

Memorandum

To: Bassett Creek Watershed Management Commission
From: Barr Engineering Company
Subject: Item 5A – Consider Approval of Proposal to Prepare Feasibility Study for Bassett Creek Park Pond and Winnetka Pond Dredging Project (2018 CIP Project BCP-2)
BCWMC July 21, 2016 Meeting Agenda
Date: July 13, 2016

Item 5A. Consider Approval of Proposal to Prepare Feasibility Study for Bassett Creek Park Pond and Winnetka Pond Dredging Project (2018 CIP Project BCP-2)

Recommendations:

1. Consider approving the scope of work and \$60,000 budget presented in this memorandum and direct the Engineer to complete the feasibility study for the Bassett Creek Park Pond and Winnetka Pond Dredging Project (BCP-2), to be constructed in 2018.
2. Direct the Engineer to consult with the 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 feasibility study that complies with the requirements of the USACE and BCWMC criteria.

Background

The proposed Bassett Creek Park Pond dredging project is in the Bassett Creek Watershed Management Commission's (BCWMC) current CIP (Table 5-3) as project BCP-2, with a cost and schedule "to be determined." At its March 17 meeting, the Commission approved the 5-year (working) CIP, which included project BCP-2, scheduled to be constructed in 2018. At its May 19 meeting, the Commission approved adding the Winnetka Pond dredging project to the feasibility study. Both ponds are in the City of Crystal, and are Minnesota Department of Natural Resources (MDNR) public waters—Bassett Creek Park Pond is MDNR #27064600P and Winnetka Pond is MDNR #27062900P. Figure 1 shows the location of the ponds.

The proposed projects will remove sediment that has collected in the main channel of the North Branch of Bassett Creek within Bassett Creek Park Pond and Winnetka Pond. The project will improve water quality downstream by trapping sediment in the pond, thus minimizing sediment passing downstream to Bassett Creek.

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Dredging of a portion of Bassett Creek Park Pond (along the North Branch) was previously performed during 1995 by the US Army Corps of Engineers (USACE), as part of the Bassett Creek Flood Control Project. Based on drawings provided by the City of Crystal, it appears that Winnetka Pond was constructed by the developer of Winnetka Village Apartments around 1968.

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 will estimate the amount of material to be dredged, identify sediment contamination issues, discuss methods for dredging the material from the ponds and disposing of the dredged material, review the permitting requirements, and develop a concept plan and cost estimate for the project.

This project is consistent with the goals (Section 4.1) and policies (Sections 4.2.1 and 4.2.10) in the 2015 – 2025 BCWMC Watershed Management Plan. The City of Crystal requested completion of the Bassett Creek Park Pond project in 2018. The Winnetka Pond dredging project, if found necessary and feasible, could occur in a later year.

The BCWMC completed a Resource Management Plan (RMP) in 2009 through which the 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 these pond dredging projects were 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. However, in the case of dredging an already-constructed pond, the prior disturbances should preclude the need for a cultural resources inventory. Therefore, the proposed work scope does not include performing the inventory. The feasibility study will follow/include the other applicable RMP protocols.

In addition to the RMP protocols and BCWMC feasibility study criteria, sediment sampling will be conducted following the Minnesota Pollution Control Agency’s (MPCA) “Managing Stormwater Sediment Best Management Practice Guidance” (June 2015).

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 multiple alternatives with the context of Commission objectives, including the following for each alternative:

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- Pros and cons analysis
 - Cost estimate for construction and a “30-year cost”
 - Analysis of life expectancy
 - Summarize 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 identification of wetland impacts to meet the RMP pre-application protocols.

In addition to the RMP protocols and specific criteria adopted by the BCMWC, it is important to gather stakeholder input. The BCWMC Engineer will work with the BCWMC Administrator, and City of Crystal staff to identify the most-effective means to gather input from the public and other affected stakeholders. The project impacts are limited to a relatively small area, so we expect fewer concerns will be raised than with other proposed construction projects (e.g., stream restoration projects).

This feasibility study will address the following pond extents (Figure 1):

- 1) Bassett Creek Park Pond – This project location is included in the BCWMC’s current CIP (Table 5-3) and the 5-year (working) CIP, as BCP-2. The project description in the 5-year CIP covered the portion of the pond that was part of the BCWMC Flood Control Project. With the Commission’s May 19th approval to add the Winnetka Pond dredging project to this feasibility study, the City staff recommended expanding the scope of this project to include all of Bassett Creek Park Pond, as indicated on Figure 2.
- 2) Winnetka Pond – This project location is not specifically included in the BCWMC’s current CIP (Table 5-3). As shown on Figure 3, this pond is divided into two parts by a driveway/access; the two parts are identified as Winnetka Pond East and Winnetka Pond West on Figure 3.

For Bassett Creek Park Pond, we have preliminary information to show that a significant amount of sediment has accumulated in the pond, so we assume that all of the work scope components will be completed. However, for Winnetka Pond, we have no information regarding the amount of sediment accumulation in the pond. *Therefore, if the field investigation shows minimal sediment accumulation in Winnetka Pond East or Winnetka Pond West we will not proceed further with the feasibility study work on that portion of the pond.*

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

1) Project Meetings

- a) Project kick-off meeting with BCWMC staff, commissioners and Crystal staff and preparation of meeting notes.
- b) Meeting with BCWMC staff, City staff, USACE and MN DNR to discuss concept alternatives and review permit requirements for project, and prepare meeting minutes to confirm regulatory agencies' discussion results.

2) Field Investigations

- a) Bathymetric surveys – we will complete a bathymetric survey for each pond. The survey results, along with the sediment sampling information (see below), will be used to help obtain an accurate estimate of the volume of sediment to be removed.
- b) Wetland delineations – we will perform a wetland delineation around the pond perimeter of each pond. Barr will perform a field wetland delineation in accordance with the Routine Level 2 procedures specified in the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual ("1987 Manual", USACE, 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (USACE, 2010), and the 2013 Guidance for Submittal of Wetland Delineation Reports to the USACE and WCA LGUs in MN. Wetland boundaries will be identified/flagged and recorded using a GPS unit with sub-meter accuracy. We will prepare a wetland delineation report that includes the wetland type classifications and descriptions of the delineated wetlands, a brief description of the proposed project, general environmental information, and a discussion of regulations and the administering authorities. The report will also include wetland data forms, precipitation analysis, and site photographs. Barr also will obtain a Wetland Type and Boundary Approval from the Local Government Unit (LGU). Our cost estimate does not include a wetland functions and values assessment (i.e., a Minnesota Rapid Assessment Method, or MNRAM, analysis).
- c) Sediment sampling – sediment sampling will be conducted to determine if the accumulated sediment is contaminated, thus restricting the use of the dredged material, and to estimate the location of the natural pond bottom.

The sediment sampling will follow the Minnesota Pollution Control Agency's (MPCA) "Managing Stormwater Sediment Best Management Practice Guidance" (June 2015). In accordance with the document, the following number of samples will be collected and analyzed in each pond:

- Bassett Creek Park Pond – 4 sediment samples, each created from a composite of 5 coring locations, based on its approximate size of 10 acres (for ponds larger than 4 acres in size, the MPCA guidance describes methods for creating 4 composite samples from a total of 20 coring locations spread across the pond).

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- Winnetka Pond East – 3 sediment samples collected from 3 coring locations, based on its approximate size of 3 acres (for ponds smaller than 4 acres, the MPCA guidance requires collection of one sediment core and sample for each acre of pond surface area).
- Winnetka Pond West – 2 sediment samples collected from 2 coring locations, based on its approximate size of 1.4 acres (for ponds smaller than 4 acres, the MPCA guidance requires collection of one sediment core and sample for each acre of pond surface area).

At a minimum, sediment samples will be analyzed for the baseline parameters described in the MPCA guidance document: polycyclic aromatic hydrocarbons, arsenic, and copper. We will review the ponds' watersheds with the City to determine if additional analysis is warranted (e.g., all RCRA metals, PCBs, and diesel-range organics). The cost estimate includes the cost of these possible additional analyses. We will develop a memo summarizing the sediment sampling results and compare contaminant levels to MPCA Soil Reference Values to determine if the material could be used as Unregulated Fill, or if the material will require landfill disposal if excavated.

Assuming the ponds are wetlands, sediment removal must be limited to accumulated material. Some information regarding accumulated material is available for Bassett Creek Park Pond, but no field information is available about Winnetka Pond. In addition to the bathymetric survey information, we will examine the field logs of the sediment cores to help us estimate the location of the natural pond bottom, based on a change in the sediment core material. In addition to the sediment cores taken for laboratory analysis, additional sediment probing and/or coring in the ponds will be conducted to delineate the natural pond bottom. These additional samples will not be analyzed for contaminants.

The sediment probe/core information, combined with the bathymetric surveys and construction plans, will be used to estimate the extent and volume of accumulated sediment in the ponds.

3) Evaluation and Concept Plans

- a) Estimate extent and volume of accumulated sediment in the ponds, based on review of the bathymetric surveys and sediment probe/core information.
- b) Develop concept plans for accumulated sediment removal, including alternate methods for removing and dewatering the material, as appropriate.
- c) Identify permitting requirements, based on wetland delineations, and meeting with MDNR and USACE staff.
- d) Use P8 model to estimate pollutant removal as a result of the project.
- e) Develop cost estimates for the project, including a "30-year cost," analysis of life expectancy, and annualized cost per pound of pollutant removal.

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4) Discuss project impacts with public

- a) Coordinate with BCWMC Administrator and City staff to determine best means to gather public input, such as mailings, newspaper articles, open houses, etc. Primary group for public discussions will be the nearby residents. The budget for this task includes time to prepare for and attend up to two public meetings (one for Bassett Creek Park Pond and one for Winnetka Pond, if included in the study), and it is assumed that meeting coordination, expenses, and set-up will be largely completed by the BCWMC Administrator with assistance from the City.
- b) Assist with public involvement process as necessary.

5) Feasibility Report

- a) Prepare draft report for review by City staff and BCWMC staff/interested commissioners; revise report based upon review comments.
- b) Present draft feasibility study findings at BCWMC meeting.
- c) Prepare final report for approval at BCWMC meeting and use at future project hearing.

Cost Estimate

Our cost estimate for the scope of work outlined above divides the cost into two parts:

- 1) Base cost for Bassett Creek Park Pond dredging feasibility study
- 2) Additional costs to add Winnetka Pond dredging to the feasibility study

Table 1. Bassett Creek Park Pond and Winnetka Pond Dredging Feasibility Study Costs

Tasks	Base Cost for Bassett Creek Park Pond	Additional Cost for Winnetka Pond	Estimated Total for Bassett Creek Park Pond and Winnetka Pond
1) Project Meetings	2,800	\$700	\$3,500
2) Field Investigations	14,700	\$19,200	\$33,900
3) Evaluation and Concept Plans	5,700	\$2,800	\$8,500
4) Discuss project impacts with public	2,000	\$1,100	\$3,100
5) Feasibility Report	7,000	\$4,000	\$11,000
Total	32,200	\$27,800	\$60,000

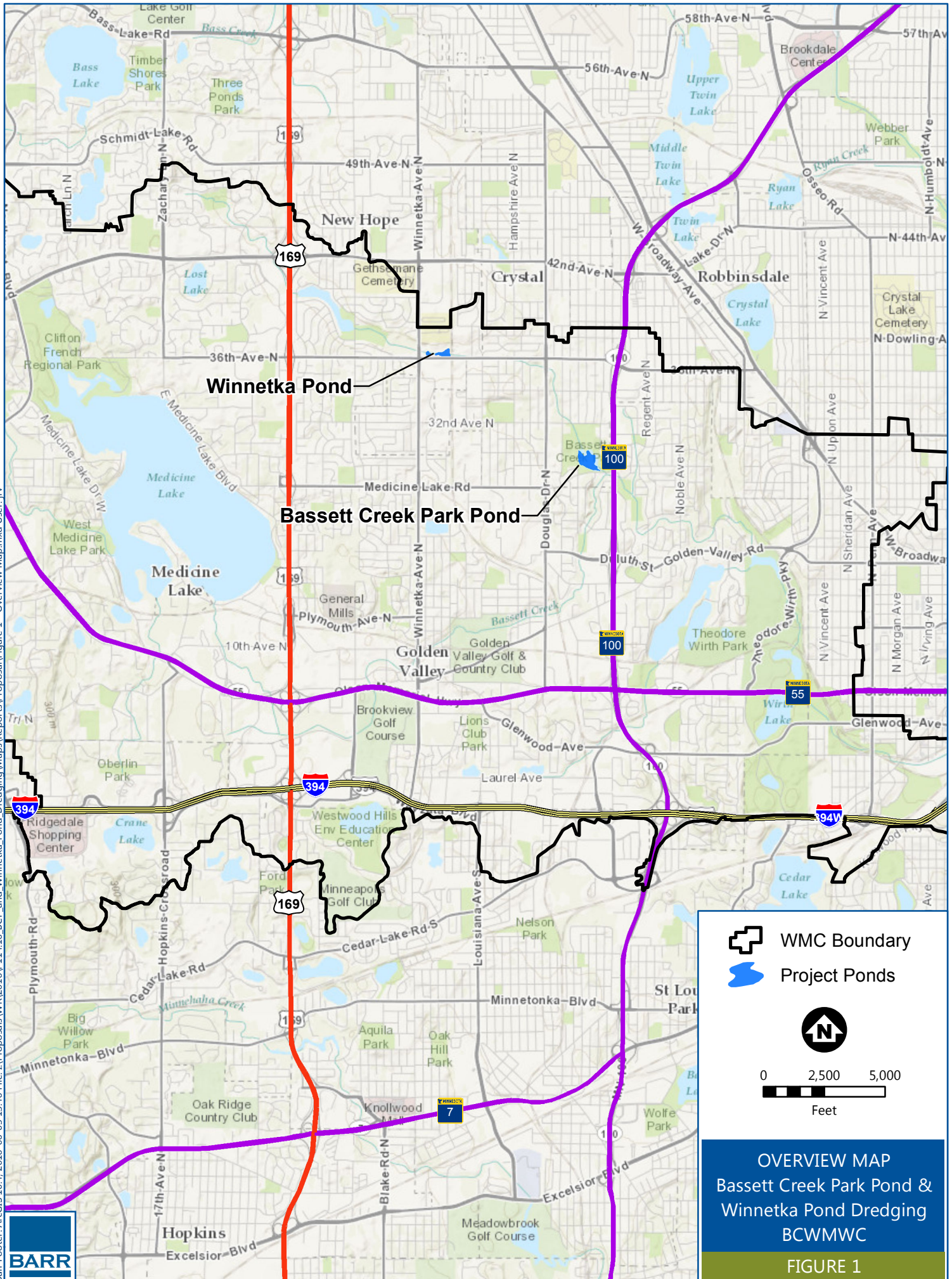
Schedule


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 and City of Crystal staff	August 2016
Bathymetric surveys	August/September 2016
Wetland delineations	August/September 2016
Sediment sampling	August/September 2016
Meeting with BCWMC, City, USACE, and MN DNR	September/October 2016


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Develop concept alternatives and cost estimates	November/December 2016
Public meetings	January 2017
Submit draft feasibility report for City and BCWMC staff review	March 10, 2017
City and BCWMC staff complete review	March 24, 2017
Submit draft feasibility report for BCWMC review at Commission meeting	April 12, 2017
BCWMC completes review at Commission meeting	April 20, 2017
Submit final feasibility report for BCWMC review at Commission meeting	May 10, 2017
Final Feasibility Report – BCWMC approval at Commission meeting	May 18, 2017



 WMC Boundary

 Project Ponds



0 2,500 5,000
Feet

OVERVIEW MAP
Bassett Creek Park Pond &
Winnetka Pond Dredging
BCWMWC

FIGURE 1



Project Area



0 250 500
Feet

LOCATION MAP
Bassett Creek Park Pond
BCWMWC

FIGURE 2



