



1202 Musser Street
Muscatine, IA 52761-1645
(563) 263-2752
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WATER & RESOURCE RECOVERY FACILITY

MEMORANDUM

To: Gregg Mandsager, City Administrator

CC: Nancy Lueck, Finance Director
Cinda Hilger, Secretary

From: Jon Koch, WRRF Director

Date: July 30, 2018

Re: Slough Wetlands and Drainage Improvement Study Phase 1

INTRODUCTION: The Stormwater Department has received a proposal from Watersmith Engineering to study the drainage area and wetlands associated with the Muscatine Slough near Houser Street. The study was requested by the City to begin plans for improving the drainage area and possibly using the water to remediate several wetlands in the area on City property. The study proposal cost is \$6,350.00.

BACKGROUND: The Muscatine Slough starts at Bond Street and receives stormwater runoff from multiple areas in Muscatine. This creates a natural pond along Kent Stein Park and is then pumped under Houser Street to continue out of the County where it ends in Port Louisa.

The drainage area immediately west of Houser St. for the Muscatine Slough has become full of sand and debris causing it to flood an area near the Slough Pump Station. The Slough Pump Station sits on the west side of the Slough and pumps water under Houser St. Because of the sand and debris, this drainage area fills full of water and runs back under the street through a drainage culvert to flood a low area directly behind the lift station.

There is an opportunity to clean this area and set a management plan for the slough along Houser St. to better handle rain events and future cleaning of the entire area. This includes minimizing flooding of the new Dog Park access road. The US Corp of Engineers required the City to construct a wetland during the last clean-out of the area due to lack of notification prior to work many years ago. This wetland has not been managed and is not functioning as an enhancement to the ecosystem as intended. This proposal will explore the possibility of sending water from the Slough to this wetland for multiple purposes including reduction of water flowing south into adjoining counties, the restoration of an important urban ecosystem and the recharge of local groundwater among multiple other benefits.

**"I remember Muscatine for its sunsets. I have never seen any
on either side of the ocean that equaled them" — Mark Twain**

RECOMMENDATION/RATIONALE: Staff recommends approval of the Phase 1 Slough Wetlands and Drainage Improvement Study to Watersmith Engineering for \$6,350.00.

BACKGROUND:

1. Study Proposal pdf

Mr. Jon Koch
City of Muscatine WPCP
1202 Musser Street
Muscatine, IA 52761

July 11, 2018

Subject: Muscatine Slough Wetlands and Drainage Improvements
Proposal for Engineering & Wetland Services

Dear Mr. Koch:

In association with Flenker Land Architecture Consultants, LLC, we developed the following scope of work based on our June 25th discussions regarding the Muscatine Slough Wetlands and Drainage Improvements.

- 1) Phase 1 Investigation
 - a) Preliminary off-site wetlands research and coordination with US Army Corps of Engineers (USACE) on proposed project areas to determine:
 - i) Permitting requirements and USACE required submittals for proposed maintenance dredging and future work
 - ii) Status of existing mitigation site and requirements for modifications
 - iii) Wetland delineation requirements
 - b) Hydrology study of the contributing watershed:
 - i) Delineate watershed sub-basins based on LIDAR data from DNR and storm sewer data provided by City.
 - ii) Estimate basin characteristics for storm runoff calculations using NRCS Curve Number method.
 - iii) Calculate flowrates for various return periods (1-yr, 2-yr, 10-yr, 25-yr, 100-yr).
 - iv) Use approximate elevations based on LIDAR and as-builts for hydraulic control features (culverts, driveways, intake structures)
 - c) Attend review meetings with City and public meetings as requested by City (Hourly, based on included hourly rates).
- 2) Phase 2 Investigation and Planning
 - a) Wetland Delineation(s) of the project areas as required by USACE to determine permitting requirements and project costs.
 - b) Topographic survey of wetland and ditch cross-sections, driveways, and culverts for development of master plan, hydraulic calculations, and proposed improvements.
 - c) Development of master plan for City owned areas.

- d) Proposed improvements – design outline with construction estimates for future phasing and budgeting.
- 3) Phase 3 Design of improvements – To be provided after development of master plan and design outline of proposed improvements.

The proposed Phase 1 services will be provided in consideration of the following fee. Budget guidance is provided for future phases of work and construction.

	Proposed Fee	Budget Guidance
Phase 1 Investigation		
Wetlands	\$2,850	
Hydrology Study	\$3,500	
Meetings	Hourly	
Phase 2 Investigation and Planning		\$20-25,000
Phase 3 Design of improvements		\$20-40,000
Construction		\$200-300,000

The following rates are provided for hourly portions of the work:

	Hourly Rate
Flenker Land Architecture Consultants	
Landscape Architect/Wetland Scientist II	\$120
Soil Scientist/Wetland Scientist	\$90
Landscape Architect Intern/Tech	\$60-75
Watersmith Engineering	
Senior Engineer	\$118
Engineering Technician	\$60
Technical Writer	\$35

Please let me know if you have any questions or need additional information regarding our proposed services.

Sincerely,

Bradley W. Roeth P.E.
Owner/Senior Engineer