

Engineer's Report

December 9, 2020

Normandale Lake Water Quality Improvement Project:

Barr staff have been reviewing the findings of the water quality and plant data collected in 2020. We plan to meet with District staff next week to discuss the results, next steps for the project, and monitoring plans for 2021.



Panoramic view of Normandale Lake from boat landing on west side of the lake. Photo(s) taken August 26, 2020.

Discovery Point Restoration:

Barr prepared and sent a Request for Quotations to selected qualified contractors for the final phase of site restoration and the rain garden and landscaping associated with the recent building addition. Quotes will be received by the District administrator on December 21, 2020.

Buckthorn removals are likely to occur during the time period of frozen soils, with spring seedings and plantings to compliment the invasive removals and prevent erosion. District staff is working with the City of Eden Prairie to coordinate buckthorn removal up to the wetland trail which would include some removal on City property to create a seamless restoration area.

Building Addition Rain Garden and Landscape:

As indicated in the description above regarding the Discovery Point Restoration, contracting for the building addition rain garden and grading/landscaping was combined with contracting for the Discovery Point Phase 3 restoration work. Quotes will be received by the District administrator on December 21, 2020.

Rain garden construction and restoration of the building addition construction disturbance will take place in the spring of 2021.

Bush Lake Shoreline Vegetation Management:

Barr has been coordinating ongoing shoreline vegetation management activities with the restoration contractor Landbridge. Vegetation management activities came to a conclusion as most plants went dormant in early November. Barr staff reviewed recent management work and contractor invoices.

Edina Stream Stabilization Project:

There were no new construction/maintenance activities associated with the project. For the last several months we reported that Landbridge had provided a cost estimate for extending their maintenance work for an additional six months into 2021 to line-up with the completion of the maintenance work for Phase 2 of the project. The cost estimate received on September 6th was reviewed and we requested that the cost provided be revisited. The revisited cost received was reviewed and we requested that Landbridge again revisit their cost to come more into line with the original bid cost received for the project. We have not yet received this information and therefore will not have a recommendation for consideration at the December meeting.

Lake Level Management Plans for Arrowhead and Indianhead Lakes:

A virtual meeting was held with the City of Edina and District staff on December 1 at which the risk of flooding for the homes around these lakes was discussed. Barr had evaluated the risks and options for management from several standpoints. The analyses were of great interest to the City, and Edina staff had some definite ideas of how to use this work in planning lake level management and approaching state agencies for permission to protect the houses around the lakes. Also discussed were the conditions at Nine Mile Creek that might restrict adding water to the flows. The graph below shows approximate initial lake levels that would be needed to avoid flooding dwellings at Arrowhead Lake for 24-hour rainstorms of 1-year to 200-year return frequencies. A report summarizing the water balance model and flood mitigation analyses will be prepared and submitted in December for review.

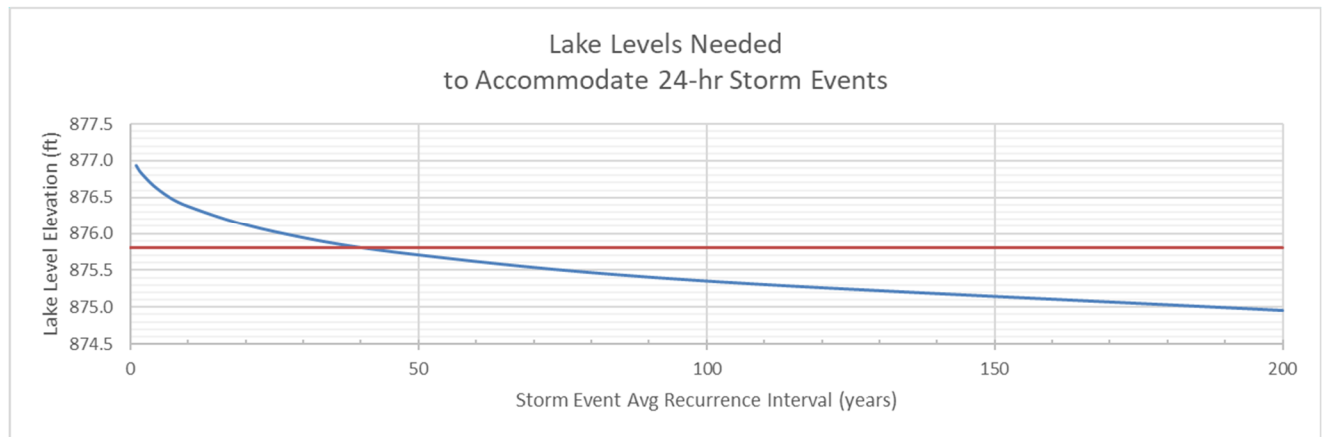


Figure 1. Lake elevations that should protect dwellings at Arrowhead Lake from flooding for storm return frequencies of 1-year to 200 years for 24-hour storms, based on the lake water balance model.

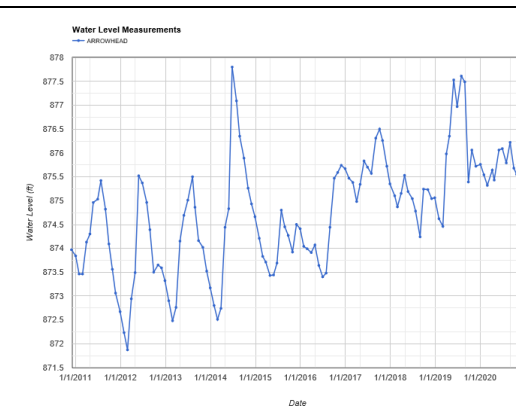
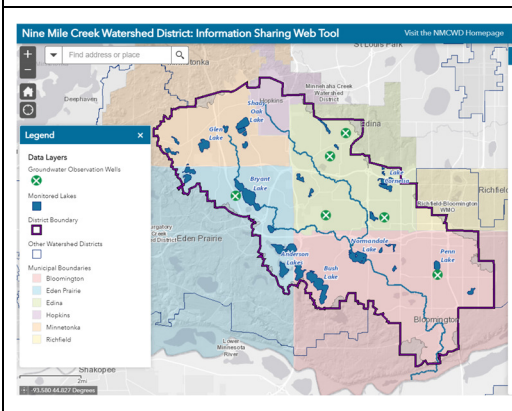
BMP Retrofits on Nonprofit Sites:

Updates to the pollutant removal estimates for the rain gardens installed are being computed to quantify the stormwater improvements for the final as-built project. This information will be used for Hennepin County grant reporting.

Development of Data-sharing Web Map Tool:

Maintenance and updates to the water level database are nearing completion. Additional information, including reference data, water quality monitoring reports, and ordinary high water levels, have been incorporated into the information shared in the web map. Changes to the web browser address, disclaimer text, and spatial data design were completed as well. Enhancements to the charting tool are underway, which includes displaying ordinary high water level (OHWL) data within the interactive charting tool. Other ongoing updates include linking to lake-specific fact sheets being developed by District staff.

The new URL for the web map → https://maps.barr.com/NMCWD/NMCWD_InformationSharingApp/index.html

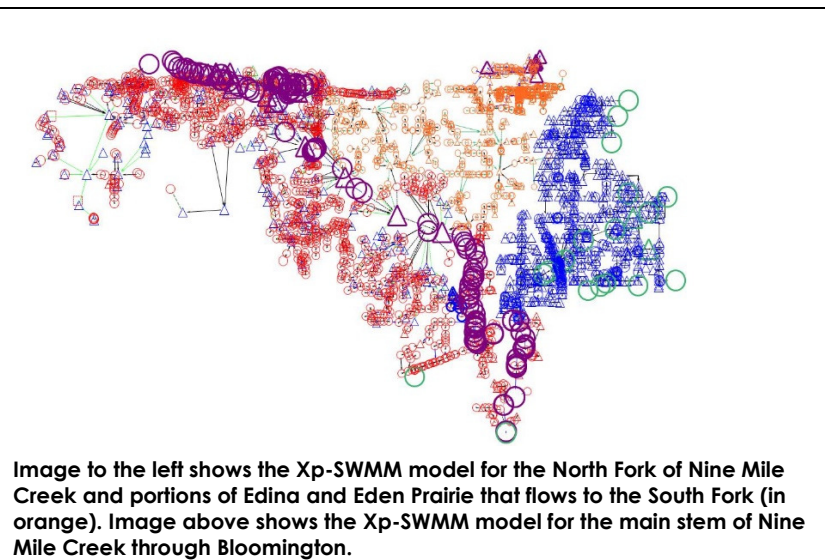
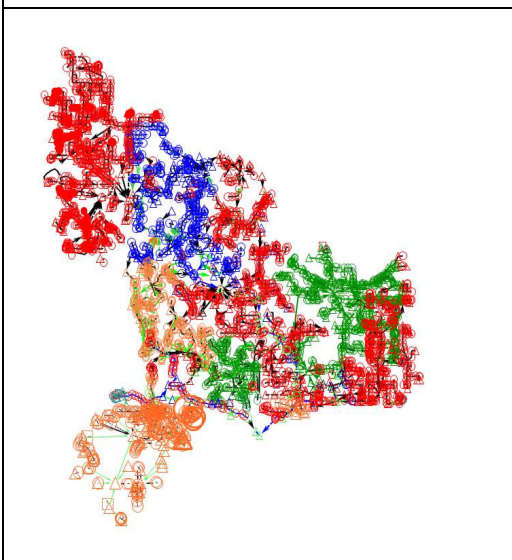


Atlas 14 Model Updates:

Work continues on the Atlas 14 model updates. We have completed the model updates in Hopkins and work continues on the Eden Prairie model, including finalizing subwatershed divides and hydrologic inputs. Information from the City of Richfield's model has been consolidated and merged into the Edina and Bloomington portions of the model.

Currently, the watershed models have been combined into three large models. The images below are screen shots from the Xp-SWMM models, with each circle/triangle (or node) representing a subwatershed, storm sewer manhole, storage area or creek junction and each line representing a storm sewer pipe, creek segment, or other conveyance. Overall, there are approximately 8,000 nodes and 10,000 links in the three models.

Barr staff are working hard to complete the modeling by the end of the year. Next steps include completing the Eden Prairie portion of the model, simulating the Atlas 14 100-year, 24-hour storm, and conducting QA/QC on the model results.



Lake Cornelia and Lake Edina Water Quality Improvements: Rosland Park Stormwater Filtration BMP

Design work continues on the Rosland Park Stormwater Filtration BMP. Three alternative design concepts were presented to the Board at the regular November meeting, including cost estimates and pollutant removal estimates. At that meeting, the Board identified Alternative Concept 2A as preferred. Since the November board meeting, we received confirmation from MnDNR that Alternative Concept 2A addresses issues they previously raised regarding Public Waters Permitting and that Concept 2A would require a Water Appropriation Permit. A Public Waters Permit authorizing actual construction impacts to Public Waters may still be required for installation of intakes/outfalls, but this would likely be addressed through the general permitting authority issued to the District by MnDNR.

We met with District and City of Edina staff on December 3, 2020, including staff from the engineering, public works (utilities and maintenance), and parks departments. During the meeting, we reviewed and discussed Alternative Design Concept 2A and associated changes to pollutant removal estimates, cost/benefit analysis, temporary impacts to the park during construction, and construction schedule. Given the delays this fall related to permitting, we anticipate that construction could begin in late-August of 2021. This corresponds with the anticipated seasonal closing of the Edina Aquatic Center, which is tentatively scheduled for August 22, 2021 (the City would prefer to avoid construction in this area while the pool is open).

In coordination with the City of Edina, the design team is also further evaluating maintenance options for the proposed stormwater filtration system, including consideration of a backwash system. A filter must be cleaned periodically to maintain function. While a backwash system would likely have greater upfront design and construction costs than other potential approaches, it would simplify maintenance procedures, result in more reliable long-term performance, and reduce labor and equipment costs over time. A draft concept drawing of a potential backwash system was reviewed and discussed during the December 3, 2020 meeting. Staff from City of Edina were generally interested/supportive of the backwash concept and discussion included brainstorming of locations for potential backwash discharge.



Rendering of proposed stormwater filtration vault in Rosland Park to treat water from Swimming Pool Pond before it flows to Lake Cornelia.

Wetland Restoration and Protection Opportunity Identification:

Work on this project in the past month included:

- Coordination of GIS inventory development linking National Wetland Inventory with wetland functional assessment data available from cities and the NMCWD permit program
- Evaluating functional assessment approaches
- Developing a wetland prioritization framework
- Downloading photos and data from wetland field assessments
- Meeting with District staff on December 7, 2020 to present project status and planned approach

Next steps for the project include:

- Continuing to compile data, opportunities, and preparing draft summary
- Scheduling a workshop with Board of Managers in January to present findings and request feedback



Photo of a wetland dominated by native vegetation within Carmel Park in the City of Eden Prairie.

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

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

- West 70th Street- prepare for and conduct WCA TEP wetland delineation site review
- Tiller Corporation- review of NMCWD permit submittal
- Shady Oak Lake Outlet- communication w/city regarding wetland site review and delineation
- Crosstown Core Industrial in Eden Prairie- conduct wetland site review
- Coteau Trail Culvert Replacement in Eden Prairie- conduct wetland site review, provide wetland application information to TEP and follow-up communication, preparing and submitting WCA Notice of Decision for WCA utility exemption approval
- Agape Christi, 6500 Baker Road- prepare for and conduct WCA TEP wetland delineation site review
- Topview Park, Eden Prairie- conduct WCA TEP wetland delineation site review
- Other miscellaneous program administration