APPENDIX B
COST ENGINEERING REPORT
FOR THE
DREDGED MATERIAL MANAGEMENT PLAN (DMMP)
MILWAUKEE HARBOR, WISCONSIN

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1. Introduction

1.1 Milwaukee Harbor is located on the west shore of Lake Michigan in the City of Milwaukee, Wisconsin which is about 85 miles north of Chicago, Illinois, and approximately 83 miles west of Grand Haven, Michigan. Milwaukee Harbor is a deep draft harbor at the confluence of the Milwaukee River and the Kinnickinnic River. The Milwaukee Harbor has two segments which consists of an outer and inner harbor. The existing 44 acre Jones Island Confined Disposal Facility (CDF) was completed in 1975. This facility was authorized by the Chief of Engineers, U.S. Army Corps of Engineers, under Section 123 of the River and Harbor Act of 1970 (Title I of Public Law 91-611). Under the Dredged Material Management Plan (DMMP) program for which this project is being proposed, the new facility will be referred to as the Dredged Material Disposal Facility (DMDF)

1.2. DMMP Alternatives In the final development of dredged material management plans for material dredged from the Milwaukee Harbor, two alternative plans identified are:

a. **Alternative 1 – Construct a new DMDF on top of the Jones Island (Milwaukee Harbor) CDF.**

This alternative consists of the existing dredged material within the DMDF being excavated and used in the construction of the new dikes at the facility. The excavated material will be placed along the entire perimeter of the Milwaukee DMDF (excluding the area previously developed and being used as a ferry docking facility by the Port of Milwaukee) for construction of the inner perimeter dikes to an elevation of 618.00 as referred to L.W.D. for Lake Michigan. The new inner perimeter dikes will be offset approximately 50 -75 feet from the existing perimeter dikes and SSP wall on the west side of the facility. The dikes will have side slopes of 3H:1V with a top width of 15 feet, and the north and east lake side perimeter dikes will be faced with 200-500 pound stone for wave-erosion protection. A one foot thick layer of crushed aggregate will be placed on top of the ramp located on the Southwest corner and the dikes to facilitate truck traffic on the dikes. The additional capacity created by construction of the new dikes will be approximately 510,000 CYDs.

b. Alternative 2 – Open Water Placement.

This alternative consists of an open water disposal site which is approximately 8 miles southeast from the Milwaukee Harbor entrance. Approximately 510,000 CYDs of dredged material will be transported by barges. The range of depths at the proposed open water site are approximately 75-100 feet. A cover is required due to the character of material "fine grain" with contaminates (PCB's, PAH's & Metals). A cover area of 1800 ft x 1420 ft x 3 ft cap thickness is required. Approximately 284,000 CY of capping material will be required. This alternative would include double handling, transport of cap matetial from the quarry to the dock and then placing on barge, and bottom scow dumping at the site.

2. Purpose and Scope of Cost Engineering Appendix

2.1. The purpose of this appendix is to present the cost estimates associated with the two alternative plans identified in the preceding paragraphs. It is prepared in accordance with National Harbors Program: Dredged Material Management Plan, "EC 1165-2-200", policy, dated 21 July 1994.

Excel is used to present the alternative cost estimates in this appendix.

3. Alternative Cost Estimates

3.1. Construction quantities in the technical appendix are used in the cost estimates presented in this appendix. Additional quantities and features that should be considered for each alternative have been computed by the cost engineering personnel and included in the cost estimate. The quantities are, therefore, substantially complete from the standpoint of biddability, constructibility, and operability of each alternative. (See Table 1)

3.2. As part of the risk analysis (range estimating), contingencies are included to identify the high range of each line item in the estimates. These contingencies are based on a percentage of the total estimated cost for each line item. A 15 percent contingency is used for items in the estimate based on the nature of the engineering and design details and quantity take-offs currently available and experience in implementing these specific line items. Other contingency percent rates used for specific items reflect the reliability of specific engineering, design, and other details available at this time.