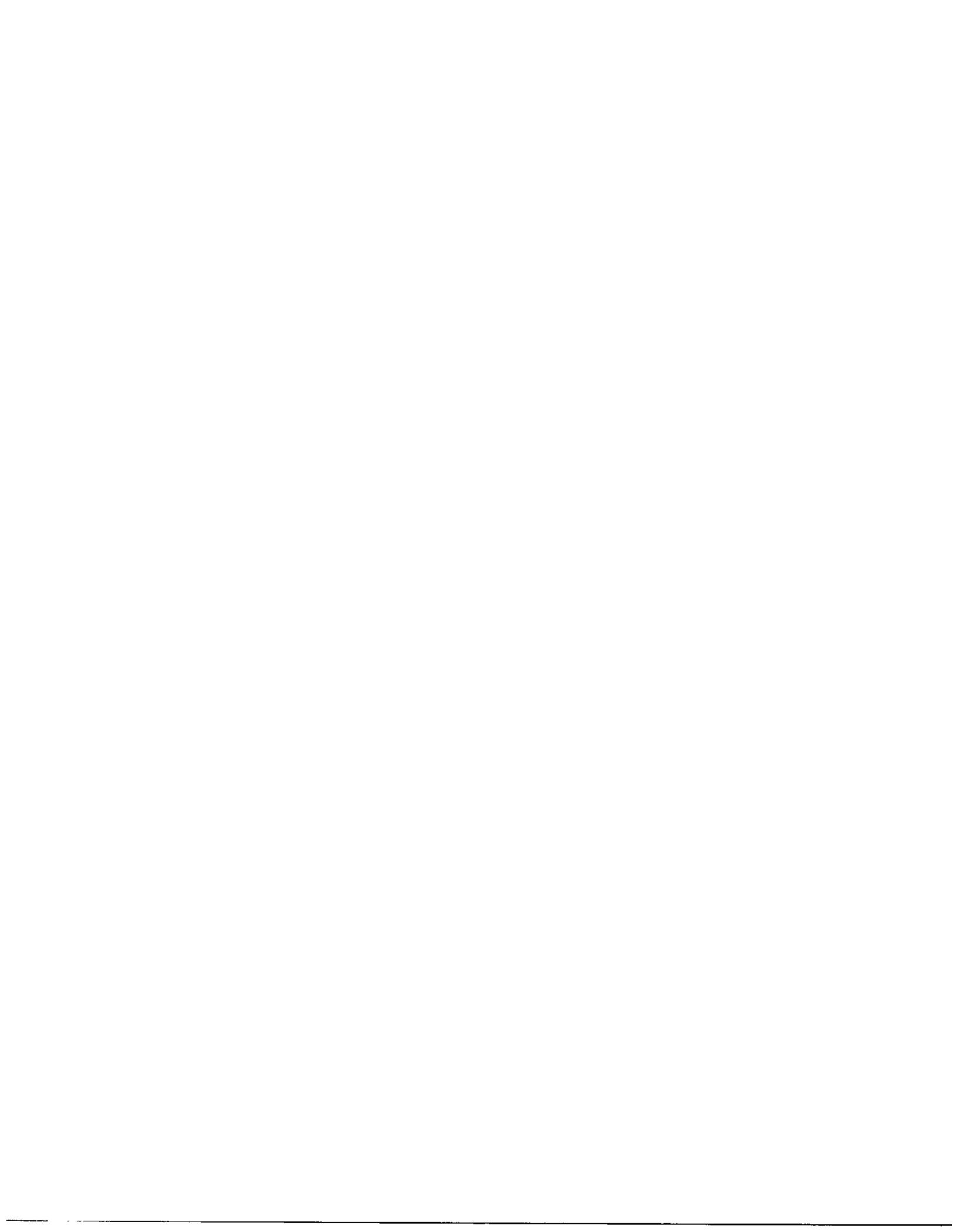
Table of Yearly Tonnage

YEAR	TOTAL TONS
1988	2,579
1989	2,519
1999	2,466
1991	2,075
1992	2,646
1993	2,816
1994	2,884
1995	2,972
1996	2,294
1997	2,922

5. Benefits/Costs: Contract Administration costs and allowances for contingencies, bring the total project costs to \$6,892,920. The Federal share (65%) would be \$4,480,398. Minimal annual maintenance of the disposal area is expected.

If the current beach placement area becomes unavailable and the proposed dike construction and material unloading is not performed at Peanut Island, the dredged material would have to go to an alternate site. Therefore, material typically intended for the beach sites would be deposited in an ODMDS. An ODMDS does not currently exist and availability is not anticipated. Furthermore, suitable upland areas (outside of Peanut Island) within 5 miles of Palm Beach Harbor simply are not available. Based on the current estimates for Palm Beach Harbor dredge material area management, unloading Peanut Island's material dry (without rock separation) onto barges with subsequent dumping into a 2 million CY borrow area at the bottom of Lake Worth adjacent to the City of Lake Worth Municipal Golf Course is the least cost offload alternative. This offload would not be atypical for this site. Approximately 5,000 CY of material was used for fill behind seawall adjacent to berth 7 in 1998.

Should a disposal area be constructed in order to comply with the DMMP's requirements for the Port of Palm Beach, the following least cost maintenance regime may be employed. A hopper dredge could be used during the winter in order to comply with the state's summer environmental windows. This proposed alternative would place a cheaper hydraulic dredge in the inlet during the summer (with higher productivity due to smaller wave climate). The dredged material would then be deposited on Peanut Island for 6 years and in the 6th year it would be unloaded at a convenient time. Considering the estimated 122,000 CY annually deposited into the Peanut Island disposal area, this maintenance regime would have maintenance costs of \$2,027,876 annually. Proposed unloading, dike construction and unloading at Peanut Island will



cost the government an estimated \$1,261,439 Average Annual Equivalent (AAEQ) for a fifty-year project life. Including the initial creation of the disposal site necessitated by the absence of a non-beach disposal option, material directed to Peanut Island by summer pipeline versus winter hopper disposing to nearshore would result in savings of \$766,437 AAEQ.

6. Environmental/Permits: An environmental assessment has been completed and has been coordinated as per the Fish and Wildlife Coordination Act of 1958, and , as amended. All construction shall take place within the footprint of the existing disposal area. No additional permits are required.

