APPENDIX L

COST ESTIMATE

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1 INTRODUCTION

Rip Rap Landing (RRL) which is part of the Upper Mississippi River Restoration program, is proposed to be implemented by the United States Army Corps of Engineerings (USACE) St. Louis District. This report describes in detail the project costs and scheduled execution for all appropriate feature accounts in support of the HREP.

2. REFERENCES

- ER 1110-1-1300, Cost Engineering Policy & General Requirements, 26 Mar 1993.
- ER 1105-2-100, Planning Guidance Notebook, 22 Apr 2000.
- ER 1110-2-1302, Civil Works Cost Engineering, 15 Sept 2008.
- EI 01D010, Construction Cost Estimates, 1 Sept 1997.
- ER 1110-2-1150, Engineering & Design for Civil Works Projects, 31 Aug 1999.
- EP 1110-1-8 Volume 2, Construction Equipment Ownership and Operating Expense Schedule – Region V, July 2007.
- EM 1110-2-1304, Civil Works Construction Cost Index System (CWCCIS), 31 Mar 2010.
- EC 1105-2-410, Review of Decision Documents, 1 July 2008—DRAFT
- ETL 1110-2-573, Construction Cost Estimating Guide for Civil Works, 30 Sept 2008.

3. PROJECT LOCATION AND DESCRIPTION

The Rip Rap Landing Habitat Rehabilitation and Enhancement Project is located in Pool 25 of the Mississippi River along the left descending bank between river miles (RM) 260.5 and 267 near the Village of Mozier in Calhoun County, Illinois (Fig. 1.1).

Rip Rap Landing Fish and Wildlife Area covers 2,338 acres of river bottomlands, of which 2,055 acres is owned by the Illinois Department of Natural Resources (IDNR) and 283 acres owned by the Corps of Engineers as General Plan Lands, known as Dog Island.

Natural Resource Conservation Service owns a 792.8 acre Wetland Reserve Program easement on a tract owned by IDNR known as the Rust Land Trust tract. The area is managed by IDNR as part of the Mississippi River Fish and Wildlife Area, a complex of mostly wetland habitats along the Illinois and Mississippi Rivers, primarily for migratory birds, especially migratory wildlife, and resident wildlife and contains a high quality bottomland forest designated as a State Natural Area. The historic Sny River channel, now known as Sny Creek traverses the project area from

north to south and forms a portion of the east property boundary. Land ownership, property use restrictions and levee protection varies throughout the site.

3.1 PROJECT FEATURES

Therefore, the site has been divided into zones for project planning purposes. Zone 1, Sny Levee District is on the northern most end of the project area and is contained within the Sny Island Drainage and Levee District, and therefore, unlikely to be flooded by the river. Zone 2, State Natural Area is on the river side of the Sny Levee, north of Rip Rap Landing road, and is not protected from Mississippi River flooding. This zone has been designated a State Natural Area due to a significant historic forest composition of bottomland hardwood forest. Zone 3, Roadside and Waverly Lake Wetland Management Area is part of the original IDNR acquisition and occupies the northeast, central section and part of the east side adjacent to Illinois Route 96. Zone 4, Rust Land Company – WRP Easement is located along the west side of the project area, south of the Rip Rap Landing road and immediately adjacent to the Mississippi River. Zone 5, General Plan Lands – Dog Island is the southernmost part of the project area, located at the confluence of Sny Creek with the Mississippi River.

3.2 BASIS OF DESIGN

Documents used in the design of the project include

- IDNR Migratory wildlife Pump Station Design for various locations within the IDNR Mississippi River Area, CDB# 102-000-016, IDNR# 4-93-025, 2/15/1996, used in the estimating of the new pump station.
- NRCS Rust land Trust WRP Restoration 5/04, plans located in Appendix O.

4. PROJECT FEATURE ACCOUNTS

4.1 (01) LANDS AND DAMAGES

This cost account includes the costs for both permanent and temporary acquisitions

4.2 (02) RELOCATIONS

This cost account includes the costs for all permanent and temporary relocations

4.3 (06) FISH AND WILDLIFE FACILITIES

This cost account includes the costs for all permanent and temporary structures and facilities related to providing the upgrade of the facility per the study and value engineering reports

4.4 (30) PLANNING, ENGINEERING AND DESIGN

The work covered under this account includes project management, project planning, preliminary design, final design, geotechnical and HTRW investigations, preparations of plans and specifications, engineering during construction, contract advertisement, opening of bids and contract award. The cost for this account was provided by the St. Louis District Corps of Engineers staff to be 16% of the Fish and Wildlife Facilities cost account.

4.5 (31) CONSTRUCTION MANAGEMENT

The work covered under this account includes engineering during construction, contract supervision, contract administration, construction administration, technical management activities, and District office supervision and administration costs. The cost for this account has been estimated based upon a historical factor of 10% of the total construction cost accounts.

5. METHODOLOGY

5.1 GENERAL

5.2 BASIS OF QUANTITIES

The cost estimate is based upon project take-offs that have been calculated from the study document. Quantity summaries along with detailed quantity take-offs are presented in Attachment A. The quantities within this study do not include waste/loss factors for the project.

5.3 CONSTRUCTION METHODOLOGY

5.3.1 Mobilization/Demobilization

Mobilization costs are based on transporting the land-based loaders, cranes, bulldozers, and trucks within 150-miles of the project site. All equipment and labor is assumed to be available in the St. Louis area which is approximately 60 miles downstream of the site, by road.

5.3.2 Staging and Site Access

The main staging area for the project will be set up south of the pump station in southwest corner of Zone 3. Most of the land based equipment and materials would be located here. The small amounts of concrete and stone required for the project will come from local batch plants and quarries.

5.3.2.1 Resident Engineer Office

Due to flooding concerns, the resident engineers' office will be set up in Mozier, either in a rented structure or in a temporary mobile facility. This area would be utilized for the resident engineer and contractor's offices. Utilities are accessible at this location and costs would be minimal to complete the required hookups.

5.3.2.2 Construction Staging Areas

There are multiple adjoining agricultural fields near the project site that would be used for the construction staging area. These areas are located such that access routes to the site can be obtained. The intended use of these parcels is for contractor material storage and equipment staging and temporary excavated material disposal area.

5.3.2.3 State Highway 96

State Highway 96 is the main access to Rip Rap landing. The existing roadway surface and subgrade is sufficient to handle the anticipated increase in traffic volume and weights.

5.3.2.4 Perimeter Access and Haul Roads

Construction access and haul roads would be required around the staging area parcels to allow movement of material and equipment.

5.3.2.5 Barge Access

The assumed river access is located at the mouth of Sny Creek. Sny Creek runs parallel to the Mississippi River and is hydraulically connected. Excavation of portions of the Sny Creek is within the project description and access by boat may be required to facilitate some of this excavation. Presently the lower portion of the Sny Creek is proposed to be hydraulically dredged.

5.3.3 Borrow/Disposal Areas and Material

Borrow materials are available on the project site and their excavation will be used to enhance associated adjacent management units. Topsoil will be stockpiled and used for final finishing of constructed embankments. Any excess overburden excavation material will be spread about areas to receive timber plantings.

5.3.4 Structures

5.3.4.1 Pump Station

The new pump station will utilize the existing sheet pile pump station structure. Minor modifications to the river side wall will be required to facilitate the installation of a large pump pipe. Because the discharge pipe of the pump station will have minimal fill where it crosses a farm access road, a concrete slab will be placed in this location to facilitate future equipment crossings.

5.3.4.2 Water Control Structures.

References to water control structures within the report refer to either earthen levee embankments with a corrugated metal pipe running through the levee to facilitate water level control, or rock spillways or a combination of both.

Where corrugated metal pipes are used, two types of water control structures will be used in the development of this project; sluice gates and inline stoplog structures. Each water control structure will include a corrugated metal pipe and connecting bands. Sluice gates will be put on the upstream side of the structure and will be connected to the associated level by a catwalk that thatches to the pie and the sluice gate. In this fashion safe access to the gate is supplied and the catwalk frame acts to resist ice damage to the gate. Most of the water control structures will utilize sluice gates due to issues associated with beavers.

In locations where stop log structures are utilized, these will either be prefabricated inline units that eliminate the need for catwalks, or fabricated corrugated metal pipe structures. Generally stated, the inline prefabricated structures are limited to 24” diameter and smaller pipes.

The “fish friendly” stoplog structure connecting the Roadside Lake and the Sny Creek will be developed by driving sheet pile walls and installing a wooden stoplogs between the walls. In this fashion, when fish passage is desired, the structure will act as an open channel and not deter fish passage.

In Zone 4, a spillway structure will be developed to maintain water levels within Zone 4 and portions of Zone 3. The base of this spillway will be a small earthen embankment running

somewhere between 1 and 3 feet in height. Revetment mats will be used to provide the top of the spillway and will be secured by developing a revetment toe at each side of the spillway. Erosion stabilization and erosion control fabric will be placed between the earthen embankment and the revetment mats. The toe and the fabric is will prevent water from running under the revetment mats and eroding away the embankment. The use of revetment mats will facilitate maintaining a level horizontal elevation across the spillway. Small amounts of riprap will be placed on the upstream and downstream slopes of the revetment mat. Because of the small vertical height of the spillway and its length, approximately 1,700 feet, minimal velocities are expected.

5.3.5 Unusual Conditions

Unusual Conditions: High river levels for good portions of the year, flooding that could lead to scour before protection is placed, winter weather and ice.

5.3.6 Unique Construction Techniques

Mostly in-channel work with specialty equipment. Depending upon water levels, use of excavation equipment on the Sny Creek might require mats.

5.3.7 Environmental Concerns

Construction activity would likely increase turbidity in Sny Creek. There is a potential for construction equipment to leak or spill contaminates. Costs associated with these potential environmental concerns were not included in this estimate. Delays to construction to avoid impacts to endangered species were not considered in the cost estimate. Potential minimal tree clearing required is not likely to impact trees suitable for Indiana or Northern Long-eared Bat roosting habitat. If tree clearing in zone 5 is required, the area will be re examined for to ensure roosting trees are not impacted.

5.4 COST METHODOLOGY

5.4.1 Historical Unit Pricing

In some instances, historical cost information was referenced and documented accordingly. These historical references include past contract bid prices for projects of similar design and magnitude, and recent government studies and cost estimates.

5.4.2 Quote-in-place

In some instances a quote from a subcontractor or supplier may have been received and utilized, see following table on estimate development.

WALLA WALLA COST ENGINEERING MANDATORY CENTER OF EXPERTISE

COST AGENCY TECHNICAL REVIEW

CERTIFICATION STATEMENT

For Project No. 143665

MVS – Rip Rap Landing HREP

The Rip Rap Landing Habitat Rehabilitation and Enhancement project, 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 February 4, 2014, the Cost MCX certifies the estimated total project cost of:

FY 2015 Price Level: $9,006,000
Fully Funded Amount: $9,312,000

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 throughout the life of the project.

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