

APPENDIX B

COST ENGINEERING REPORT

FOR THE

PHASE II, REPORT

DREDGED MATERIAL MANAGEMENT PLAN

UPPER SAGINAW RIVER, MICHIGAN

**APPENDIX B
COST ENGINEERING REPORT
FOR THE
DREDGED MATERIAL MANAGEMENT PLAN
UPPER SAGINAW RIVER, MICHIGAN**

1. Introduction

1.1 Commercial Navigation Channel The channel limits identified as the Upper Saginaw River DMMP study are from a point 4.7 miles upstream from the entrance of the Saginaw River to 22 miles upstream from the entrance of the Saginaw River.

The entire Saginaw River system is monitored for shoaling by the U.S. Army Corps of Engineers (COE). Maintenance dredging is performed at locations where the shoaling threatens safe navigation or encroaches on project depths.

Currently, the dredged material from the Upper Saginaw River has no Dredged Material Disposal Facility (DMDF) identified. An Upper Saginaw River DMDF must be able to contain at a minimum, a 20-year dredged material capacity, which in this case is 3,100,000 cubic yards (cy).

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

a. Alternative 1 - Develop the Zilwaukee Township Site, West of Saginaw River, into a Dredged Material Disposal Facility.

This alternative consists of constructing an upland dredged material disposal facility on a large parcel (281 acres) west of the Saginaw River, approximately 11 miles upstream of the mouth of Saginaw River, west of the city of Bay City, Michigan.

b. Alternative 2 - Develop the Buena Vista Township Site, East of Saginaw River, into a Dredged Material Disposal Facility.

This alternative consists of constructing an upland dredged material placement site (131 acres) east of the Saginaw River, approximately 11 miles upstream of the mouth of Saginaw River, in the city of Bay City, Michigan.

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 1 - Develop the Zilwaukee Township Site, West of Saginaw River, into a Dredged Material Disposal Facility.

This parcel is approximately 281 acres in size of the 581-acre site. It is located west of Melbourne Road, bordering along Saginaw and Bay counties in Zilwaukee Township, Michigan. This proposed site is presently used as farmland. This site has existing earthen dikes constructed around its perimeter (built prior to 1965). Dredged material would be placed by hydraulic dredging method. There is a Michigan Department of Natural Resources (MDNR) game reserve (Crow Island Game area) located adjacent to the west and south side of the proposed site, and an abandon railroad track lies along its eastern perimeter.

4. Alternative 2 - Develop the Buena Vista Township Site, East of Saginaw River, into a Dredged Material Disposal Facility.

This parcel is approximately 131 areas in size of a 274-acre site and is located east of Bay City Road, southeast of the confluence of Cheboyganing Creek and Saginaw River. This site also lies on the border of Saginaw and Bay counties, but is in Buena Vista Township, Michigan. This proposed site is presently used as farmland. This site has existing earth dikes constructed around its perimeter, which were built prior to 1965. Dredged material would be placed by hydraulic dredging method. There is a Michigan Department of Natural Resources (MDNR) game reserve (Crow Island Game area) located southwest of the proposed site and an active railroad track lies along the western perimeter.

5. Alternative Cost Estimates

5.1. 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)

5.2. 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 25 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.

PLANNING ESTIMATES

Table 1

Harbor/River:		SAGINAW RIVER											
State:		Michigan											
Project Name:		Upper Saginaw River DMMP Study		Date of Estimate: May 2004									
(Describe):				EPD: September 2004									
CWBS No.	Bid Item No.	Description of Features/Sub-Features	Alternative 01				Alternative 02						
			Place material in Zilwaukee Twp., West of Saginaw River				Place material in Buena Vista Twp., East Saginaw River						
			Quantity	UOM	U.P.	Estimate	Quantity	UOM	U.P.	Estimate			
		Dredged Material Disposal Facility											
	1	Mobilization and Demobilization	1.00	L.S.	\$50,000.00	\$50,000.00			1.00	L.S.	\$50,000.00	\$50,000.00	
	2	Clearing and Grubbing	8.00	Acres	\$2,500.00	\$20,000.00			10.00	Acres	\$2,500.00	\$25,000.00	
	3	Stripping Unsuitable Material	145,000.00	C.Y.	\$2.25	\$326,250.00			129,000.00	C.Y.	\$2.25	\$290,250.00	
	4	Excavate Clay	191,000.00	C.Y.	\$1.45	\$276,950.00			271,000.00	C.Y.	\$1.45	\$392,950.00	
	5	Construct New Dikes	191,000.00	C.Y.	\$2.90	\$553,900.00			271,000.00	C.Y.	\$2.90	\$785,900.00	
	6	Install Weirs	1.00	EA	\$5,000.00	\$5,000.00			3.00	EA	\$5,000.00	\$15,000.00	
	7	Security Fence	15,500.00	LF	\$14.50	\$224,750.00			10,080.00	LF	\$14.50	\$146,160.00	
		Subtotal				\$1,456,850.00						\$1,705,260.00	
		Indirect Cost											
		Engineering / Design (5% of Capital Cost)	1.00	Estimate	\$57,682.50	\$57,683.00			1.00	Estimate	\$85,263.00	\$85,263.00	
		Construction Management (6%)	1.00	Estimate	\$69,219.00	\$69,219.00			1.00	Estimate	\$102,316.00	\$102,316.00	
		Subtotal				\$126,902.00						\$187,579.00	
		Total Capital (System Engineering) cost				\$1,583,752.00						\$1,892,839.00	
		Contingency (15%)				\$237,563.00						\$263,826.00	
		Total Present Worth				\$1,821,315.00						\$2,176,765.00	

Recommended TAB II Program Amount

Prepared By: 
 Engineering Tech., C.C.E.T.
 Check By: _____
 Design Engineer