

Engineer's Report

December 11, 2019

Normandale Lake Water Quality Improvement Project:

Barr has developed a draft Lake Vegetation Management Plan (LVMP) in preparation for the spring 2020 herbicide treatment, a requirement of MnDNR permitting. District and Barr staff plan to meet with the MnDNR in the upcoming month to discuss the planned herbicide treatment.

Edina Stream Stabilization Project: Phase II of the project reached substantial completion at the end of October 2018. The substantial completion deadline was December 31, 2018 so the project was completed ahead of schedule.

Barr continued with iterations on the maintenance plan to establish clear roles for the District and the City of Edina for addressing future maintenance needs. We also assisted Administrator Anhorn with answering questions from residents about vegetation establishment and expected warranty work.

The contractor provided documentation about the required vegetation maintenance completed during the growing season of 2019; however, no new construction activities occurred this month.

District Office (Discovery Point): No new activities.

Lake Cornelia and Lake Edina Water Quality Improvements:

Aluminum Treatment

HAB Aquatic Services Inc. has been selected to conduct the alum and sodium aluminate (aluminum) treatment of Lake Cornelia.

HAB originally scheduled the treatment for the last week in October (the contract with NMCWD indicated a required completion date of October 31, 2019). However, unseasonably cold temperatures in early- and mid-October caused lake water temperatures to drop earlier than normal. The contract documents require that water temperatures be above 45oF to conduct the aluminum treatment. At low temperatures aluminum is more soluble and floc does not form very well, potentially prohibiting even application of aluminum on bottom sediment and losses through the outlet. Because water temperatures were expected to be 45oF or below during the planned treatment dates of October 28-30, the treatment was not conducted and was rescheduled for May, 2020.

Barr, NMCWD staff and legal counsel developed an amended contract to reflect the change in contract timing. The treatment timeframe specified in the contract amendment is May 10, 2020 through May 31, 2020. This tight timeframe was selected to allow time to conduct the herbicide treatment targeting curly-leaf pondweed before the alum treatment, but also to complete the aluminum treatment prior to significant growth of the native plant community. A key to the successful aluminum treatment will be the early treatment of the curly-leaf pondweed to make sure that by May 10th the pondweed has been treated and dead or decaying plant matter has settled to the lake bottom. This will require close coordination with the City of Edina and potentially some contracting assistance to ensure that the herbicide applicator completes the application in a timely fashion. HAB aquatic services signed the revised contract on December 8, 2019.

Lake Cornelia and Lake Edina Water Quality Improvements:

Feasibility Study

At the September 18, 2019 regular meeting, the Board approved a scope of work for Barr to complete a preliminary engineering/feasibility study to further evaluate the other water quality improvement practices recommended in the UAA study for Lake Cornelia and Lake Edina.

The Barr team developed two high-level stormwater management concepts for a BMP at Rosland Park and presented these concepts to District and City of Edina staff in mid-October. Concept #1 was a subsurface filtration treatment vault, and Concept #2 was a surface treatment train. Based on feedback obtained during this meeting, Barr revised Concept #2 to include a pump-driven filtration treatment vault located at the edge of the North Parking lot. In this revised option, water would be pumped from Swimming Pool Pond into an above-ground treatment vault, with the pump preferably powered (or offset) by solar energy generation. After passing through the filtration system, treated water would be discharged to Lake Cornelia.

At a November 20, 2019 meeting with NMCWD and City of Edina Staff, Revised Concept #2 was identified as the preferred stormwater feature concept as it would: allow for more design flexibility and increased treatment capacity, would simplify operation and maintenance of the filtration system, would minimize parkland impacts, and would provide an opportunity to incorporate public art into the feature to make the system not only a functional means of reducing phosphorus to Lake Cornelia, but an attractive element of the park as well.

The stormwater treatment concepts, including the preferred Revised Concept #2, were presented to the Edina Parks and Recreation Commission on December 10, 2019.

Concept #2 (REVISED): Above-ground treatment vault – sketch



Revised Concept #2 was identified by NMCWD and City of Edina staff as the preferred Rosland Park stormwater feature concept.

Barr has also initiated work on evaluating additional stormwater treatment/phosphorus reduction BMPs in the Lake Cornelia and/or Lake Edina watersheds, as well as strategies for managing curly-leaf pondweed and fisheries in Lake Cornelia.

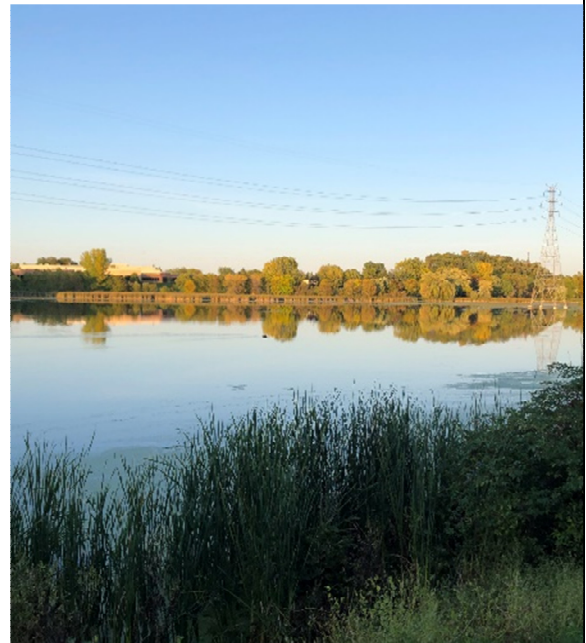
Pentagon Park Stormwater Management: No new activities.

Regional Stormwater Volume Reduction Opportunity Study: No new activities.

BMP Retrofits on Nonprofit Sites- Final Design and Construction:

Barr staff are currently working on preparing bid-ready construction documents for five non-profit BMP sites. NMCWD and Barr staff have been meeting with church decision makers to present project concepts and resolve any questions regarding the property owner agreements that are required. Church officials have all signaled project approval and have received 90% plans for final review, with the exception of St. Luke's Lutheran Church in Bloomington. At this site, Barr staff is working with Centerpoint Energy and Met Transit to address potential utility conflicts. The project is set to go to bid after the January NMCWD meeting upon approval by the Board. Final plans and cost estimates will be provided to the Board in January.

Smetana Lake Use Attainability Analysis Update: Barr has been updating the Smetana Lake Use Attainability Analysis (UAA) to assess current water quality and re-evaluate implementation recommendations from the original UAA study completed in 2003. This past month output from the P8 model (flows and water quality) and monitoring data were used to develop and calibrate the in-lake model for the 2016 and 2018 modeling years. One of the main goals of the in-lake modeling effort is to better understand how Smetana Lake functions in relation to watershed inputs and inflows from upstream Bryant Lake. Preliminary results indicate that the most significant source of phosphorus to Lake Smetana is external sources, with an especially strong connection between water quality in Bryant Lake and downstream Lake Smetana. This conclusion is evidenced by the significant improvements in Lake Smetana water quality following the 2008 alum treatment conducted by the NMCWD in Bryant Lake. A meeting to share preliminary study results with stakeholders is tentatively planned for January 2020.



Bush Lake Outlet Project: No new activities.

Discovery Point Building Addition: No new engineering activities.

Wetland Conservation Act (WCA) and NMCWD Wetland Rule Administration:

Work administering the WCA and NMCWD wetland rule in the past month included:

- Determination of wetland management classifications for Tiller Corporation and Douglas Corporation sites in Eden Prairie.
- Review of wetland delineation reports and site reviews for 6216 Baker Road and 6385 Old Shady Oak Road in Eden Prairie.
- Miscellaneous program administration.