Item 5Eii.
BCWMC 8-18-22

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Memorandum

To: Bassett Creek Watershed Management Commission
From: Barr Engineering Company
Subject: Item 5Eii – Order Feasibility Study for Ponderosa Woods Stream Restoration
BCWMC August 18, 2022, Meeting Agenda
Date: August 10, 2022

5Eii. Order Feasibility Study for Ponderosa Woods Stream Restoration Project (2024 CIP Project ML-22)

Recommendations:

1. Consider approving the scope of work and $43,800 budget presented in this memorandum and direct the Engineer to complete the feasibility study for the Ponderosa Woods Stream Restoration Project (2024 CIP Project ML-22).
2. Direct the Engineer to consult with the Minnesota Department of Natural Resources (MnDNR) and U.S. Army Corps of Engineers (USACE) to determine whether the Resources Management Plan Pre-application Consultation Protocols may apply for this project.
3. Direct the Engineer to prepare a stream feasibility study that complies with the requirements of the USACE and BCWMC criteria.

Background

The proposed Ponderosa Woods Stream Restoration Project is in the Bassett Creek Watershed Management Commission's (BCWMC) current CIP (2024 ML-22) with a total budget of $475,000. The project is located entirely within the City of Plymouth and would restore a small stream that is actively eroding near Medicine Lake and which drains directly into the West Medicine Lake Park Water Quality ponds (Figure 1). As outlined in the CIP, the project is scheduled to be constructed in 2024. This reach is located on privately owned property just south of West Medicine Lake Park; however, the City of Plymouth has a drainage and utility easement over this segment of stream.

This project is located in the Medicine Lake watershed and the approved Medicine Lake Total Maximum Daily Load (TMDL) study requires a 28% reduction in watershed loads (a reduction of 1,287 pounds per year). This stream segment conveys the pumped discharges from Parkers Lake along with flows from the Parkers Lake East watershed (approximately 1,000-acres). The proposed Ponderosa Woods stream restoration segment is located upstream of two prior BCWMC CIP projects including the Plymouth Creek restoration (2010 CIP project, reducing loads by 180 lbs TP/yr) and the West Medicine Lake Park Water Quality ponds (2010 CIP project, reducing loads by 350 lbs TP/yr).

As is required for BCWMC CIP Projects, a feasibility study must be completed prior to BCWMC holding a hearing and ordering the project. The feasibility study would examine methods to stabilize and restore areas of erosion within this corridor.

This project is consistent with the goals (Section 4.1) and policies (Section 4.2.5) for stream restoration and protection in the 2015 – 2025 BCWMC Watershed Management Plan. The City of Plymouth requested the project, which will reduce erosion along a 1,000-foot reach of the creek, ultimately improving water quality in the Medicine Lake watershed. Restoration and repair of the creek segment will reduce sediment and phosphorus loads, is consistent with BCWMC goals regarding water quality, and will assist in meeting the Medicine Lake TMDL goals.

The BCWMC completed a Resource Management Plan (RMP) in 2009 through which the Corps of Engineers (USACE) and the BCWMC agreed on a series of steps, work items, deliverables (called "protocols") that must be accomplished and submitted to complete the RMP process and USACE review/approval process. Although this reach of Bassett Creek was not included in the RMP, the USACE has allowed the RMP protocols to be applied to other projects not specifically included in the RMP. With the completion of the protocols, we expect the USACE application process to move more quickly than it would otherwise. Most of the protocols must be addressed as part of the feasibility study, in addition to the usual tasks that would be performed as part of a feasibility study under the criteria adopted by the BCWMC in October 2013. In general, the protocols require compliance with Section 106 of the National Historic Preservation Act, compliance with Section 404 of the Clean Water Act, and Clean Water Act Section 401 Water Quality Certification. Compliance with Section 106 typically requires a cultural resources inventory.

Content and Scope of Feasibility Study

The feasibility study will address and include the feasibility study criteria adopted by the BCWMC in October 2013:

- Analysis of up to three alternatives with the context of Commission objectives, including the following for each alternative:
    - Pros and cons analysis
    - Cost estimate for construction and a "30-year cost"
    - Analysis of life expectancy
    - Summary of each alternative for the Commission to judge its merits
    - Cost estimate for annualized cost per pound of pollutant removal
- Evaluation of new and/or innovative approaches
- Identification of permitting requirements

As noted earlier, most of the RMP protocols must be addressed as part of the feasibility study. In addition to the tasks above, the feasibility study will include the following items to meet the RMP pre-applications protocols:

- Review of cultural resources
- Identification of wetland impacts

In addition to the RMP protocols and specific criteria adopted by the BCMWC, it is important to gather public input early and often in the process. The BCWMC Engineer will work with the BCWMC Administrator and Plymouth staff to identify the most-effective means to gather public input. Prior to completing the draft feasibility report, we will seek input from impacted landowners by discussing identified problems and the means under consideration to address the issues.

This feasibility study will address one reach (Figure 1) from 18th Avenue N to West Medicine Lake Park. This project will include bank stabilization measures and erosion repair methods. Consideration will be given to a variety of approaches. Per BCWMC policy, the Commission will strive to utilize soft armoring techniques as much as possible and where feasible, including bio-logs, erosion control blanket, live stakes and fascines, and native vegetation buffers. However, we will also consider the value of existing trees and impacts of tree removal.

Below is a summary of the feasibility study work scope components for this project:

1) Project Meetings

a) One (1) project kick-off meeting with BCWMC staff and Plymouth staff.

b) One (1) virtual meeting with BCWMC staff, Plymouth staff, and agency staff (i.e., USACE, MnDNR, and MPCA), as needed, to discuss concept alternatives and review permit requirements for the project and prepare meeting minutes to confirm discussion results.

c) Biweekly updates to the project team throughout the project providing updates on work completed, upcoming work, and any outstanding data requests.

2) Field Investigations & Desktop Assessment

a) Barr will review information provided by Plymouth staff, including any available GIS data and storm sewer inspection reports. We will complete a site walk of the reach to evaluate the condition of the reach, document and identify areas of concern, and identify the potential project features to address erosion concerns; this includes review of storm sewer discharges to the stream. Barr will also walk the segment of the creek in West Medicine Lake Park to confirm this downstream segment is stable. We assume the City will send letters to all property owners notifying them in advance of the site visit. Barr will also coordinate site walk with City staff who would like to participate in this site visit when conducted.

b) Desktop Wetland Assessment – Barr will perform a Level 1 desktop assessment for the project reach. A Level 1 review consists of reviewing soils, topography, National Wetland Inventory (NWI), and aerial photos to evaluate the potential presence of a wetland, identify its type, and/or estimate its approximate boundaries. We will complete the assessment for the project reach and within a 50-foot buffer on either side of the reach. Full wetland delineations as per the USACE 1987 Manual and regional supplements will need to occur during the project design phase (outside the scope of this project).

c) Desktop environmental review – Barr will conduct a review of the Minnesota Pollution Control Agency's (MPCA) "What's in my Neighborhood?" database to assess the potential for prior contamination along the project reach. We will include a summary of this data review in the feasibility study. Considering historic land use in the project area is primarily residential and park, we assume that contamination is not an issue in the project area and that we will not need to complete a Phase I environmental site assessment for this project.

d) Desktop topographic and utility location review – Barr will utilize the 2011 Minnesota Department of Natural Resources (MnDNR) LiDAR data for topographic information, in addition to any data collected during the site visit. We assume that Plymouth staff will provide available utility data in GIS format. Full topographic and utility survey will need to occur during the project design phase (outside the scope of this project).

e) Tree location, diameter, species, and condition survey – Barr will also GPS survey all trees with a diameter of 6 inches or greater, recording the location, diameter, species, and condition (e.g. dead/live, shaggy/peeling/deeply furrowed bark) of the trees within a 50 ft buffer of the stream centerline. In addition to helping with estimated project costs for the various scenarios (if tree removal is required), the tree survey will help us evaluate if the trees within the project area could provide habitat for the northern long eared bat (endangered). We will coordinate the tree survey with the City of Plymouth forester. We assume no tagging of trees will be required.

f) Desktop threatened and endangered species review – Barr will perform a desktop review of the available databases to assess the potential for adverse impacts to state and federally listed species.

g) Desktop cultural resources review - In anticipation of future permitting for project development, Barr will request review of the existing database from the State Historic Preservation Office (SHPO) for information related to known historic and archaeological resources in the project vicinity and summarize any available information in the feasibility report. This work does not include a Phase I cultural resources review; if one is needed, it would be performed during final design.

h) Project easements – The proposed project is located on private property (~11 parcels); however, the City of Plymouth has a drainage and utility easement over this segment of stream. The City will provide easement and plat information; however, we understand that the information is not in GIS format. Therefore, we will delineate the approximate easement boundary in GIS, based on the City-provided information. We assume that the stream stabilization can be completed within the drainage and utility easement; however we will note if there will be temporary or permanent construction impacts expected for the project. We will identify any easement acquisition needs as part of the feasibility study; easement survey and acquisition will be completed during final design.

3) Evaluation and Concept Plans

a) Develop concepts for the project, considering input from stakeholders. This includes developing up to three concepts for stream restoration, channel stabilization, and erosion repair. Anticipated concepts may include a soft armoring approach (which may require more tree removal for construction and vegetation establishment), a hard armoring approach (as it may require fewer trees to be removed), and third concept that is some combination of approaches.

   i) Analyze the alternatives for addressing identified issues within each reach, including estimates of sediment and phosphorus load reductions.

   ii) Develop draft concept plans for each project.

   iii) Refine concept plans and cost estimates based on input from city staff and BCWMC.

b) Use the most current BCWMC XP-SWMM model results to review flow information for the reach

c) Identify permitting requirements for the concepts, based on field and desktop data available, and the results of the agency meeting (see task 1b).

d) Develop cost estimates for the project, including a "30-year cost," analysis of life expectancy, and annualized cost per pound of pollutant removal for water quality treatment portions of the project.

e) Develop tree removal estimates for each concept, including removals needed to gain access to implement the concept.

4) Public Engagement

a) Coordinate with the BCWMC Administrator and City staff to determine the best means to gather public input, such as mailings, newspaper articles, open houses, etc. Primary group for public discussions will be the nearby residents, property owners and adjacent property owners. The budget for this task includes time to prepare for and attend one (1) public meeting (potentially virtual) early in the process, after the development of concept plans. This task also includes

assisting with the public involvement process as necessary – preparing graphics, visuals, and/or presentations, and recording and compiling comments. We assume that meeting coordination, expenses, and set-up will be largely completed by City staff with assistance from the BCWMC Administrator.

5) Feasibility Report

a) Draft report for review by City and BCWMC Administrator; revise report based upon review comments. We assume one set of comments will be provided by the City and BCWMC.

b) Present draft feasibility study findings at BCWMC meeting.

c) Prepare final report for approval at BCWMC meeting and use at future project hearing.

d) Present final feasibility study findings at BCWMC meeting.

Cost Estimates

Our cost estimate for the scope of work outlined above is summarized in the table below.

Tasks	Estimated Total
1) Project Meetings	$ 4,600
2) Field Investigations	$ 10,500
3) Evaluation and Concept Plans	$ 13,400
4) Public Engagement	$ 4,700
5) Feasibility Report	$ 10,600
Total	**$43,800**

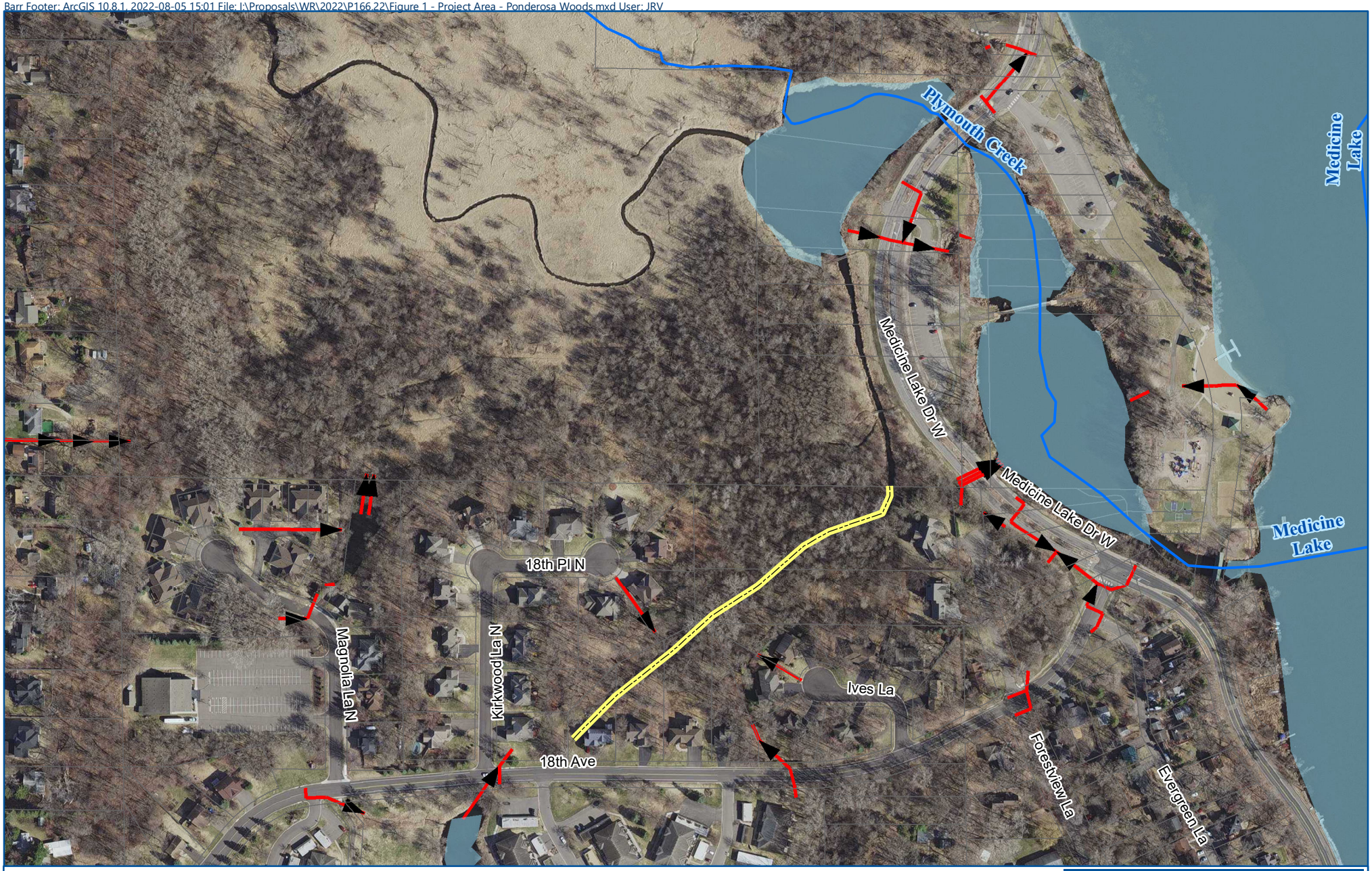
Schedule

We will complete the tasks and milestones outlined in the scope of work on the following schedule.

Tasks and milestones	Estimated Schedule
Kick-off meeting with BCWMC, City of Plymouth staff	September 2022
Site Visit	September 2022
Tree Survey	September 2022
Desktop Wetland review	September 2022
Desktop environmental review ("What's in My Neighborhood?")	September/October 2022
Desktop Review – threatened and endangered species, cultural resources	September/October 2022
Meeting with BCWMC, city, and agency staff	October 2022
Develop concept alternatives and cost estimates	October 2022 – January 2023

Tasks and milestones	Estimated Schedule
Public meeting	February 2023
Submit draft feasibility report for city and BCWMC staff review	March 24, 2023
City and BCWMC staff complete review	March 31, 2023
Submit draft feasibility report for BCWMC review at Commission meeting	April 12, 2023
BCWMC completes review at Commission meeting	April 20, 2023
Submit final feasibility report for BCWMC review at Commission meeting	May 10, 2023
Final Feasibility Report – BCWMC approval at Commission meeting	**May 18, 2023**

Barr Footer: ArcGIS 10.8.1, 2022-08-05 15:01 File: I:\Proposals\WR\2022\P166.22\Figure 1 - Project Area - Ponderosa Woods.mxd User: JRV



BARR

Project Area
Creeks
Ponds and Wetlands
Parcels
Storm Sewer

N

150 0 150
Feet

PONDEROSA WOODS PROJECT AREA

FIGURE 1