Appendix G – Cost Estimate

APPENDIX G
COST ENGINEERING

GENERAL

This appendix contains a summary of the detailed cost estimate prepared for the Feasibility Report and Environmental Assessment for the Marsh Lake Ecosystem Restoration Project. This estimate includes real estate; construction; planning, engineering, and design, (PED); and construction management (S and A) costs. The estimate was developed based on review of the project plans, discussions with project delivery team (PDT) members, and quotes from material suppliers in the areas. Guidance for the preparation of the estimate and attachments was obtained from ER-1110-2-1150 Engineering and Design for Civil Works Projects, ER-1110-1-1300 Cost Engineering Policy and General Requirements, and ER-1110-2-1302 Civil Works Cost Engineering.

PRICE LEVEL

The Marsh Lake cost estimate is based on April 2010 prices, unless noted otherwise. Estimated costs are considered fair and reasonable for a prudent and capable contractor and include overhead, profit, and bond. Based on the location of the project, approximately 20 miles northwest of Montevideo, Minnesota, it assumed that no per diem will be required to be included in the estimate. Labor rates used were from published Davis-Bacon wage rates or Minnesota Department of Labor wage rates current in February 2011. Equipment rates are from the MII 2007 equipment manual for region 4. Fuel costs were updated to reflect February 2011 pricing. The 2008 MII cost book was used. Work was assumed to be divided among a prime contractor and three subcontractors. The prime contractor was assumed to be responsible for earthwork, scour protection, and care of water. A structural contractor was assumed to be responsible for construction of concrete structures and bridges. A seeding contractor was used for completing seeding operations while another subcontractor would complete construction of recreation features.

TOTAL PROJECT COST SUMMARY

The total project cost summary for Marsh Lake, shown in the attachments at the end of this appendix, reflects pricing levels for three separate dates. Contingencies are included in these prices. The first date, April 2010, reflects pricing at the time the estimate was developed. The second date, October 2011, reflects escalation of pricing levels to the anticipated funding date. The third is the fully funded pricing level. This reflects pricing escalated to the midpoint of construction for each project feature as well as PED and S and A. Escalation factors were developed from quarterly cost index factors contained in EM 1110-2-1304, revised 30 September 2010.

AVERAGE ANNUAL COSTS

Average annual costs for Marsh Lake were determined by annualizing the sum of the first project costs (construction, preconstruction engineering and design, and construction management) and

adding interest accrued during construction with operations and maintenance costs over the life of the project. A table representing these costs is contained in the attachments at the end of this appendix as well as in the main report.

QUANTITIES

Quantities were for the most part provided by the civil engineer for earthwork related tasks and by the structural engineer for the structures. Some quantities, such as temporary access roads downstream of structures, were developed by the cost engineer.

MII COST ESTIMATE

The MII cost estimate, a summary of which is included in the attachments at the end of this appendix, was completed using the version of MII current at the time the estimate was developed. Both electronic and hard copies of the MII cost estimate are available for review. Overhead costs used for prime and subcontractors are based on typical markups for mobilization/demobilization, job office overhead, home office overhead, and bond for the type of work to be done and the size of the project. Profit was based on the use of the weighted guideline method.

Material pricing was determined based on actual price quotes from suppliers in the region for work at the project site or from pricing for recent Corps projects, such as the Montevideo Flood Reduction Project.

Specific tasks as well as crews and associated production rates used for the estimate include standard MII CSI tasks, modified as necessary to meet project requirements, or user defined tasks developed by the cost engineer. Production rates for hauling materials were based on consideration of distance for hauling, anticipated hauling speeds, and estimated time required for loading and unloading.

CONSTRUCTION METHODS

Work required for this project is standard civil works type heavy construction that includes excavation, fill, structural concrete, stoplogs, bridges, riprap and bedding, roadway aggregate, and topsoil and seeding. Tasks required to facilitate construction of project features include construction of temporary access roads, cofferdam construction and dewatering. Standard industry practices are assumed to be used for all work items.

PROJECT DESCRIPTION

The project site is located on Marsh Lake in western Minnesota, approximately 20 miles northwest of Montevideo, Minnesota. The main purpose of the project is to improve habitat in the area by restoring the Pomme de Terre River to its original channel and to provide features to facilitate control of lake levels and to allow fish passage into the lake. An additional feature to control wave action on lakebed sediments was evaluated but not included in the project. Project

features, grouped by the civil works work breakdown structure, are discussed in the following paragraphs.

Site access is not considered to be a major concern. Roads access the dam on both sides of the lake.

Obtaining satisfactory materials, including steel, concrete, riprap, and topsoil is not anticipated to be a concern as suppliers have been identified in the region. A borrow site for obtaining impervious fill has been identified in the area immediately north of the dam on the east side of the lake.

No real estate acquisition is required as all the real estate is under the control of the local sponsor or the Corps of Engineers. No utility relocations are required as there are no known utilities in the construction area.

CWBS 02 Relocations:

Two Lane Bridge: A two lane bridge is required to restore flows from the Pomme de Terre River to its original channel and to allow the river to outlet to the Minnesota River on the downstream side of the Marsh Lake Dam rather than into the lake. The bridge is estimated to be approximately 450 feet in length with five spans. The estimated costs for this feature are based on information provided by a Minnesota Department of Transportation (MNDOT) cost estimator specializing in bridge and wall estimates. Documentation for this estimate is contained in the attachments at the end of this appendix.

CWBS 03 Reservoirs:

Fishway: An existing concrete spillway in the Marsh Lake Dam embankment will be modified to facilitate fish passage between Marsh Lake and the Minnesota River downstream. Work includes excavation and backfill in the existing channel downstream of the spillway and placement of rockfill boulders, riprap, and bedding on the downstream side of the structure and on the channel bed to create a series of stepped pools to allow fish access into the lake. Due to the width of the fishway, over 120 feet, it is assumed that access for rock placement will be from embankments to be located on both sides of the fishway as well as from a temporary access road to be placed in the center of the fishway that will be removed when placement of rock is complete.

Modification of Spillway Crest: The crest of the existing concrete overflow weir at the upstream end of the proposed fishway will be lowered to allow fish passage. This will require concrete demolition at the crest of the structure as well as subsequent construction of a one-foot raise from the base of demolition to meet elevation requirements.

Pedestrian Bridge: A pedestrian bridge will be constructed across the fishway structure to allow access along the entire Marsh Lake Dam. Work will include construction of bridge piers and superstructure.

Drawdown Structure: A concrete drawdown structure will be constructed on the west side of the fishway to allow regulation of lake levels. It will be a reinforced concrete structure with an apron, retaining walls, sheetpile cutoffs on the upstream and downstream ends of the structure, ten stoplog bays and associated piers, and a concrete walkway on top of the piers for operation of the stoplog bays and to allow continuous access across the entire dam.

Dewatering of the site for construction of the concrete structure is assumed to be completed by installing a sheetpile cofferdam around the structure pumping out the site with pumps powered by a portable generator.

Riprap and bedding are to be placed in the outlet channel downstream of the structure. As with the fishway, the 120 foot width of the downstream channel will require placement of rock from embankments to be located on both sides of the channel as well as from a temporary access road to be placed approximately at the center of the channel and removed after the rock is placed.

The embankments downstream of the dam on both sides of the fishway and drawdown structure, which were referenced previously in relation to placement of rock in the downstream channels, are to be constructed of impervious fill. The source of the impervious fill, which was noted previously, is a field north of the road raise located on the east side of Marsh Lake. Due to the presence of the spillway on the east side of the drawdown structure inhibiting access across the dam to the drawdown structure, it is assumed that access will be from the west side of the structure. This is likely somewhat conservative as the contractor will likely access the embankment on the east side of the spillway across the crest of the dam.

CWBS 09 Canals and Channels

Initially plans were discussed to include excavation of the original channel alignment for the Pomme de Terre River as part of this project. This option was removed from consideration early in the development of the project. Subsequently, no costs were developed for this feature as part of this report.

CWBS 10 Breakwaters and Seawalls:

Breakwaters placed at three separation locations in Marsh Lake were evaluated as an option for reducing the wave fetch length on the lake, thereby reducing wave action responsible for resuspension of lake bed sediments into the water column. The breakwaters were to consist of rockfill structures with a 4 foot top width and 1V on 5H side slopes. Due to the difficult access issues it was assumed that work will be done here in the winter months when the contractor would be able to access the sites by coming across the ice. For the purposes of development of the estimate, an area construction engineer in the Grand Forks Office of the St. Paul District who has previous experience in hauling material across the Red Lake River in winter was consulted regarding the anticipated effort required to supplement and maintain the haul road. Based on these conversations, it was assumed that construction would have to include crews that would supplement the ice thickness on the haul road prior to initiation of hauling operations and to maintain the roads during hauling operations. This would be done by pumping water out of the lake onto the haul road. This water would freeze thereby increasing the thickness of the ice.

Ultimately this feature was dropped from the proposed project due to the high cost of construction compared to the benefits.

CWBS 11 Levees and Floodwalls:

Fish Pond Levee Breach: This work consists of excavating existing embankment material to allow flow into/out of the abandoned fish pond.

Diversion Dikes A and B: These dikes are to be constructed to restore the Pomme de Terre River to its original channel. Work includes placement of impervious fill from the identified borrow site across the existing cutoff channel at two locations. Diversion dike B will require placement of riprap and bedding on the slopes adjacent to the channel to prevent scouring actions from restoring the cutoff channel.

Road Raise: Construction of the road raise is required to prevent movement of water between Marsh Lake and the Pomme de Terre River through a low area on the east side of Marsh Lake .

Louisburg Road Culverts: Work at Louisburg Road consists of removal of the existing culverts and replacement with concrete culverts with stoplogs to allow regulation of water levels at the northwest end of the lake.

Recreation Features:

Recreation features to be constructed/installed include information kiosks, picnic tables, benches, trash and recycling receptacles, canoe launches, fishing structures, trails, a parking lot, and a toilet vault. It is assumed that recreation features will be standard designs commonly used for such sites.

Site Restoration:

Site restoration is assumed to include removal of temporary access roads as well as placing topsoil and seeding all areas disturbed by the contractor’s operations as well as any staging areas. It is assumed that topsoil will be obtained from stripping operations on the project sites.

OPERATIONS AND MAINTENANCE

A detailed operations and maintenance estimate has been developed for this project and is included in this appendix. The estimate includes costs for routine annual inspections to be conducted on a yearly basis as well as formal periodic inspections to be conducted on a five year schedule.

Routine annual maintenance would include mowing of grass and vegetation as well as spraying herbicide on the riprap to prevent growth of woody materials and brush. A 5 year cycle is assumed for maintenance of roadway aggregate. A ten year cycle is assumed for repairs to the riprap, bedding, impervious fill, topsoil, turf, and stoplogs. Maintenance of concrete structures is assumed to be on a longer interval at 20 years and would include repair to concrete as well as

painting the railings on the super structure. An operations and maintenance summary is contained in the attachments at the end of this appendix.

CONTINGENCY DISCUSSION

Contingencies for construction, PED, and S and A were estimated using the spreadsheet developed by the Cost Engineering Branch and Directories of Expertise in the Walla Walla District. Although it is preferable to conduct a meeting with the design team to evaluate the factors that determine contingencies used, this was not possible based on present workloads and schedules of team members as well as the complexity and detail of the contingency spreadsheet. Contingencies were first developed by the cost estimator. The spreadsheet was then provided to the team members for their input. Contingencies ranged from approximately 6% to 38%. The contingency risk matrix is shown in the attachments at the end of the appendix.

DESIGN AND CONSTRUCTION SCHEDULE

The anticipated design and construction schedule, shown in the attachments at the end of this appendix, is based on receiving funding for development of plans and specifications at the beginning of FY 2012 and funding for construction the beginning of FY 2013. It is assumed that the planning, engineering, and design phase will be completed by the beginning of the fourth quarter of FY 2012 and contract award would be completed by the end of FY 2012. The total estimated period for construction would be from the beginning of FY 2013 through the end of the 2014 construction season.

The anticipated sequence of construction starts with the construction of those features that result in the rerouting of the Pomme de Terre River to outlet into the Minnesota River downstream of the Marsh Lake Dam. This would aid the construction of subsequent features by diverting the flows from the Pomme de Terre River downstream of Marsh Lake. These features include a two lane bridge, diversion dikes A and B, and a road raise. The estimated construction period for this work would be from October 2012 through the end of June 2013.

Features that control water levels in Marsh Lake or are associated with the dam are assumed to be constructed next. These include construction of a drawdown structure, modifications to the existing spillway to facilitate fish passage into the lake, construction of a pedestrian bridge over the spillway, and construction of downstream embankments for the fishway and drawdown structure. The estimated period of construction for this work is July 2013 through June of 2014.

After the work is completed at the dam, control structures at Louisburg Road at the upstream end of the lake would be constructed along with the fish pond levee breach and recreation features. This work would extend into the fall of 2014.

Although the above construction sequence and schedule is considered to be reasonable based on the amount of time required for construction of each feature and the logical progression of work to optimize efficiency and construction site conditions, it is ultimately up to the contractor to determine progression of work.

APPENDIX G
COST ENGINEERING
ATTACHMENTS

PROJECT COST SUMMARY SHEET

MARSH LAKE ECOSYSTEM RESTORATION PROJECT
PROJECT DEVELOPMENT PLAN: FEASIBILITY STUDY
RECOMMENDED PLAN

PROJECT: MARSH LAKE ECOSYSTEM RESTORATION PROJECT
LOCATION: MARSH LAKE NEAR CORRELL, MINNESOTA
FEATURE: FEASIBILITY STUDY

DISTRICT: ST. PAUL DISTRICT:
POC: CHIEF, COST ENGINEERING, JAMES D. SENTZ
DATE: MARCH 2011

Item	Item Description	Total Estimated Amount	Contingency Amount	Contingency Percent	Estimated Amount Plus Contingency Date of Estimate: April 2010	Cost Index to Funding Date 1st Quarter 2012	Estimated Amount Plus Contingency Funding Date: October 2011	Midpoint Construction Date of Feature	Index to Construction Midpoint	Fully Funded Amount with Contingencies
01	**Lands & Damages**	**$10,000**			**$10,000**		**$10,200**			**$10,200**
	Admin Costs (includes contingency)	$10,000			$10,000	1.020	$10,200	2nd Quarter, FY2012	1.024	$10,200
02	**Relocations**	**$2,000,000**	**$666,700**		**$2,666,700**		**$2,720,000**			**$2,777,000**
	Two Lane Bridge (Alt Measure 2)	$2,000,000	$666,700	33.3%	$2,666,700	1.020	$2,720,000	2nd Quarter, FY2013	1.041	$2,777,000
03	**Reservoirs**	**$2,889,500**	**$1,026,100**		**$3,915,600**		**$3,993,900**			**$4,146,900**
	Fishway (Alt Measure 3)	$538,200	$179,400	33.3%	$717,600	1.020	$731,900	2nd Quarter, FY2014	1.059	$760,000
	Mod Exist Spillway (Alt Measure 3)	$66,300	$18,000	27.1%	$84,300	1.020	$86,000	2nd Quarter, FY2014	1.059	$89,300
	Ped Bridge over Spillway (Alt Mea 3)	$289,900	$108,700	37.5%	$398,600	1.020	$406,600	2nd Quarter, FY2014	1.059	$422,100
	Drawdown Structure (Alt Mea 4)	$1,724,800	$646,800	37.5%	$2,371,600	1.020	$2,419,000	2nd Quarter, FY2014	1.059	$2,511,700
	Embankments D/S Spillway and Drawdown Structure (Alt Mea 3 & 4)	$270,300	$73,200	27.1%	$343,500	1.020	$350,400	2nd Quarter, FY2014	1.059	$363,800
11	**Levees & Floodwalls**	**$944,200**	**$216,100**		**$1,160,300**		**$1,183,500**			**$1,220,300**
	Fish Pond Levee Breach (Alt Mea 6)	$5,800	$500	8.3%	$6,300	1.020	$6,400	4th Quarter, FY2014	1.068	$6,700
	Diversion Dike A (Alt Mea 2)	$194,600	$44,600	22.9%	$239,200	1.020	$244,000	2nd Quarter, FY2013	1.041	$249,100
	Diversion Dike B (Alt Mea 2)	$64,100	$14,700	22.9%	$78,800	1.020	$80,400	2nd Quarter, FY2013	1.041	$82,100
	Road Raise (Alt Mea 2)	$327,600	$68,300	20.8%	$395,900	1.020	$403,800	2nd Quarter, FY2013	1.041	$412,300
	Louisburg Rd Culverts (Alt Mea 5)	$352,100	$88,000	25.0%	$440,100	1.020	$448,900	4th Quarter, FY2014	1.068	$470,100
14	**Recreational Facilities**	**$339,700**	**$77,800**	**22.9%**	**$417,500**	**1.020**	**$425,800**	**1st Quarter, FY2015**	**1.072**	**$447,800**
30	**Planning, Engineering and Design**	**$926,000**	**$57,900**	**6.3%**	**$983,900**	**1.020**	**$1,003,600**	**2nd Quarter, FY2012**	**1.024**	**$1,007,600**
31	**Construction Management**	**$463,000**	**$154,300**	**33.3%**	**$617,300**	**1.020**	**$629,600**	**1st Quarter, FY2014**	**1.055**	**$651,000**
	Estimated Project Cost	**$7,572,400**	**$2,198,900**	**29%**	**$9,771,300**		**$9,966,600**			**$10,260,800**

Estimated Federal Costs (65%)	**$6,669,500**
Estimated Local Costs (35%)	**$3,591,300**

Marsh Lake – Average Annual Costs

Average annual costs are determined by annualizing the sum of the first project costs (construction, preconstruction engineering and design, and construction management) and adding interest accrued during construction with operations and maintenance costs over the life of the project. A summary of the average annual costs for each project feature is included below:

Marsh Lake Ecosystem Restoration Project

Summary of Average Annual Costs

	Marsh Lake - Alternative Measures						
	2	3	4	5	6	7	Recreation
	Restore Pomme de Terre River to its former channel	Modify Marsh Lake Dam to attain target water levels, construct fishway	Construct drawdown water control structure	Install gated culverts in Louisburg Grade Road	Breach dike at abandoned fish pond	Construct islands in Marsh Lake	All recreation features
Total First Project Costs	$ 3,962,518	$ 1,603,899	$ 2,961,839	$ 519,323	$ 7,605	$ 4,601,013	$ 493,933
Interest During Construction	$ 76,941	$ 39,326	$ 72,358	$ 12,853	$ 192	$ 113,063	$ 12,255
First Project Costs + Interest	$ 4,039,458	$ 1,643,225	$ 3,034,197	$ 532,176	$ 7,797	$ 4,714,075	$ 506,188
Annualized Project Costs	$ 192,080	$ 78,137	$ 144,279	$ 25,305	$ 371	$ 224,159	$ 24,070
Annual O&M Cost	$ 11,325	$ 7,245	$ 13,503	$ 800	$ 50	$ 20,376	$ 2,161
Average Annual Costs	**$ 203,405**	**$ 85,382**	**$ 157,782**	**$ 26,105**	**$ 421**	**$ 244,535**	**$ 26,231**

1. Assumes a 50 year period of analysis - 4.125% interest rate.

New Report

Title Page

This file reflects the estimated

Estimated by Matthew Bray
Designed by
Prepared by Matthew Bray
Preparation Date 4/1/2010
Effective Date of Pricing 4/1/2010
Estimated Construction Time Days

Right click here and select "Update Field" to build the Table of Contents for this report.

Designed by

Estimated by
Matthew Bray

Prepared by
Matthew Bray

Design Document Feasibility Study
Document Date 3/1/2010

District St. Paul District
Contact Matthew Bray

Budget Year 2010
UOM System Original

Direct Costs
LaborCost
EQCost
MatlCost
SubBidCost
PED
S&A

Timeline/Currency
Preparation Date 4/1/2010
Escalation Date 4/1/2010
Eff. Pricing Date 4/1/2010
Estimated Duration 0 Day(s)

Currency US dollars
Exchange Rate 1.000000

Costbook CB08EB: MII English Cost Book 2008

Labor LNS2009:
Note: - http://www.wdol.gov/ - The website for current up to date, Davis Bacon & Service (FOOH) Labor Rates!!!!! Fringes paid to the laborers are taxable. In a non-union job the whole fringes are taxable. In union job, the vacation pay fringes is vacation pay

Labor Rates
LaborCost1
LaborCost2
LaborCost3
LaborCost4

Equipment EP07R04: MII Equipment Region 4r 2007

04 NORTHCENTRAL

Sales Tax	5.10
Working Hours per Year	1,260
Labor Adjustment Factor	1.08
Cost of Money	3.13
Cost of Money Discount	25.00
Tire Recap Cost Factor	1.50
Tire Recap Wear Factor	1.80
Tire Repair Factor	0.15
Equipment Cost Factor	1.00
Standby Depreciation Factor	0.50

Fuel

Electricity	0.088
Gas	3.090
Diesel Off-Road	2.950
Diesel On-Road	3.450

Shipping Rates

Over 0 CWT	13.74
Over 240 CWT	13.53
Over 300 CWT	11.81
Over 400 CWT	10.48
Over 500 CWT	5.92
Over 700 CWT	5.36
Over 800 CWT	4.04

Date	Author	Note
2/18/2011		Project: Marsh Lake Environmental Restoration Project
		Design Phase: Feasibility Report and Environmental Assessment
		Project Location: Marsh Lake, West Central Minnesota
		Brief Summary:This MII file reflects the estimated costs associated with alternative measures considered for restoration of the ecosystem of Marsh Lake. The evaluation considered 7 alternative measures. They are as follows:
		Alternative Measure 1: No action (no estimate required).
		Alternative Measure 2: Restore Pomme de Terre River to its former channel.
		Alternative Measure 3: Modify Marsh Lake Dam to attain target water levels and construct fishway.
		Alternative Measure 4: Construct drawdown water control structure.
		Alternative Measure 5: Install gated culverts in Louisburg Grade Road.
		Alternative Measure 6: Breach dike at abandoned fish pond.
		Alternative Measure 7: Construct islands in Marsh Lake.
		These measures are identified in this MII estimate and are discussed in detail in the Marsh Lake report.
		Acquisition Strategy: This project is assumed to be contracted under a small business acquisition program. The specific program has not been identified at this time. Potential increased costs due to this procurement method are reflected in the spreadsheet used to develop the project contingencies.
		MII References Used:
		The 2008 MII cost book was used to develop the estimate.
		Equipment rates are based on the 2007 equipment manual for Region 4 (Midwest).
		Fuel costs are based on pricing on the U.S. Energy Information Administration website for the week of 02/14/11 .
		Cost of money is based on published rates from the U.S.Treasury Department for the period from 1/1/11 through 6/30/11.
		Labor rates are based on Davis-Bacon wage rates or Minnesota Department of Labor wage rates for Big Stone/Lac Qui Parle/Swift Counties current for 02/17/11. For wage rates that were not found in either source, the MII default wage rates were used.
		Contractor Assumptions: Work is assumed to be divided up between the prime contractor and subcontractors as follows:
		Prime Contractor:
		The prime is assumed to do most of the work, including earthwork, scour protection, and care of water.
		Subcontractors:

Date	Author	Note

Structural Contractor is assumed to build the concrete structures and bridges.

Seeding Contractor is assumed to do the seeding for the project.

Recreation Contractor is assumed to construct the recreation features.

Direct Cost Markups	**Category**	**Method**
Productivity	Productivity	Productivity
Overtime	Overtime	Overtime

	Days/Week	*Hours/Shift*	*Shifts/Day*	*1st Shift*	*2nd Shift*	*3rd Shift*
Standard	*5.00*	*8.00*	*1.00*	*8.00*	*0.00*	*0.00*
Actual	*5.00*	*8.00*	*1.00*	*10.00*	*0.00*	*0.00*

Day	*OT Factor*	*Working*	*OT Percent*	*FCCM Percent*
Monday	*1.50*	*Yes*	*10.00*	*(20.00)*
Tuesday	*1.50*	*Yes*		
Wednesday	*1.50*	*Yes*		
Thursday	*1.50*	*Yes*		
Friday	*1.50*	*Yes*		
Saturday	*1.50*	*No*		
Sunday	*2.00*	*No*		

Sales Tax	TaxAdj	Running % on Selected Costs
MatlCost		

Contractor Markups	**Category**	**Method**
MOB/DEMOB	MiscContract	Direct %
JOOH (Small Tools)	Allowance	% of Labor
JOOH	JOOH	JOOH (Calculated)
JOOH PRIME	JOOH	Running %
JOOH SUBS	Allowance	Running %
HOOH	HOOH	Running %
HOOH PRIME	HOOH	Direct %
HOOH SUBS	Allowance	Running %
Profit	Profit	Running %
Bond	Bond	Bond Table
Class B, Tiered, 24 months, 1.00% Surcharge		

Contract Price	*Bond Rate*
500,000	*15.84*
2,000,000	*9.57*
2,500,000	*7.59*
2,500,000	*6.93*
100,000,000,000	*6.34*

Excise Tax	Excise	Running %
PROFIT PRIME	Allowance	Running %

Owner Markups	**Category**	**Method**
Escalation	Escalation	Escalation

StartDate	*StartIndex*	*EndDate*	*EndIndex*	*Escalation*
2/26/2010	*0.00*	*2/26/2010*	*0.00*	*0.00*

Contingency	Contingency	Running %
SIOH	SIOH	Running %

Description	Contractor	DirectCost	CostToPrime	ContractCost
Marsh Lake MII Summary		**7,083,978.53**	**7,432,452.31**	**9,175,672.54**
01 Lands and Damages	**No Markup Contractor**	**10,000.00**	**10,000.00**	**10,000.00**
Real Estate Adminsitration Costs	No Markup Contractor	10,000.00	10,000.00	10,000.00
Construction Costs for Alternative Measures	**Prime**	**7,073,978.53**	**7,422,452.31**	**9,165,672.54**
02 Relocations	**Prime**	**2,000,000.00**	**2,000,000.00**	**2,000,000.00**
02 Two Lane Bridge (Alternative measure 2)	**Prime**	**2,000,000.00**	**2,000,000.00**	**2,000,000.00**
Two Lane Bridge Revised February 2011	No Markup Contractor	2,000,000.00	2,000,000.00	2,000,000.00
03 Reservoirs	**Prime**	**1,999,814.28**	**2,237,957.85**	**2,889,424.04**
03 Fishway (Alternative measure 3)	**Prime**	**393,729.69**	**393,729.69**	**538,257.51**
Earthwork to Prepare Fishway for Scour Protection Placement	**Prime**	**84,598.76**	**84,598.76**	**115,652.74**
Excavation and Reuse of Channel Material	**Prime**	**53,757.47**	**53,757.47**	**73,490.43**
Excavate and load, bank measure, wet material, 2 C.Y. bucket, hydraulic excavator	Prime	38,341.17	38,341.17	52,415.21
Fill, from stockpile, 130 H.P., 2-1/2 C.Y., 300' haul, spread fill, with front-end loader, excludes compaction	Prime	15,416.30	15,416.30	21,075.22
Excavate and Remove Excess Channel Material	**Prime**	**30,841.28**	**30,841.28**	**42,162.31**
Excavate and load, bank measure, wet material, 2 C.Y. bucket, hydraulic excavator	Prime	6,623.98	6,623.98	9,055.47
Hauling Excess Channel Material From Fishway	Prime	17,424.53	17,424.53	23,820.61
Fill, borrow, spread, by dozer	Prime	6,792.78	6,792.78	9,286.23
Rockfill Boulders	**Prime**	**60,018.45**	**60,018.45**	**82,049.65**
Place Boulders for Fishway	Prime	15,054.14	15,054.14	20,580.12
Hauling Rockfill Boulders for Fishway	Prime	2,897.99	2,897.99	3,961.76
Excavate and load, bank measure, blasted rock, 5 C.Y. bucket, wheeled loader	Prime	3,518.65	3,518.65	4,810.26
Rockfill for Fishway	Prime	38,547.68	38,547.68	52,697.51
Riprap for Channel Bed and Scour Hole	**Prime**	**190,569.95**	**190,569.95**	**260,523.16**
Hauling Rockfill for Fishway	Prime	11,897.00	11,897.00	16,264.07
Excavate and load, bank measure, blasted rock, 5 C.Y. bucket, wheeled loader	Prime	14,444.99	14,444.99	19,747.37
R20 to R270 Riprap	Prime	133,327.35	133,327.35	182,268.32
Place Riprap for Fishway Scour Hole	Prime	30,900.60	30,900.60	42,243.40
Bedding for Channel Bed and Scour Hole	**Prime**	**51,407.50**	**51,407.50**	**70,277.84**
Hauling Rockfill for Fishway	Prime	3,355.56	3,355.56	4,587.30
Excavate and load, bank measure, blasted rock, 5 C.Y. bucket, wheeled loader	Prime	4,074.23	4,074.23	5,569.77
Place Riprap for Fishway Scour Hole	Prime	8,715.55	8,715.55	11,914.81
B3 Bedding	Prime	35,262.15	35,262.15	48,205.96
Construct and Remove Access Road in Centerline of Fishway Channel	**Prime**	**7,135.04**	**7,135.04**	**9,754.12**
Fill, borrow, spread, by dozer	Prime	2,574.19	2,574.19	3,519.10
Excavate and load, bank measure, wet rock, 3-1/2 C.Y. bucket, hydraulic excavator	Prime	4,560.85	4,560.85	6,235.02
03 Modify Existing Spillway Southeast of Marsh Lake (Alternative measure 3)	**Prime**	**42,764.25**	**54,759.00**	**66,294.67**
Concrete Demolition	**Structures Contractor**	**21,741.21**	**27,839.31**	**33,704.00**
Selective site demolition, hydodemolition, concrete pavement, 6000 PSI, 6" depth	Structures Contractor	11,513.27	14,742.57	17,848.28
Selective concrete demolition, maximum reinforcing, break up into small pieces, excl shoring, bracing, saw or torch cutting, loading, hauling, dumping	Structures Contractor	8,685.82	11,122.06	13,465.07
Hauling Concrete Demolition Material To Disposal Site.	Structures Contractor	1,542.13	1,974.67	2,390.66
One foot concrete raise on spillway crest	**Structures Contractor**	**21,023.04**	**26,919.69**	**32,590.66**
Structural concrete, ready mix, normal weight, 4500 psi, includes local aggregate, sand, portland cement and water, delivered, excludes all additives and treatments	Structures Contractor	1,218.89	1,560.77	1,889.57
Reinforcing steel, in place, slab on grade, #3 to #7, A615, grade 60, incl labor for accessories, excl material for accessories	Structures Contractor	895.88	1,147.16	1,388.82
Structural concrete, placing, slab on grade, pumped, over 6" thick, includes vibrating, excludes material	Structures Contractor	454.25	581.66	704.20
Concrete finishing, floors, manual screed, bull float, manual float, manual steel trowel	Structures Contractor	594.33	761.03	921.35
Concrete surface treatment, curing, sprayed membrane compound	Structures Contractor	67.84	86.87	105.17
Concrete impact drilling, for anchors, up to 4" D, 1" dia, in concrete or brick walls and floors, incl bit & layout, excl anchor	Structures Contractor	3,222.07	4,125.81	4,994.97
Chemical anchor, 3/4" dia x 9-1/2" L, in concrete, brick or stone, incl layout, drilling, threaded rod & epoxy cartridge	Structures Contractor	12,881.34	16,494.37	19,969.11
C.I.P. concrete forms, slab on grade, curb, wood, 6" to 12" high, 1 use, includes erecting, bracing, stripping and cleaning	Structures Contractor	1,688.44	2,162.02	2,617.48

Description	Contractor	DirectCost	CostToPrime	ContractCost
03 Pedestrian Bridge over Existing Spillway (Alternative measure 3)	**Structures Contractor**	**186,973.88**	**239,417.32**	**289,853.55**
Pedestrian Bridge	Structures Contractor	130,000.00	166,463.10	201,530.62
Concrete Deck	**Structures Contractor**	**15,660.92**	**20,053.58**	**24,278.12**
Structural concrete, ready mix, normal weight, 4500 psi, includes local aggregate, sand, portland cement and water, delivered, excludes all additives and treatments	Structures Contractor	2,553.87	3,270.19	3,959.10
C.I.P. concrete forms, elevated slab, flat plate, plywood, to 15' high, 2 use, includes shoring, erecting, bracing, stripping and cleaning	Structures Contractor	8,475.17	10,852.33	13,138.51
Reinforcing steel, in place, elevated slabs, #4 to #7, A615, grade 60, incl labor for accessories, excl material for accessories	Structures Contractor	1,767.84	2,263.69	2,740.57
Structural concrete, placing, elevated slab, pumped, 6" to 10" thick, includes vibrating, excludes material	Structures Contractor	475.94	609.44	737.83
Concrete finishing, floors, manual screed, bull float, manual float, manual steel trowel	Structures Contractor	1,252.87	1,604.28	1,942.24
Concrete surface treatment, curing, sprayed membrane compound	Structures Contractor	121.92	156.12	189.01
C.I.P. concrete forms, slab on grade, edge, wood, to 6" high, 4 use, includes erecting, bracing, stripping and cleaning	Structures Contractor	1,013.31	1,297.53	1,570.87
Concrete Footings	**Structures Contractor**	**41,312.96**	**52,900.64**	**64,044.82**
Earthwork	**Structures Contractor**	**2,279.89**	**2,919.36**	**3,534.36**
Excavating, trench or continuous footing, common earth, 1 1/2 C.Y. excavator, 6' to 10' deep, excludes sheeting or dewatering	Structures Contractor	1,007.68	1,290.32	1,562.14
Compaction, 3 passes, 24" wide, 6" lifts, walk behind, vibrating roller	Structures Contractor	624.41	799.55	967.98
Excavating, trench or continuous footing, common earth, 1 1/2 C.Y. excavator, 6' to 10' deep, excludes sheeting or dewatering	Structures Contractor	647.79	829.49	1,004.23
Concrete Work	**Structures Contractor**	**39,033.07**	**49,981.28**	**60,510.45**
Structural concrete, ready mix, normal weight, 4500 psi, includes local aggregate, sand, portland cement and water, delivered, excludes all additives and treatments	Structures Contractor	5,606.91	7,179.56	8,692.02
Structural concrete, placing, walls, pumped, 15" thick, includes vibrating, excludes material	Structures Contractor	1,393.22	1,784.00	2,159.82
Reinforcing steel, in place, walls, #3 to #7, A615, grade 60, incl labor for accessories, excl material for accessories	Structures Contractor	29,905.66	38,293.76	46,360.82
C.I.P. concrete forms, slab on grade, curb, wood, 6" to 12" high, 2 use, includes erecting, bracing, stripping and cleaning	Structures Contractor	637.39	816.17	988.10
C.I.P. concrete forms, wall, job built, plywood, 8 to 16' high, 2 use, includes erecting, bracing, stripping and cleaning	Structures Contractor	1,339.14	1,714.76	2,075.99
Concrete surface treatment, curing, sprayed membrane compound	Structures Contractor	150.75	193.04	233.70
03 Drawdown Structure (Alternative measure 4)	**Prime**	**1,179,590.83**	**1,351,303.52**	**1,724,719.00**
Dewatering / Cofferdams	**Prime**	**94,482.64**	**115,810.83**	**143,092.42**
Cofferdams	**Structures Contractor**	**76,040.29**	**97,368.49**	**117,880.37**
Sheet piling, steel, 22 psf, 15' excavation, drive, extract and salvage, excludes wales	Structures Contractor	76,040.29	97,368.49	117,880.37
Dewatering	**Prime**	**18,442.35**	**18,442.35**	**25,212.05**
Dewatering, pumping, 8 hr., attended 2 hours per day, 4" discharge pump used for 8 hours, includes 20 L.F. of suction hose and 100 L.F. of discharge hose	Prime	13,258.35	13,258.35	18,125.14
Generator set, portable, gasoline powered, 120/240 V, 2.5 kW	Prime	5,184.00	5,184.00	7,086.91
Earthwork for Drawdown Structure	**Prime**	**11,035.24**	**11,035.24**	**15,085.98**
Excavating, trench or continuous footing, common earth, 2 1/2 C.Y. excavator, 6' to 10' deep, excludes sheeting or dewatering	Prime	3,365.61	3,365.61	4,601.04
Compaction, 2 passes, 24" wide, 6" lifts, walk behind, vibrating roller	Prime	2,957.77	2,957.77	4,043.49
Excavating, trench or continuous footing, common earth, 2 1/2 C.Y. excavator, 6' to 10' deep, excludes sheeting or dewatering	Prime	4,711.85	4,711.85	6,441.45
Backfill, structural, 6" lifts, backfill around foundation, with hydraulic excavator	Prime	0.00	0.00	0.00
Concrete Structure	**Structures Contractor**	**391,945.77**	**501,880.83**	**607,608.27**
Railing, pipe, aluminum, satin finish, 2 rails, 1-1/4" dia, shop fabricated	Structures Contractor	17,629.02	22,573.70	27,329.13
Base Slabs	**Structures Contractor**	**170,406.35**	**218,202.84**	**264,169.98**
Structural concrete, ready mix, normal weight, 4500 psi, includes local aggregate, sand, portland cement and water, delivered, excludes all additives and treatments	Structures Contractor	83,494.14	106,913.02	129,435.58
C.I.P. concrete forms, slab on grade, depressed, edge, wood, 12" to 24" high, 4 use, includes erecting, bracing, stripping and cleaning	Structures Contractor	5,603.27	7,174.90	8,686.38
Reinforcing steel, in place, slab on grade, #3 to #7, A615, grade 60, incl labor for accessories, excl material for accessories	Structures Contractor	57,422.62	73,528.83	89,018.59
Structural concrete, placing, slab on grade, pumped, over 6" thick, includes vibrating, excludes material	Structures Contractor	13,457.41	17,232.01	20,862.15
Concrete finishing, floors, manual screed, bull float, manual float, manual steel trowel	Structures Contractor	9,504.04	12,169.79	14,733.51
Concrete surface treatment, curing, sprayed membrane compound	Structures Contractor	924.87	1,184.28	1,433.77
Walls	**Structures Contractor**	**173,131.21**	**221,691.98**	**268,394.16**
Structural concrete, ready mix, normal weight, 4500 psi, includes local aggregate, sand, portland cement and water, delivered, excludes all additives and treatments	Structures Contractor	43,880.13	56,187.87	68,024.54
Reinforcing steel, in place, walls, #3 to #7, A615, grade 60, incl labor for accessories, excl material for accessories	Structures Contractor	25,914.72	33,183.42	40,173.93
Structural concrete, placing, walls, pumped, 15" thick, includes vibrating, excludes material	Structures Contractor	10,903.45	13,961.70	16,902.91
Concrete surface treatment, curing, sprayed membrane compound	Structures Contractor	1,179.08	1,509.79	1,827.84
Concrete finishing, floors, manual screed, bull float	Structures Contractor	950.93	1,217.65	1,474.16

Description	Contractor	DirectCost	CostToPrime	ContractCost
C.I.P. concrete forms, wall, job built, plywood, 8 to 16' high, 2 use, includes erecting, bracing, stripping and cleaning	Structures Contractor	90,302.91	115,631.55	139,990.78
Elevated Slab for Walkway	**Structures Contractor**	**30,779.19**	**39,412.30**	**47,715.00**
C.I.P. concrete forms, elevated slab, flat plate, plywood, to 15' high, 3 use, includes shoring, erecting, bracing, stripping and cleaning	Structures Contractor	11,489.07	14,711.59	17,810.77
C.I.P. concrete forms, slab on grade, depressed, edge, wood, 12" to 24" high, 4 use, includes erecting, bracing, stripping and cleaning	Structures Contractor	2,465.44	3,156.96	3,822.01
Structural concrete, ready mix, normal weight, 4500 psi, includes local aggregate, sand, portland cement and water, delivered, excludes all additives and treatments	Structures Contractor	8,532.25	10,925.42	13,226.99
Reinforcing steel, in place, slab on grade, #3 to #7, A615, grade 60, incl labor for accessories, excl material for accessories	Structures Contractor	4,743.52	6,074.01	7,353.58
Concrete finishing, floors, manual screed, bull float, manual float, manual steel trowel	Structures Contractor	1,946.12	2,491.98	3,016.95
Concrete surface treatment, curing, sprayed membrane compound	Structures Contractor	189.38	242.50	293.59
Structural concrete, placing, elevated slab, pumped, over 10" thick, includes vibrating, excludes material	Structures Contractor	1,413.41	1,809.85	2,191.12
Sheetpile	**Structures Contractor**	**36,221.27**	**46,380.81**	**56,151.50**
Sheet piling, 15' excavation, left in place, excludes wales	Structures Contractor	36,221.27	46,380.81	56,151.50
Stoplogs	**Structures Contractor**	**107,991.00**	**138,280.90**	**167,411.49**
Stoplog Frames and Stoplogs for Drawdown Structure	Structures Contractor	107,991.00	138,280.90	167,411.49
Scour Protection Downstream of Structure	**Prime**	**537,914.92**	**537,914.92**	**735,369.34**
Construct and Remove Access Road in Centerline of Channel	**Prime**	**17,051.80**	**17,051.80**	**23,311.07**
Fill, borrow, spread, by dozer	Prime	6,531.52	6,531.52	8,929.06
Excavate and load, bank measure, wet rock, 3-1/2 C.Y. bucket, hydraulic excavator	Prime	10,520.28	10,520.28	14,382.00
Channel Excavation	**Prime**	**92,757.77**	**92,757.77**	**126,806.71**
Excavate and load, bank measure, wet material, 2 C.Y. bucket, hydraulic excavator	Prime	21,713.03	21,713.03	29,683.31
Hauling, excavated or borrow material, loose cubic yards, 20 mile round trip, 0.4 loads/hour, 16.5 C.Y. dump trailer, highway haulers, excludes loading	Prime	48,778.42	48,778.42	66,683.70
Fill, borrow, spread, by dozer	Prime	22,266.32	22,266.32	30,439.70
R270 Riprap	**Prime**	**335,619.87**	**335,619.87**	**458,817.10**
R20 to R270 Riprap	Prime	214,417.73	214,417.73	293,124.84
Hauling, excavated or borrow material, loose cubic yards, 2 mile round trip, 3.3 loads/hour, 22 C.Y. rear/bottom dump, off highway haulers	Prime	18,460.41	18,460.41	25,236.75
Excavate and load, bank measure, blasted rock, 5 C.Y. bucket, wheeled loader	Prime	23,230.51	23,230.51	31,757.83
Place Riprap for Scour Protection in Channel D/S of Drawdown Structure	Prime	79,511.21	79,511.21	108,697.69
B3 Bedding	**Prime**	**92,485.48**	**92,485.48**	**126,434.47**
B3 Bedding	Prime	57,701.70	57,701.70	78,882.48
Hauling, excavated or borrow material, loose cubic yards, 2 mile round trip, 3.3 loads/hour, 22 C.Y. rear/bottom dump, off highway haulers	Prime	5,297.95	5,297.95	7,242.69
Excavate and load, bank measure, blasted rock, 5 C.Y. bucket, wheeled loader	Prime	6,666.92	6,666.92	9,114.17
Place Riprap for Scour Protection in Channel D/S of Drawdown Structure	Prime	22,818.91	22,818.91	31,195.13
03 Embankments on Sides of Fishway and Drawdown Structure Downstream Channel (Alternative measures 3 and 4)	**Prime**	**196,755.62**	**198,748.32**	**270,299.31**
Stripping	**Prime**	**2,045.72**	**2,045.72**	**2,796.65**
Loam or topsoil, remove and stockpile on site, 200 H.P. dozer, 6" deep, 200' haul	Prime	2,045.72	2,045.72	2,796.65
Impervious FIll	**Prime**	**183,817.12**	**183,817.12**	**251,291.55**
Placing Impervious Fill for Downstream Embankments for Fishway and Drawdown Structure	Prime	54,314.43	54,314.43	74,251.82
Hauling, excavated or borrow material, loose cubic yards, 20 mile round trip, 0.4 loads/hour, 16.5 C.Y. dump trailer, highway haulers, excludes loading	Prime	129,502.69	129,502.69	177,039.73
Topsoil and Seeding	**Prime**	**10,892.79**	**12,885.48**	**16,211.11**
Topsoil	**Prime**	**3,907.28**	**3,907.28**	**5,341.54**
Placing Topsoil	Prime	3,907.28	3,907.28	5,341.54
Seeding	**Seeding Contractor**	**6,985.50**	**8,978.20**	**10,869.56**
Seeding, athletic field mix, 450 lb. per acre, mechanical seeding	Seeding Contractor	1,047.20	1,345.93	1,629.46
Seeding, apply fertilizer, nitrogen, 1 lb. per M.S.F., sprayed from truck	Seeding Contractor	427.73	549.74	665.55
Soil preparation, mulching, oat straw, 1" deep, power mulcher, small	Seeding Contractor	3,847.11	4,944.54	5,986.17
Watering, water, by truck	Seeding Contractor	1,663.47	2,137.99	2,588.38
10 Breakwater & Seawalls	**Prime**	**2,188,928.97**	**2,188,928.97**	**2,992,427.25**
10 Breakwater A (Alternative measure number 7)	**Prime**	**865,790.23**	**865,790.23**	**1,183,599.06**
Rockfill Placement for Breakers	Prime	129,446.17	129,446.17	176,962.45
Rockfill for Breaker Rock	Prime	632,450.25	632,450.25	864,606.11

Description	Contractor	DirectCost	CostToPrime	ContractCost
Hauling Breakwater Rock on Ice: Site A	Prime	73,597.68	73,597.68	100,613.46
Breakwaters Ice Road Maintenance	Prime	15,788.12	15,788.12	21,583.53
Breakwaters Ice Road Constructuion	Prime	14,508.01	14,508.01	19,833.51
10 Breakwater B(Alternative Measure number 7)	**Prime**	**596,600.99**	**596,600.99**	**815,597.52**
Rockfill Placement for Breakers	Prime	88,513.19	88,513.19	121,004.06
Rockfill for Breaker Rock	Prime	432,459.23	432,459.23	591,203.64
Hauling Breakwater Rock on Ice: Site B	Prime	50,324.90	50,324.90	68,797.85
Breakwaters Ice Road Maintenance	Prime	10,795.66	10,795.66	14,758.47
Breakwaters Ice Road Constructuion	Prime	14,508.01	14,508.01	19,833.51
10 Breakwater C (Alternative Measure number 7)	**Prime**	**726,537.75**	**726,537.75**	**993,230.66**
Rockfill Placement for Breakers	Prime	109,854.32	109,854.32	150,178.95
Rockfill for Breaker Rock	Prime	536,728.05	536,728.05	733,746.81
Hauling Breakwater Rock on Ice: Site C	Prime	52,048.81	52,048.81	71,154.56
Breakwaters Ice Road Maintenance	Prime	13,398.57	13,398.57	18,316.83
Breakwaters Ice Road Constructuion	Prime	14,508.01	14,508.01	19,833.51
11 Levees & Floodwalls	**Prime**	**668,288.34**	**714,986.20**	**944,134.44**
11 Fish Pond Levee Breach (Alternative measure 6)	**Prime**	**4,173.98**	**4,371.82**	**5,837.18**
Excavation	**Prime**	**2,836.92**	**2,836.92**	**3,878.27**
Excavate and load, bank measure, medium material, 3-1/2 C.Y. bucket, hydraulic excavator	Prime	1,068.04	1,068.04	1,460.08
Grading Fishway Excavated Surface	Prime	181.14	181.14	247.63
Hauling, excavated or borrow material, loose cubic yards, 1 mile round trip, 3.9 loads/hour, 22 C.Y. rear/bottom dump, off highway haulers	Prime	1,587.74	1,587.74	2,170.56
Topsoil and Seeding	**Prime**	**1,337.07**	**1,534.91**	**1,958.91**
Topsoil	**Prime**	**643.53**	**643.53**	**879.76**
Placing Topsoil	Prime	465.15	465.15	635.90
Loam or topsoil, remove and stockpile on site, 200 H.P. dozer, 6" deep, 200' haul	Prime	178.38	178.38	243.86
Seeding	**Seeding Contractor**	**693.53**	**891.37**	**1,079.15**
Seeding, athletic field mix, 450 lb. per acre, mechanical seeding	Seeding Contractor	140.00	179.94	217.84
Seeding, apply fertilizer, nitrogen, 1 lb. per M.S.F., sprayed from truck	Seeding Contractor	130.13	167.25	202.49
Soil preparation, mulching, oat straw, 1" deep, power mulcher, small	Seeding Contractor	290.58	373.48	452.15
Watering, water, by truck	Seeding Contractor	132.82	170.70	206.66
11 Diversion Dike A (Alternative measure 2)	**Prime**	**141,001.22**	**143,718.53**	**194,558.89**
Clearing and Grubbing	**Prime**	**17,398.95**	**17,398.95**	**23,785.64**
Clear and grub, cut and chip, heavy trees, to 16" diameter	Prime	7,487.73	7,487.73	10,236.27
Clear and grub, heavy stumps, to 16" diameter, includes loading on site	Prime	2,807.20	2,807.20	3,837.64
Hauling Clearing and Grubbing Material	Prime	7,104.02	7,104.02	9,711.72
Stripping	**Prime**	**2,713.88**	**2,713.88**	**3,710.07**
Loam or topsoil, remove and stockpile on site, 200 H.P. dozer, 6" deep, 200' haul	Prime	2,713.88	2,713.88	3,710.07
Impervious Fill	**Prime**	**106,153.01**	**106,153.01**	**145,118.98**
Placing Impervious Fill	Prime	51,778.98	51,778.98	70,785.68
Hauling, excavated or borrow material, loose cubic yards, 1 mile round trip, 3.9 loads/hour, 22 C.Y. rear/bottom dump, off highway haulers	Prime	54,374.03	54,374.03	74,333.30
Topsoil and Seeding	**Prime**	**14,735.40**	**17,452.70**	**21,944.19**
Topsoil	**Prime**	**5,209.71**	**5,209.71**	**7,122.06**
Placing Topsoil	Prime	5,209.71	5,209.71	7,122.06
Seeding	**Seeding Contractor**	**9,525.69**	**12,242.99**	**14,822.13**
Seeding, athletic field mix, 450 lb. per acre, mechanical seeding	Seeding Contractor	1,428.00	1,835.35	2,221.99
Seeding, apply fertilizer, nitrogen, 1 lb. per M.S.F., sprayed from truck	Seeding Contractor	583.26	749.65	907.57
Soil preparation, mulching, oat straw, 1" deep, power mulcher, small	Seeding Contractor	5,246.06	6,742.56	8,162.96
Watering, water, by truck	Seeding Contractor	2,268.36	2,915.44	3,529.61
11 Diversion Dike B (Alternative measure 2)	**Prime**	**46,430.91**	**47,349.62**	**64,082.99**

Description	Contractor	DirectCost	CostToPrime	ContractCost
Clearing and Grubbing	**Prime**	**13,919.16**	**13,919.16**	**19,028.51**
Clear and grub, cut and chip, heavy trees, to 16" diameter	Prime	5,990.18	5,990.18	8,189.02
Clear and grub, heavy stumps, to 16" diameter, includes loading on site	Prime	2,245.76	2,245.76	3,070.11
Hauling Clearing and Grubbing Material	Prime	5,683.22	5,683.22	7,769.38
Stripping	**Prime**	**1,105.35**	**1,105.35**	**1,511.09**
Loam or topsoil, remove and stockpile on site, 200 H.P. dozer, 6" deep, 200' haul	Prime	1,105.35	1,105.35	1,511.09
Impervious Fill	**Prime**	**13,715.30**	**13,715.30**	**18,749.83**
Placing Impervious Fill	Prime	5,838.51	5,838.51	7,981.67
Hauling, excavated or borrow material, loose cubic yards, 1 mile round trip, 3.9 loads/hour, 22 C.Y. rear/bottom dump, off highway haulers	Prime	7,876.79	7,876.79	10,768.15
Topsoil and Seeding	**Prime**	**4,964.91**	**5,883.62**	**7,395.91**
Topsoil	**Prime**	**1,744.32**	**1,744.32**	**2,384.62**
Placing Topsoil	Prime	1,744.32	1,744.32	2,384.62
Seeding	**Seeding Contractor**	**3,220.59**	**4,139.30**	**5,011.29**
Seeding, athletic field mix, 450 lb. per acre, mechanical seeding	Seeding Contractor	482.80	620.52	751.25
Seeding, apply fertilizer, nitrogen, 1 lb. per M.S.F., sprayed from truck	Seeding Contractor	197.20	253.45	306.84
Soil preparation, mulching, oat straw, 1" deep, power mulcher, small	Seeding Contractor	1,773.67	2,279.63	2,759.86
Watering, water, by truck	Seeding Contractor	766.92	985.70	1,193.35
Riprap	**Prime**	**8,336.79**	**8,336.79**	**11,397.00**
R20 Riprap	Prime	4,957.04	4,957.04	6,776.64
Hauling, excavated or borrow material, loose cubic yards, 2 mile round trip, 3.3 loads/hour, 22 C.Y. rear/bottom dump, off highway haulers	Prime	512.14	512.14	700.13
Excavate and load, bank measure, blasted rock, 3 C.Y. bucket, wheeled loader	Prime	569.87	569.87	779.06
Place Riprap and Bedding for Small Quantities	Prime	2,297.74	2,297.74	3,141.18
Bedding	**Prime**	**4,389.41**	**4,389.41**	**6,000.64**
B1 Bedding	Prime	2,564.52	2,564.52	3,505.89
Hauling, excavated or borrow material, loose cubic yards, 2 mile round trip, 3.3 loads/hour, 22 C.Y. rear/bottom dump, off highway haulers	Prime	263.72	263.72	360.52
Excavate and load, bank measure, blasted rock, 3 C.Y. bucket, wheeled loader	Prime	293.45	293.45	401.17
Place Riprap and Bedding for Small Quantities	Prime	1,267.72	1,267.72	1,733.06
11 Road Raise (Alternative measure 2)	**Prime**	**239,368.68**	**239,873.33**	**327,568.89**
Stripping	**Prime**	**3,184.06**	**3,184.06**	**4,352.85**
Loam or topsoil, remove and stockpile on site, 200 H.P. dozer, 6" deep, 200' haul	Prime	3,184.06	3,184.06	4,352.85
Impervious Fill	**Prime**	**83,024.43**	**83,024.43**	**113,500.52**
Placing Impervious Fill	Prime	40,497.39	40,497.39	55,362.92
Hauling, excavated or borrow material, loose cubic yards, 1 mile round trip, 3.9 loads/hour, 22 C.Y. rear/bottom dump, off highway haulers	Prime	42,527.04	42,527.04	58,137.59
Topsoil and Seeding	**Prime**	**2,745.88**	**3,250.52**	**4,088.07**
Topsoil	**Prime**	**976.82**	**976.82**	**1,335.39**
Placing Topsoil	Prime	976.82	976.82	1,335.39
Seeding	**Seeding Contractor**	**1,769.06**	**2,273.70**	**2,752.68**
Seeding, athletic field mix, 450 lb. per acre, mechanical seeding	Seeding Contractor	265.20	340.85	412.66
Seeding, apply fertilizer, nitrogen, 1 lb. per M.S.F., sprayed from truck	Seeding Contractor	108.32	139.22	168.55
Soil preparation, mulching, oat straw, 1" deep, power mulcher, small	Seeding Contractor	974.27	1,252.19	1,515.98
Watering, water, by truck	Seeding Contractor	421.27	541.44	655.50
Roadway Aggregate	**Prime**	**38,674.50**	**38,674.50**	**52,870.89**
Class 5 Aggregate for Road Raise	Prime	38,674.50	38,674.50	52,870.89
Riprap	**Prime**	**73,881.17**	**73,881.17**	**101,001.01**
R20 Riprap	Prime	43,929.65	43,929.65	60,055.07
Hauling, excavated or borrow material, loose cubic yards, 2 mile round trip, 3.3 loads/hour, 22 C.Y. rear/bottom dump, off highway haulers	Prime	4,538.58	4,538.58	6,204.57
Excavate and load, bank measure, blasted rock, 3 C.Y. bucket, wheeled loader	Prime	5,050.24	5,050.24	6,904.04
Place Riprap and Bedding for Small Quantities	Prime	20,362.71	20,362.71	27,837.32
Bedding	**Prime**	**37,858.64**	**37,858.64**	**51,755.56**

Description	Contractor	DirectCost	CostToPrime	ContractCost
B1 Bedding	Prime	22,118.99	22,118.99	30,238.28
Hauling, excavated or borrow material, loose cubic yards, 2 mile round trip, 3.3 loads/hour, 22 C.Y. rear/bottom dump, off highway haulers	Prime	2,274.59	2,274.59	3,109.53
Excavate and load, bank measure, blasted rock, 3 C.Y. bucket, wheeled loader	Prime	2,531.01	2,531.01	3,460.08
Place Riprap and Bedding for Small Quantities	Prime	10,934.06	10,934.06	14,947.67
11 Louisburg Road Culverts (Alternative Measure number 5)	**Prime**	**237,313.53**	**279,672.89**	**352,086.50**
Dewatering	**Prime**	**26,733.54**	**26,733.54**	**36,546.72**
Cofferdams	**Prime**	**8,291.19**	**8,291.19**	**11,334.67**
Placing Impervious Fill	Prime	2,326.10	2,326.10	3,179.95
Hauling, excavated or borrow material, loose cubic yards, 20 mile round trip, 0.5 loads/hour, 20 C.Y. dump trailer, highway haulers, excludes loading	Prime	5,965.09	5,965.09	8,154.72
Sump Pump	**Prime**	**18,442.35**	**18,442.35**	**25,212.05**
Dewatering, pumping, 8 hr., attended 2 hours per day, 4" discharge pump used for 8 hours, includes 20 L.F. of suction hose and 100 L.F. of discharge hose	Prime	13,258.35	13,258.35	18,125.14
Generator set, portable, gasoline powered, 120/240 V, 2.5 kW	Prime	5,184.00	5,184.00	7,086.91
Removal of Existing Piping	**Prime**	**20,538.22**	**20,538.22**	**28,077.26**
Topsoil stripping and stockpiling, topsoil, sandy loam, adverse conditions, 200 H.P. dozer	Prime	356.76	356.76	487.72
Excavating, trench or continuous footing, common earth, 2 1/2 C.Y. excavator, 6' to 10' deep, excludes sheeting or dewatering	Prime	3,737.26	3,737.26	5,109.11
Selective demolition, water & sewer piping & fittings, concrete pipe, 60"-84", diameter, excludes excavation	Prime	15,411.78	15,411.78	21,069.04
Load and Haul 60" RCP from Site	Prime	1,032.41	1,032.41	1,411.38
Concrete Structures	**Structures Contractor**	**123,021.63**	**157,527.40**	**190,712.51**
Base Slabs	**Structures Contractor**	**33,580.28**	**42,999.06**	**52,057.34**
Structural concrete, ready mix, normal weight, 4500 psi, includes local aggregate, sand, portland cement and water, delivered, excludes all additives and treatments	Structures Contractor	14,017.26	17,948.90	21,730.06
C.I.P. concrete forms, slab on grade, depressed, edge, wood, 12" to 24" high, 4 use, includes erecting, bracing, stripping and cleaning	Structures Contractor	4,127.74	5,285.51	6,398.97
Reinforcing steel, in place, slab on grade, #3 to #7, A615, grade 60, incl labor for accessories, excl material for accessories	Structures Contractor	10,357.69	13,262.87	16,056.86
Structural concrete, placing, slab on grade, pumped, over 6" thick, includes vibrating, excludes material	Structures Contractor	2,259.27	2,892.97	3,502.40
Concrete finishing, floors, manual screed, bull float, manual float, manual steel trowel	Structures Contractor	2,568.38	3,288.77	3,981.59
Concrete surface treatment, curing, sprayed membrane compound	Structures Contractor	249.94	320.04	387.46
Walls	**Structures Contractor**	**63,327.55**	**81,090.01**	**98,172.62**
Structural concrete, ready mix, normal weight, 4500 psi, includes local aggregate, sand, portland cement and water, delivered, excludes all additives and treatments	Structures Contractor	16,698.83	21,382.60	25,887.12
C.I.P. concrete forms, wall, job built, plywood, to 8' high, 4 use, includes erecting, bracing, stripping and cleaning	Structures Contractor	29,668.61	37,990.22	45,993.34
Reinforcing steel, in place, walls, #3 to #7, A615, grade 60, incl labor for accessories, excl material for accessories	Structures Contractor	11,380.77	14,572.90	17,642.87
Structural concrete, placing, walls, pumped, 15" thick, includes vibrating, excludes material	Structures Contractor	4,149.37	5,313.20	6,432.50
Concrete surface treatment, curing, sprayed membrane compound	Structures Contractor	604.52	774.08	937.15
Concrete finishing, floors, manual screed, bull float	Structures Contractor	825.46	1,056.99	1,279.65
Top Slabs	**Structures Contractor**	**26,113.80**	**33,438.34**	**40,482.54**
C.I.P. concrete forms, elevated slab, flat plate, plywood, to 15' high, 3 use, includes shoring, erecting, bracing, stripping and cleaning	Structures Contractor	7,766.22	9,944.53	12,039.47
C.I.P. concrete forms, slab on grade, depressed, edge, wood, 12" to 24" high, 4 use, includes erecting, bracing, stripping and cleaning	Structures Contractor	653.71	837.07	1,013.41
Structural concrete, ready mix, normal weight, 4500 psi, includes local aggregate, sand, portland cement and water, delivered, excludes all additives and treatments	Structures Contractor	8,532.25	10,925.42	13,226.99
Reinforcing steel, in place, slab on grade, #3 to #7, A615, grade 60, incl labor for accessories, excl material for accessories	Structures Contractor	6,304.68	8,073.05	9,773.74
Concrete finishing, floors, manual screed, bull float, manual float, manual steel trowel	Structures Contractor	1,315.51	1,684.49	2,039.35
Concrete surface treatment, curing, sprayed membrane compound	Structures Contractor	128.02	163.92	198.46
Structural concrete, placing, elevated slab, pumped, over 10" thick, includes vibrating, excludes material	Structures Contractor	1,413.41	1,809.85	2,191.12
Stoplog Structures	**Structures Contractor**	**28,000.00**	**35,853.59**	**43,406.60**
Stoplogs and Frames	Structures Contractor	28,000.00	35,853.59	43,406.60
Backfill and Restoration of Roadbed	**Prime**	**5,114.76**	**5,114.76**	**6,992.25**
Backfill, trench, 3.25 CY wheel loader	Prime	2,117.18	2,117.18	2,894.34
Compaction, of backfill, structural, 6" lifts, self propelled roller	Prime	1,355.39	1,355.39	1,852.92
Compaction, 2 passes, 24" wide, 6" lifts, walk behind, vibrating roller	Prime	1,642.19	1,642.19	2,245.00
Scour Protection	**Prime**	**19,322.29**	**19,322.29**	**26,414.99**
Earthwork for Preformed Scour Hole	**Prime**	**3,460.84**	**3,460.84**	**4,731.22**
Backfill, dumped gravel or fill, 6" layers, spread, dozer	Prime	927.68	927.68	1,268.21

Description	Contractor	DirectCost	CostToPrime	ContractCost
Excavate and load, bank measure, wet material, 2 C.Y. bucket, hydraulic excavator	Prime	884.50	884.50	1,209.17
Hauling, excavated or borrow material, loose cubic yards, 10 mile round trip, 0.6 load/hour, 16.5 C.Y. dump trailer, highway haulers, excludes loading	Prime	1,648.66	1,648.66	2,253.84
R270 Riprap	**Prime**	**12,508.24**	**12,508.24**	**17,099.69**
R20 to R270 Riprap	Prime	8,546.63	8,546.63	11,683.87
Place Riprap and Bedding for Small Quantities	Prime	3,961.62	3,961.62	5,415.82
B3 Bedding	**Prime**	**3,353.21**	**3,353.21**	**4,584.08**
B3 Bedding	Prime	2,243.96	2,243.96	3,067.65
Place Riprap and Bedding for Small Quantities	Prime	1,109.25	1,109.25	1,516.43
Guardrail	**Prime**	**14,583.10**	**14,583.10**	**19,936.18**
Guide/Guard rail, corrugated steel, galvanized steel posts, install metal guide/guard rail, steel posts 12' - 6" O.C., W6x8 posts	Prime	9,547.57	9,547.57	13,052.23
Vehicle guide rails, guide/guard rai, steel box beam, end assembly	Prime	5,035.54	5,035.54	6,883.95
14 Recreation Features	**Recreation Contractor**	**216,946.94**	**280,579.29**	**339,686.81**
Day Use Facility	**Recreation Contractor**	**87,587.46**	**113,277.59**	**137,140.93**
Picnic Tables	**Recreation Contractor**	**5,516.36**	**7,134.35**	**8,637.29**
Site seating, picnic tables, recycled plastic, various colors, 8' long	Recreation Contractor	3,760.78	4,863.85	5,888.47
Sidewalks, driveways, and patios, sidewalk, concrete, cast-in-place with 6 x 6 - W1.4 x W1.4 mesh, broomed finish, 3000 psi, 4" thick, excludes base	Recreation Contractor	1,207.72	1,561.95	1,890.99
Base course drainage layers, aggregate base course for concrete slabs and capillary water barrier, 1" minus graded gravel, 4" compacted thickness	Recreation Contractor	547.86	708.55	857.82
Park Benches	**Recreation Contractor**	**3,654.02**	**4,725.77**	**5,721.32**
Site seating, classic park bench, recycled plastic, various colors, 8' long	Recreation Contractor	2,117.68	2,738.82	3,315.78
Sidewalks, driveways, and patios, sidewalk, concrete, cast-in-place with 6 x 6 - W1.4 x W1.4 mesh, broomed finish, 3000 psi, 4" thick, excludes base	Recreation Contractor	619.74	801.52	970.37
Base course drainage layers, aggregate base course for concrete slabs and capillary water barrier, 1" minus graded gravel, 4" compacted thickness	Recreation Contractor	916.59	1,185.44	1,435.16
Vault Toilet	**Recreation Contractor**	**53,000.00**	**68,545.34**	**82,985.27**
Vault Toilet	Recreation Contractor	53,000.00	68,545.34	82,985.27
Trash Receptacles	**Recreation Contractor**	**1,228.68**	**1,589.06**	**1,923.81**
Trash receptacles, fiberglass, circular, 24" diameter, 30" high, 30 gallon capacity	Recreation Contractor	958.68	1,239.86	1,501.06
Concrete Slabs for Trash and Recycling Receptacles	Recreation Contractor	270.00	349.19	422.76
Recycling Receptacles	**Recreation Contractor**	**614.34**	**794.53**	**961.91**
Trash receptacles, fiberglass, circular, 24" diameter, 30" high, 30 gallon capacity	Recreation Contractor	479.34	619.93	750.53
Concrete Slabs for Trash and Recycling Receptacles	Recreation Contractor	135.00	174.60	211.38
Information Kiosk with Roof	**Recreation Contractor**	**2,130.00**	**2,754.75**	**3,335.07**
Kiosks, rectangular, 5' x 9' x 7' 6" h, 1/4" fiberglass wall	Recreation Contractor	2,130.00	2,754.75	3,335.07
Accessible Canoe Launch	**Recreation Contractor**	**8,426.03**	**10,897.46**	**13,193.14**
Jetties, docks, floating, polystyrene flotation, galvanized steel frame and wood deck, 8' wide, includes anchors, minimum	Recreation Contractor	8,426.03	10,897.46	13,193.14
Accessible Fishing Structure	**Recreation Contractor**	**1,668.10**	**2,157.37**	**2,611.85**
Sidewalks, driveways, and patios, sidewalk, concrete, cast-in-place with 6 x 6 - W1.4 x W1.4 mesh, broomed finish, 3000 psi, 4" thick, excludes base	Recreation Contractor	1,132.23	1,464.33	1,772.81
Base course drainage layers, aggregate base course for concrete slabs and capillary water barrier, 1" minus graded gravel, 4" compacted thickness	Recreation Contractor	535.87	693.04	839.04
Accessible Trail to Fishing Structure	**Recreation Contractor**	**11,349.93**	**14,678.96**	**17,771.27**
Sidewalks, driveways, and patios, sidewalk, concrete, cast-in-place with 6 x 6 - W1.4 x W1.4 mesh, broomed finish, 3000 psi, 4" thick, excludes base	Recreation Contractor	9,435.29	12,202.74	14,773.40
Base course drainage layers, aggregate base course for concrete slabs and capillary water barrier, 1" minus graded gravel, 4" compacted thickness	Recreation Contractor	1,914.64	2,476.22	2,997.87
Parking Lot	**Recreation Contractor**	**23,475.00**	**30,360.41**	**36,756.21**
Topsoil stripping and stockpiling, loam or topsoil, remove and stockpile on site, 200 HP dozer, 6" deep, 300' haul	Recreation Contractor	1,463.69	1,893.00	2,291.79
Compaction, structural, 5 tons, steel wheel tandem roller	Recreation Contractor	248.66	321.60	389.35
Base course drainage layers, aggregate base course for concrete slabs and capillary water barrier, 1" minus graded gravel, 6" compacted thickness	Recreation Contractor	21,762.64	28,145.81	34,075.08
Minnesota River Landing	**Recreation Contractor**	**24,782.03**	**32,050.80**	**38,802.70**
Trash Receptacles	**Recreation Contractor**	**614.34**	**794.53**	**961.91**
Trash receptacles, fiberglass, circular, 24" diameter, 30" high, 30 gallon capacity	Recreation Contractor	479.34	619.93	750.53
Concrete Slabs for Trash and Recycling Receptacles	Recreation Contractor	135.00	174.60	211.38
Recycling Receptacles	**Recreation Contractor**	**614.34**	**794.53**	**961.91**
Trash receptacles, fiberglass, circular, 24" diameter, 30" high, 30 gallon capacity	Recreation Contractor	479.34	619.93	750.53

Description	Contractor	DirectCost	CostToPrime	ContractCost
Concrete Slabs for Trash and Recycling Receptacles	Recreation Contractor	135.00	174.60	211.38
Accessible Fishing Structure	**Recreation Contractor**	**1,003.79**	**1,298.20**	**1,571.69**
Sidewalks, driveways, and patios, sidewalk, concrete, cast-in-place with 6 x 6 - W1.4 x W1.4 mesh, broomed finish, 3000 psi, 4" thick, excludes base	Recreation Contractor	679.34	878.60	1,063.68
Base course drainage layers, aggregate base course for concrete slabs and capillary water barrier, 1" minus graded gravel, 4" compacted thickness	Recreation Contractor	324.44	419.61	508.00
Accessible Trail to Fishing Structure	**Recreation Contractor**	**4,655.15**	**6,020.55**	**7,288.85**
Sidewalks, driveways, and patios, sidewalk, concrete, cast-in-place with 6 x 6 - W1.4 x W1.4 mesh, broomed finish, 3000 psi, 4" thick, excludes base	Recreation Contractor	3,774.12	4,881.10	5,909.36
Base course drainage layers, aggregate base course for concrete slabs and capillary water barrier, 1" minus graded gravel, 4" compacted thickness	Recreation Contractor	881.04	1,139.45	1,379.49
Rustic Fishing Structures	**Recreation Contractor**	**15,764.41**	**20,388.25**	**24,683.29**
Public Storm Utility Drainage Piping, concrete, box culvert, precast, base price, 8' long, 10' x 8', excludes excavation or backfill	Recreation Contractor	11,745.20	15,190.16	18,390.16
Base course drainage layers, aggregate base course for concrete slabs and capillary water barrier, 1" minus graded gravel, 4" compacted thickness	Recreation Contractor	270.34	349.63	423.29
Earthwork	**Recreation Contractor**	**2,759.49**	**3,568.87**	**4,320.70**
Structural excavation for minor structures, bank measure, for spread and mat footings, elevator pits, and small building foundations, sand & gravel, 2 C.Y. bucket, machine excavation, hydraulic backhoe	Recreation Contractor	2,654.49	3,433.07	4,156.29
Compaction, 2 passes, 18" wide,12" lifts, walk behind, vibrating plate	Recreation Contractor	105.00	135.80	164.41
Select Granular Fill	**Recreation Contractor**	**989.39**	**1,279.58**	**1,549.14**
Borrow, select granular fill, 1 C.Y. bucket, loading and/or spreading, shovel	Recreation Contractor	954.05	1,233.88	1,493.81
Compaction, 2 passes, 18" wide,12" lifts, walk behind, vibrating plate	Recreation Contractor	35.34	45.70	55.33
Information Kiosk with Roof	**Recreation Contractor**	**2,130.00**	**2,754.75**	**3,335.07**
Kiosks, rectangular, 5' x 9' x 7' 6" h, 1/4" fiberglass wall	Recreation Contractor	2,130.00	2,754.75	3,335.07
Upper Pool Landing	**Recreation Contractor**	**6,974.00**	**9,019.53**	**10,919.61**
Trash Receptacles	**Recreation Contractor**	**614.34**	**794.53**	**961.91**
Trash receptacles, fiberglass, circular, 24" diameter, 30" high, 30 gallon capacity	Recreation Contractor	479.34	619.93	750.53
Concrete Slabs for Trash and Recycling Receptacles	Recreation Contractor	135.00	174.60	211.38
Accessible Fishing Structure	**Recreation Contractor**	**669.19**	**865.47**	**1,047.79**
Sidewalks, driveways, and patios, sidewalk, concrete, cast-in-place with 6 x 6 - W1.4 x W1.4 mesh, broomed finish, 3000 psi, 4" thick, excludes base	Recreation Contractor	452.89	585.73	709.12
Base course drainage layers, aggregate base course for concrete slabs and capillary water barrier, 1" minus graded gravel, 4" compacted thickness	Recreation Contractor	216.30	279.74	338.67
Accessible Trail to Fishing Structure	**Recreation Contractor**	**3,560.47**	**4,604.79**	**5,574.84**
Sidewalks, driveways, and patios, sidewalk, concrete, cast-in-place with 6 x 6 - W1.4 x W1.4 mesh, broomed finish, 3000 psi, 4" thick, excludes base	Recreation Contractor	2,830.59	3,660.82	4,432.02
Base course drainage layers, aggregate base course for concrete slabs and capillary water barrier, 1" minus graded gravel, 4" compacted thickness	Recreation Contractor	729.88	943.97	1,142.82
Information Kiosk with Roof	**Recreation Contractor**	**2,130.00**	**2,754.75**	**3,335.07**
Kiosks, rectangular, 5' x 9' x 7' 6" h, 1/4" fiberglass wall	Recreation Contractor	2,130.00	2,754.75	3,335.07
Other Landings	**Recreation Contractor**	**74,128.46**	**95,870.95**	**116,067.36**
Trash Receptacles	**Recreation Contractor**	**2,457.35**	**3,178.12**	**3,847.63**
Trash receptacles, fiberglass, circular, 24" diameter, 30" high, 30 gallon capacity	Recreation Contractor	1,917.35	2,479.73	3,002.12
Concrete Slabs for Trash and Recycling Receptacles	Recreation Contractor	540.00	698.39	845.51
Rustic Fishing Structures	**Recreation Contractor**	**63,151.10**	**81,673.85**	**98,879.46**
Public Storm Utility Drainage Piping, concrete, box culvert, precast, base price, 8' long, 10' x 8', excludes excavation or backfill	Recreation Contractor	46,980.78	60,760.64	73,560.63
Base course drainage layers, aggregate base course for concrete slabs and capillary water barrier, 1" minus graded gravel, 4" compacted thickness	Recreation Contractor	1,216.03	1,572.70	1,904.01
Earthwork	**Recreation Contractor**	**11,037.97**	**14,275.49**	**17,282.80**
Structural excavation for minor structures, bank measure, for spread and mat footings, elevator pits, and small building foundations, sand & gravel, 2 C.Y. bucket, machine excavation, hydraulic backhoe	Recreation Contractor	10,617.95	13,732.29	16,625.16
Compaction, 2 passes, 18" wide,12" lifts, walk behind, vibrating plate	Recreation Contractor	420.01	543.21	657.64
Granular Fill	**Recreation Contractor**	**3,916.32**	**5,065.01**	**6,132.02**
Borrow, select granular fill, 1 C.Y. bucket, loading and/or spreading, shovel	Recreation Contractor	3,776.45	4,884.11	5,913.01
Compaction, 2 passes, 18" wide,12" lifts, walk behind, vibrating plate	Recreation Contractor	139.88	180.91	219.02
Information Kiosk with Roof	**Recreation Contractor**	**8,520.00**	**11,018.99**	**13,340.27**
Kiosks, rectangular, 5' x 9' x 7' 6" h, 1/4" fiberglass wall	Recreation Contractor	8,520.00	11,018.99	13,340.27

MARSH LAKE DAM ROADWAY BRIDGE ESTIMATE PROVIDED

BY MINNESOTA DEPARTMENT OF TRANSPORTION (MNDOT)

BRIDGE COST ESTIMATOR

DATE: 2/25/2011

JEFF SOUTHWARD
2-25-11

PROPOSED 5 SPAN Bridge (CORP OF ENGINEER)

Assumptions:

1. width = 1.6667' + 6(shld) + 12(Lane) + 12(Lane) + 6 (shld) + 1.667 = 39.33' out to out
2. L = 450'
3. USED MN DOT 36M PSCB W 4.1' ± Depth of Structure
4. 3 piers @ abut + wall piers w/ 16" CIP 85' LONG)
5. 1 PIER (FIXED) w/ Footing w/ 16" CIP 75' LONG)
6. 2 - PARAPET TYPE ABUTS w/ 5' EXPOSURE 12" CIP 75' LONG
7. NO REMOVAL OF EXISTING STRUCTURE included
8. NO MARINE ACCESS Required
9. NO Aesthetic COSTS added
10. NO RISK OR CONTINGENCY ADDED

39.3333 x 450 = 17,700 SF

Supper Structure

Deck	17,700	x $13.00/SF	= $230,100
Epoxy Reinf	142,000	x $1.10/#	= $156,200
Frail	968	x $65/LF	= $62,920
36M	2700	x $180/LF	= $486,000
Bearings	60	x $800/Each	= $48,000
Exp Joint	150	x $150/LF	= $22,500
			$1,005,720 ($56.82/SF)

Abuts

Structure Exc	1	x $5000/LS	= $5,000
Footing Conc.	100	x $350/CY	= $35,000
" Reinf	10,000	x $1.00/LB	= $10,000
Stem Conc	184	x $600/CY	= $110,400
" Rienf	23,000	x $1.10/lb	= $25,300
12" CIP Piles	2,400	x $40/LF	= $96,000
			$281,700 ($15.92/SF)

Pier 1

Structure Ex	1	x $2,500/LF	= $2,500
39 x 3 x 7 Stem Concret	91	x $600/cy	= $54,600
" Rienf	11,500	x $1.10/lb	= $12,650
16" CIP Piles	850	x $50/LF	= $42,500
			$112,250 ($6.35/SF)

Pier 3 $112,250 ($6.35/SF)

Pier 4 $112,250 ($6.35/SF)

PIER 2

STRUCTURE EXC	1 X	$20,000/LS	= $20,000
42X6X3.5 FOOTING CONC	36 X	$350/CY	= $12,600
" REBAR	3600 X	$1.00/LB	= $3,600
STEM CONC	91 X	$600/CY	= $54,600
" REINF	11,500 X	$1.10/LB	= $12,600
16" CIP PILES	900 X	$50/LF	= $45,000
			$148,400 ($8.38/SF)

Superstructure → $1,005,720 ($56.82/SF)

Abutments	$ 281,700
PIER 1	$ 112,250
" 2	$ 148,400
" 3	$ 112,250
" 4	$ 112,250

Substructure → $766,850 ($43.5%/SF)

APP PANELS $26,500 ($1.50/SF)

$1,799,070 ($101.65/SF)

MISC MISSING ITEMS ±5% $90,000

MOBILIZATION ± 5% $95,000

1,984,070 SAY $2,000,000

OPERATION AND MAINTENANCE FEASIBILITY ESTIMATE				*Life Cycle 50 Years *Rate of Return 4.125%	
MARSH LAKE				EQUIVALENT AVERAGE ANNUAL O&M / MAJOR REPLACEMENT VALUE	
ACCOUNT CODE	ITEM DESCRIPTION	ESTIMATED O&M CYCLE	% ORIGINAL QUANTITY TO REPLACE	PRESENT VALUE	ANNUAL COST
				$1,325,446	$63,026
	Inspections				
	Periodic Inspections				
	Every 5 years	5 Yrs		$77,461	$3,683
	Routine Annual Inspections	1 Yr		$78,863	$3,750
	Total Inspections			$156,323	$7,433
		Yrs			
02	Relocations				
	2 Two Lane Bridge				
	Deck Area	20 Yrs	10%	$106,659	$5,072
03	Reservoirs				
	3 Fishway				
	Rockfill Boulders	10 Yrs	10%	$23,812	$1,132
	Riprap for Channel Bed	10 Yrs	10%	$75,615	$3,596
	Bedding for Channel Bed	10 Yrs	10%	$20,395	$970
	4 Drawdown Structure				
	Concrete Structure				
	Concrete Wall for Structure	20 Yrs	5%	$19,295	$917
	Downstream Concrete Apron	20 Yrs	5%	$18,991	$903
	Concrete Walkway	20 Yrs	5%	$3,430	$163
	Railing Pipe	20 Yrs	100%	$8,365	$398
	Stoplogs (per bay)	10 Yrs	5%	$30,066	$1,430
	Scour Protection D/S of Struct				
	R270 Riprap	10 Yrs	10%	$137,345	$6,531
	B3 Bedding	10 Yrs	10%	$37,843	$1,799
	Embankments on Side of Fishway and				
	3 Drawdown Structure				
	4 Impervious Fill	10 Yrs	5%	$34,753	$1,653
	Topsoil	10 Yrs	5%	$2,366	$112
	Seeding	10 Yrs	5%	$1,503	$71
	Mowing	1 Yr	100%	$12,955	$616
	Spray Weeds & Brush on Riprap	1 Yr	100%	$5,687	$270
	Existing Spillway				
	Concrete for Spillway Crest	20 Yrs	5%	$2,165	$103
	3 Pedestrian Bridge over Spillway				
	Concrete Deck	20 Yrs	5%	$1,745	$83
10	Breakwaters				
	7 Breakwater A	10 Yrs	5%	$169,206	$8,046
	7 Breakwater B	10 Yrs	5%	$115,700	$5,502
	7 Breakwater C	10 Yrs	5%	$143,597	$6,828
11	Levees and Floodwalls				
	2 Levees				
	Levee Fill	10 Yrs	5%	$36,793	$1,750
	Topsoil	10 Yrs	5%	$4,942	$235
	Seeding	10 Yrs	5%	$3,116	$148
	Mowing	1 Yr	100%	$27,760	$1,320
	Spray Weeds & Brush on Riprap	1 Yr	100%	$2,524	$120
	Roadway Aggregate	5 Yrs	5%	$15,465	$735
	Riprap	10 Yrs	10%	$29,565	$1,406
	Bedding	10 Yrs	10%	$15,190	$722
	5 Lousiburg Road Culverts				
	Concrete Structure	20 Yrs	2%	$5,027	$239
	Stoplog Structure	10 Yrs	5%	$5,906	$281
	Riprap: Scour Hole	10 Yrs	10%	$4,653	$221
	Bedding: Scour Hole	10 Yrs	10%	$1,247	$59
14	Recreation Facilities	10 Yrs	5%	$45,442	$2,161
	Total O&M			$1,325,446	$63,026

NOTE 1: UNIT PRICING INCLUDES CONTINGENCIES AND QUANTITY ADJUSTMENT FACTORS

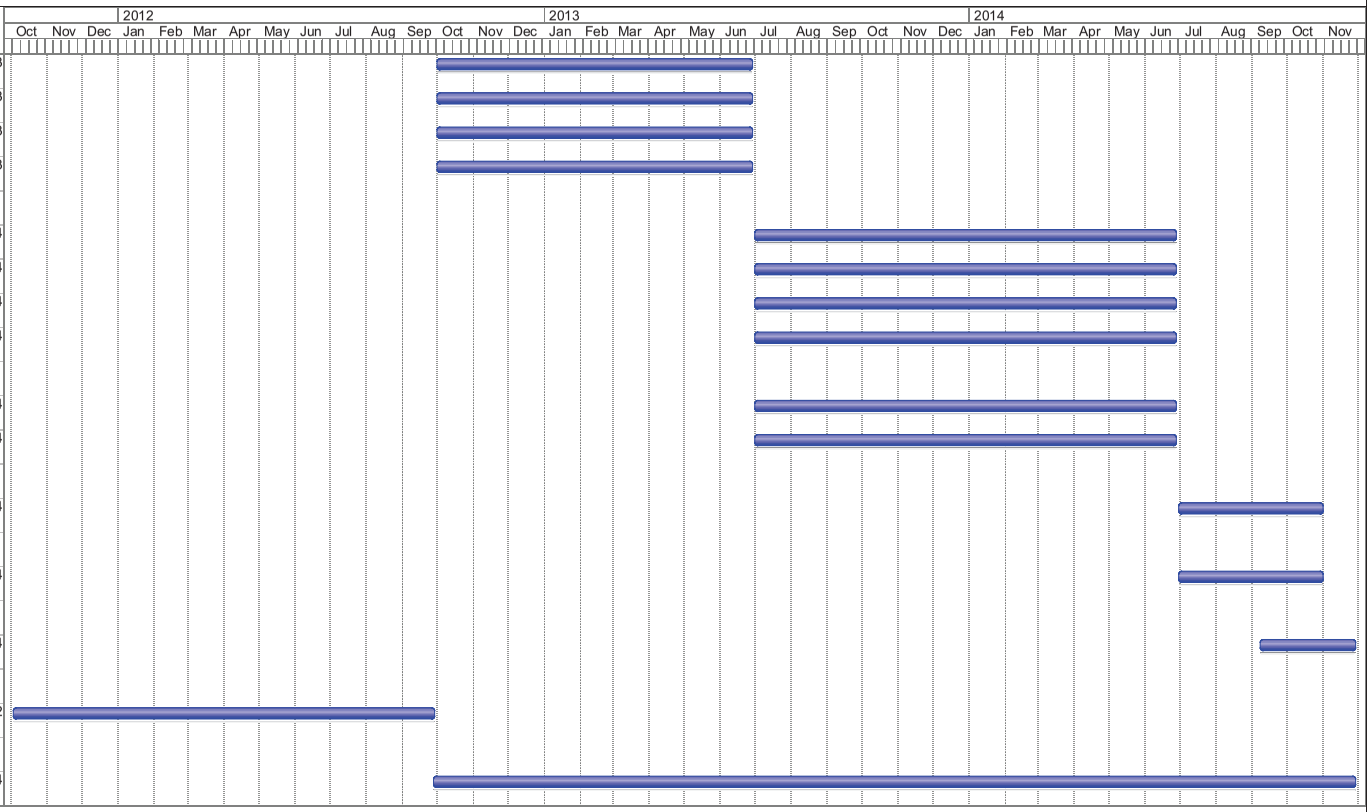
PRICING FOR APRIL 2010

MARSH LAKE ECOSYSTEM RESTORATION PROJECT
PROJECT DEVELOPMENT PLAN: FEASIBILITY STUDY
ABBREVIATED RISK ANALYSIS

		Selected Work Breakdown Structure Items													
		TWO LANE BRIDGE	FISHWAY	DRAWDOWN STRUCTURE	EMBANKMENTS D/S FISHWAY & DRAWDOWN STRUCTURE	MODIFY EXISTING SPILLWAY	PEDESTRIAN BRIDGE OVER SPILLWAY	BREAKWATERS A, B, & C	DIVERSION DIKES A & B	ROAD RAISE	LOUISBURG ROAD CULVERTS	RECREATION FACILITIES	REMAINING CONSTRUCTION ITEMS	PLANNING, ENGINEERING, & DESIGN	CONSTRUCTION MANAGEMENT
Typical Risk Elements	Project Scope	2	1	2	2	2	2	1	1	1	1	1	-	2	2
	Acquisition Strategy	2	2	2	2	2	2	2	2	2	2	2	2	-	4
	Construction Complexity	2	2	2	2	4	2	2	2	-	1	-	-	-	3
	Volatile Commodities	2	3	3	-	1	3	3	1	1	1	3	-	-	-
	Quantities	2	4	3	3	-	2	2	2	2	1	1	-	-	2
	Fabrication & Project Installed Equipment	2	-	2	-	-	4	-	-	-	2	1	-	-	1
	Cost Estimating Method	2	2	2	2	2	2	1	1	1	2	2	1	-	2
	External Project Risks	2	2	2	2	2	1	4	2	3	2	1	1	1	2
	Weighted Summation	16	16	18	13	13	18	15	11	10	12	11	4	3	16
	Weighted %	33.3%	33.3%	37.5%	27.1%	27.1%	37.5%	31.3%	22.9%	20.8%	25.0%	22.9%	8.3%	6.3%	33.3%

MARSH LAKE DAM ECOSYSTEM RESTORATION
ESTIMATED PROJECT SCHEDULE

ID	Task Name	Duration	Start	Finish
1	2 Two Lane Bridge	195 days	Mon 10/1/12	Fri 6/28/13
2	11 Diversion Dike A	195 days	Mon 10/1/12	Fri 6/28/13
3	11 Diversion Dike B	195 days	Mon 10/1/12	Fri 6/28/13
4	11 Road Raise	195 days	Mon 10/1/12	Fri 6/28/13
5				
6	3 Fishway	260 days	Mon 7/1/13	Fri 6/27/14
7	3 Mod Exist Spillway	260 days	Mon 7/1/13	Fri 6/27/14
8	3 Ped Bridge Over Spillway	260 days	Mon 7/1/13	Fri 6/27/14
9	3 Embank D/S Spillway	260 days	Mon 7/1/13	Fri 6/27/14
10				
11	3 Embank D/S Drawdown	260 days	Mon 7/1/13	Fri 6/27/14
12	3 Drawdown Structure	260 days	Mon 7/1/13	Fri 6/27/14
13				
14	11 Louisburg Road Culverts	90 days	Mon 6/30/14	Fri 10/31/14
15				
16	11 Fish Pond Levee Breach	90 days	Mon 6/30/14	Fri 10/31/14
17				
18	14 Recreation Facilities	60 days	Mon 9/8/14	Fri 11/28/14
19				
20	30 Planning, Eng, &Design	260 days	Mon 10/3/11	Fri 9/28/12
21				
22	31 Supervision & Administration	566 days	Fri 9/28/12	Fri 11/28/14



Project: Marsh Lake Project Schedule.
Date: Thu 3/31/11

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone