Appendix I
COST ENGINEERING

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COST ESTIMATE SUMMARY

GENERAL
The Crains Island Habitat Rehabilitation and Enhancement Project(HREP) is located on the right descending bank of the Mississippi River between river miles 103.5 and 105.5, approximately 4 miles southeast of the City of Chester, in Randolph County, IL. The Project area is comprised of 553 acres of aquatic side channel, floodplain forest, and wetland habitat.

The goal of this HREP is to restore and improve the quality and diversity of aquatic side channel, floodplain forest, and wetland ecosystem resources within the Project Area. The team reviewed the individual restoration features to determine what measures or variations of features would be carried forward.

The following objectives were considered in detail to achieve the project goal:

- Increase connected aquatic side channel habitat with topographic diversity for enhanced fisheries habitat benefits
- Restore wetland ecosystem resources
- Increase acreage protected from course bedload deposition and open to sheet flow/back-flooding in the Project Area
- Restore floodplain forest communities

The Tentatively Selected Plan, for the Crains Island HREP consists of multiple measures to restore and improve the aquatic ecosystem structure and function by implementation of the following restoration measures:

- Sediment deflection berm
- Increase side channel depth and width, benching on either side where opportunistic
- Reforestation throughout the study area
- Depressional wetlands

Implementation of the TSP would increase the quality and quantity of ecosystem resources and meet the needs for a large variety of native aquatic species. Restoring flow and connectivity of the side channel and the main channel of Mississippi River would contribute to overwintering fish habitat as well as feeding areas for migratory wildlife; providing bathymetric diversity and flow within the side channel would provide important side channel habitat within the MMR; and restoring floodplain forest and wetland habitat would allow the Project to realize the highest benefit to fish and wildlife. The Project outputs are also consistent with the goals and objectives of the Upper Mississippi River Restoration Program.

All Project measures would be located within the lands and waters of the United States, which are under federal ownership by the USFWS; responsibility for the operation, maintenance, rehabilitation, replacement, and repair (OMRR&R) of the Project would be the responsibility of USFWS. As a result, funding for restoration features would be 100 percent Federal.

BASIS OF COST ESTIMATE

The cost estimate has been prepared based on current concept designs and specific site information available to date. Topographic surveys of the project area were conducted in 2012 as part of a "Low-Water Survey". The survey was completed using aerial Light Detection and Ranging (LiDar) equipment by a third party contractor with a specified confidence level of 95%. Pricing data was developed from recent contract estimates for similar projects in the St. Louis Area. It has been determined that there is no significant sea level rise that would impact the cost of the project. (Reference Appendix C Section 6 for Climate Change Info.) This estimate will be considered the basis for the Current Working Estimate and considers all phases of the project.

CONSTRUCTION

Project construction will likely consist of multiple contracts for several phases to coincide with Work-Plan funding for FY allocated funding streams. The first phase is assumed to be accomplished with an "IDIQ" contract with multiple Task Orders. Work could possibly be divided into reaches.

It is recommended the two stone dikes at the side channel exit be notched during the first phase to improve flow and allow future dredge access. It may be possible to use existing river-based dike modification contracts to accomplish this. The ability to use an existing contract would minimize mobilization costs and reduce the time required to issue a new contract.

The depressional wetlands will be constructed using land-based equipment. The excavated material will be used for construction of the SD Berm. Construction should be sequenced to minimize the haul distance to the fill locations.

A portion of the side channel excavation will also be accomplished with land-based equipment and is assumed to be partially completed in conjunction with the construction of the depressional wetlands. Once the earthwork for the new side channel entrance is substantially complete, allowing high flows from the river to pass through the side channel, the historic channel entrance shall be closed with fill material.

Several cross-dikes shall be excavated and removed from the footprint of the new side channel prior to the start of dredging. Since the side channel bottom will be underwater the majority of the time all excavation not able to be accomplished with land-based equipment is assumed to be dredged.

The dredging operation will primarily move from the downstream end of the island upstream. Suggested disposal sites have been identified. Some of the sites may support other restoration programs through sandbar island creation and nourishment. Additionally temporary islands may be created by filling the scour zone of nearby chevrons, reducing the likelihood of impacting the navigation channel.

CONTINGENCIES
Risk analyses processes indicate an approximate 27% contingency based on associated project risks.

PLANNING, 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.

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.

WALLA WALLA COST ENGINEERING MANDATORY CENTER OF EXPERTISE

COST AGENCY TECHNICAL REVIEW

CERTIFICATION STATEMENT

For Project No. 461191

MVS – Upper Mississippi River Restoration
Crains Island Habitat Rehabilitation & Enhancement Project
Feasibility Study

The Crains Island HREP as presented by St. Louis District, has undergone a successful Cost Agency Technical Review (Cost ATR), performed by the Walla Walla District Cost Engineering Mandatory Center of Expertise (Cost MCX) team. The Cost ATR included study of the project scope, report, cost estimates, schedules, escalation, and risk-based contingencies. This certification signifies the products meet the quality standards as prescribed in ER 1110-2-1150 Engineering and Design for Civil Works Projects and ER 1110-2-1302 Civil Works Cost Engineering.

As of July 13, 2017, the Cost MCX certifies the estimated total project cost:

FY18 Project First Cost: $36,562,000 (incl $393K Spent Costs)
Fully Funded Amount: $39,058,000

It remains the responsibility of the District to correctly reflect these cost values within the Final Report and to implement effective project management controls and implementation procedures including risk management through the period of Federal Participation.

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