Appendix O
Cost

Contents

1.1 BASIS OF COST ESTIMATE

The cost estimate has been prepared based on current concept designs and site-specific information available to date.

Quantities were developed based on a conceptual model and provided directly from MVS Engineering and Construction Branch. There is a possibility quantities may increase during construction but cost impacts would be considered minimal and this is captured in the abbreviated risk analysis as a possible risk with moderate impacts.

Cost estimate was developed using MCACES. Mobilization and demobilization was assumed to be 5% of the construction cost. The wage rates were developed using Davis Bacon, Heavy & Highway construction for Calhoun County, IL, IL20220017 10/21/2022. The MII 2022 Equipment Region 5 was used for equipment rates. The 2022 Cost Book was used.

Along with these main cost estimates across each alternative, OMRRR and Adaptative Management costs were developed and used by Economics to develop a CEICA to assist in selecting a Tentatively Selected Plan (TSP). Intermediate B was then selected as the TSP moving forward based off the most cost-effective alternative.

1.2 CONTINGENCIES

Each contingency was developed based off historical data of similar projects in the St. Louis District using 30.0% when evaluating each alternative. The Abbreviated Risk Analysis process will indicate a 37.0% construction contingency based on associated project risks for the Tentatively Selected Plan of Intermediate B.

1.3 PRE-CONSTRUCTION, ENGINEERING, AND DESIGN (PED)

Planning, engineering, and design costs are based on historical data of similar projects in the St. Louis District. Recommended percentages by the cost MCX were taken into consideration as well. 18% of the construction cost was used to determine the PED costs.

1.4 CONSTRUCTION MANAGEMENT

Construction Management costs are based on historical data of similar projects in the St. Louis District. Recommended percentages by the cost MCX were taken into consideration as well. 8% of the construction cost was used to determine the CM costs.

1.5 COST ANALYSIS ACROSS EACH ALTERNATIVE

The alternatives evaluated were:

- **A4 – Maximum**
- **A2 – Intermediate A**
- **A3 – Intermediate B**
- **A1 – Minimum**

The costs across each evaluated alternative are as follows:

A4 – Maximum:

ITEM	ESTIMATED AMOUNT
Mobilization and Demobilization	1,165,300
Cut (in the dry)	3,063,264
Fill (in the dry)	733,593
Cut (in slough or Swan Lake)	1,287,036
Fill (in slough or Swan Lake)	223,391
Stripping	205,200
Seeding	817,400
Clearing	60,000
Well Pump Discharge Pipe	751,905
New Wells	862,000
24" Stop Log Culvert - MSU Water Control Structure	135,000
36" Stop Log Culvert - MSU Water Control Structure	552,000
400lb Rip Rap	648,932
Bedding	171,402
Crushed Stone	64,386
Pump Station 60,000 GPM	8,029,000
36" Stop Log Culvert - Swan Lake Interior	165,000
Gravity Drainage Structure	5,430,000
72" RCP	90,200
Highway Replacement	16,992
SUBTOTAL:	$24,472,001
ED (18%) :	$4,404,960
S & A (8%) :	$1,957,760
MAM	$1,101,090
Contingency (30%):	$9,580,743
TOTAL COST:	**$41,516,555**

A2 – Intermediate A:

ITEM	ESTIMATED AMOUNT
Mobilization and Demobilization	715,100
Cut (in the dry)	2,443,019
Fill (in the dry)	750,064
Cut (in slough or Swan Lake)	96,271
Fill (in slough or Swan Lake)	563,773
Stripping	205,200
Seeding	786,900
Clearing	120,000
Well Pump Discharge Pipe	751,905
24" Stop Log Culvert - MSU Water Control Structure	152,000
36" Stop Log Culvert - MSU Water Control Structure	426,000
400lb Rip Rap	648,932
Bedding	171,402
Crushed Stone	64,386
Pump Station 19,400 GPM	1,243,661
36" Stop Log Culvert - Swan Lake Interior	165,000
10' x 5' Box Culverts	176,000
Gravity Drainage Structure	5,430,000
72" RCP	90,200
Highway Replacement	16,992
SUBTOTAL:	$15,016,805
ED (18%) :	$2,703,025
S & A (8%) :	$1,201,344
MAM	$876,670
Contingency (30%):	$5,939,353
TOTAL COST:	**$25,737,198**

A3 – Intermediate B:

ITEM	ESTIMATED AMOUNT
Mobilization and Demobilization	758,200
Cut (in the dry)	2,529,022
Fill (in the dry)	800,667
Fill (in slough or Swan Lake)	223,391
Stripping	210,900
Seeding	762,500
Clearing	60,000
Well Pump Discharge Pipe	836,070
New Wells	862,000
24" Stop Log Culvert - MSU Water Control Structure	120,000
36" Stop Log Culvert - MSU Water Control Structure	276,000
400lb Rip Rap	648,932
Bedding	171,402
Crushed Stone	64,386
Pump Station 23,300 GPM	1,895,846
36" Stop Log Culvert - Swan Lake Interior	165,000
Gravity Drainage Structure	5,430,000
72" RCP	90,200
Highway Replacement	16,992
SUBTOTAL:	$15,921,508
ED (18%) :	$2,865,871
S & A (8%) :	$1,273,721
MAM	$958,310
Contingency (30%):	$6,305,823
TOTAL COST:	**$27,325,233**

A1 – Minimum:

ITEM	ESTIMATED AMOUNT
Mobilization and Demobilization	124,700
Cut (in the dry)	511,275
Fill (in the dry)	85,232
Stripping	28,500
Seeding	115,900
Well Pump Discharge Pipe	310,000
24" Stop Log Culvert	48,000
36" Stop Log Culvert	148,000
SUBTOTAL:	$1,371,607
ED (18%) :	$246,889
S & A (8%) :	$109,729
MAM	$669,100
Contingency (30%):	$719,197
TOTAL COST:	**$3,116,522**

1.6 TENTATIVELY SELECTED PLAN COST ANALYSIS INCLUDING O&M AND ADAPTIVE MANAGEMENT COSTS

Following TSP selection, an Abbreviated Risk Analysis (ARA) was conducted resulting in a contingency of 37%, and the TSP cost was refined as follows.

TSP – A3: Intermediate B

ITEM	ESTIMATED AMOUNT
Phase 1: Earthwork	
Mobilization and Demobilization	71,000
Cut (in the dry)	2,529,022
Fill (in the dry)	800,667
Fill (in slough or Swan Lake)	223,391
Stripping	207,200
Seeding	750,000
Clearing	60,000
400lb Rip Rap	587,712
Bedding	167,321
Crushed Stone	62,853
Phase 2: Water Control Structures/Pump Station	
Mobilization and Demobilization	248,000
Well Pump Discharge Pipe	1,041,042
New Wells	840,000
24" Stop Log Culvert - MSU Water Control Structure	120,000
36" Stop Log Culvert - MSU Water Control Structure	276,000
Pump Station 23,300 GPM	2,420,000
36" Stop Log Culvert - Swan Lake Interior	162,000
Gravity Drainage Structure	5,899,000
72" RCP	90,200
Highway Replacement	16,992
SUBTOTAL:	$16,572,400
ED (18%) :	$2,983,032
S & A (8%) :	$1,325,792
MAM	$958,310
Contingency (37%):	$8,080,628
TOTAL COST:	**$29,920,162**

The Adaptive Management total costs, which include the annual adaptive management costs along with the monitoring costs, are estimated at $958,310 for the TSP (see Appendix E – Monitoring and Adaptive Management). Including the monitoring and adaptive management costs (contingency applied), **the total first project cost is $29,920,162.**

Annual O&M costs are estimated at $118,000.