

# Engineer's Report

January 16, 2019

**Edina Stream Stabilization Project:** Phase II of the project reached substantial completion at the end of October. The substantial completion deadline was December 31st, so the project was completed ahead of schedule. No new construction work was completed in December, and there is not a payment application this month.

For both Phase I and Phase II, some portions of the project were constructed on private property. Work continued in December to establish the limits of permanent easements on the private properties to secure a means for the District to complete maintenance as needed.

**Normandale Lake Water Quality Improvement Project:** In November, District and City of Bloomington staff met with MDNR to discuss citizen concerns regarding the number of turtles over-wintering in the deepest portion of Normandale Lake (near the outlet) due to the significant rainfall in September and resulting later-than-anticipated water level drawdown, and concerns regarding over-wintering success given the shallow water levels anticipated in this area throughout the winter months. At the meeting, MDNR staff provided additional information on turtle wintering behavior and environmental conditions that are key to turtle survival, which include maintaining liquid water conditions and maintain oxygen levels. To promote oxygenation of the water column in the deepest portion of the lake throughout the drawdown, District and City of Bloomington staff decided to try to maintain a small area of open water near the lake outlet by installing a small deicing aeration/circulator system (similar to those used at marinas to keep the dock area from freezing). City of Bloomington staff deployed the aeration system on December 19, 2018 at the upstream edge of the ice bridge covering the main channel (see photo below).

In early-November, Rachel Contracting installed a shortened portion of the upstream 36-inch HDPE pipe, due to the soft sediments encountered, with the intention of installing the remaining section of the pipe during the winter upon freezing of the soft lake bottom sediments. In December, communication with Rachel Contracting regarding the anticipated approach for installing the remaining pipe segment led to concerns by District staff that installation of the pipe may have negative impacts on turtles that are over-wintering in the deep area near the lake outlet. Barr, District, and City of Bloomington staff have discussed foregoing installation of the remaining pipe segment to avoid potential negative impacts to turtles over-wintering in this area. Prior to the pipe install (early-November), there was uncertainty as to whether the lake bathymetry would allow for the desired level of lake drawdown without extending the inlet pipe to the deepest portion of the lake. However, since installation of the shortened section of pipe, it has become apparent that the lake bottom bathymetry has naturally adjusted (i.e., formed a channel) such that the shortened portion of pipe is functioning as desired without extending to the deepest portion of the lake. As such, we do not think it necessary to install the remaining pipe segment. We will work with Rachel Contracting in the upcoming weeks to modify the project to reflect this change.



Photo following deployment of deicer system at the upstream edge of the ice bridge covering the main channel. City staff reported that after about 90 minutes of operation, the deicing system had opened up a 10-foot span area of water.

**Normandale Lake Water Quality Improvement Project (continued):**

In December, Rachel Contracting submitted a change order requesting that the District share the extra costs incurred to draw down the lake following the significant rainfall that occurred in September. Following negotiation with Rachel, District staff recommended to the Board of Managers that the District consider paying for the costs associated with construction of a channel to convey water to the newly-installed 36-inch pipe and manhole (versus continued pumping following the significant rainfall) and the costs associated with pumping beyond the October 21, 2018 pipe installation deadline. During change order negotiations, Rachel estimated these costs to total \$18,125. At the NMCWD's December 19, 2018 meeting, the Board concurred with staff's recommendation and authorized the Administrator to approve and execute the change order in the amount of \$18,125.50. At that time, Barr indicated that we would request a revised change order from Rachel to reflect payment of the agreed-upon items. Since the NMCWD's December meeting, Rachel Contracting submitted Change Order #5 for the amount of \$18,170.30. This amount is slightly higher than the amount authorized by the NMCWD Board in December, but more accurately reflects the labor, materials, and subcontractor costs incurred as part of the channel construction and extra pumping.

Pay Request #5 has been submitted by Rachel in the amount of \$29,693.35, which covers work completed to date under Change Order #4 (approved in December) and Change Order #5. Barr is recommending payment of the pay application.

We are continuing to track the progress of the lake drawdown and depth of frozen sediment. As of January 8, 2019 the top 9 inches of sediment at the upstream side of Normandale Lake were frozen solid. With the recent rains, a large portion of the lake is currently ice covered (see photo below).

The District is planning to conduct an alum treatment of the lake in spring 2019. We will be developing the necessary contract documents to implement the alum treatment in the upcoming months.



**Aerial photo of exposed lake bottom at Normandale Lake (December 22, 2018).**



**Aerial view of remaining standing water during drawdown (ice covered) near outlet of Normandale Lake (December 22, 2018).**



**Nine Mile Creek flows through frozen lake bed on January 8, 2019 at the upstream side of Normandale Lake.**



**Ice-covered Normandale Lake on January 9, 2019.**

**Bush Lake Outlet Project:** No new activities.

**Lake Cornelia and Lake Edina Use Attainability Analysis (UAA):** Barr continues to work on updating the Use Attainability Analysis (UAA) for North and South Lake Cornelia and developing a UAA for Lake Edina. The District hosted a community meeting with Lake Cornelia and Lake Edina residents, in conjunction with the City of Edina, on December 13<sup>th</sup>, 2018. Barr staff presented results and conclusions from the lake modeling analyses and discussed potential lake and watershed management strategies for each of the lakes, including:

- External phosphorus load reduction (watershed BMPs)
- Alum treatment in Lake Cornelia to reduce internal phosphorus loading from lake bottom sediments
- Curly-leaf pondweed management in Lake Cornelia to reduce phosphorus loading from mid-summer die-off
- Fisheries management in Lake Cornelia to decrease the amount of carp, goldfish, and bullheads in the Lake Cornelia system and improve water clarity.
- Water quality improvements in upstream lakes (primary strategy for Lake Edina)

Since the meeting, Barr staff have been further evaluating potential watershed BMPs to reduce external phosphorus loading, including expanded street sweeping and a spent lime upflow treatment BMP to removed dissolved phosphorus from stormwater before it is discharged to Lake Cornelia. We have also been developing cost information for proposed management scenarios and developing the draft report.

**Pentagon Park Stormwater Management (in partnership with the cities of Edina and Bloomington):** No new activities.

**Nine Mile Creek Watershed District 60<sup>th</sup> Anniversary Story Map:** Barr met with District staff on December 18, 2018 to kick-off the project. The meeting included review and discussion of potential story map layouts and discussion regarding story map content. Another project meeting will be held with District and Barr staff on January 14<sup>th</sup>, 2019 to discuss important historic milestones for the NMCWD throughout the past sixty years.

**District Office (Discovery Point):** No new activities. The Discovery Point Restoration is now stable for the winter. The cover crop that was recently installed as part of the Phase 2 native seeding has germinated just in time as the temperatures have dropped and will be helping to hold the soil through the winter. The entire Discovery Point site will continue to be managed for invasive species through the spring as the recent seedings become established. The next plant installations will take place in the spring of 2019 as another volunteer event will be scheduled as the growing season begins

**Regional Stormwater Volume Reduction Opportunity Study:** No new activities.

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

- Prepare and process wetland boundary and type approval for the wetland delineation at 7120 Gerard Drive in Eden Prairie.
- Review wetland functional assessment for 5729 Whited Ave in Minnetonka and determine NMCWD wetland management classification.
- Evaluate whether WCA fringe exists above DNR OHW for 5730 Whited Ave in Minnetonka.

**Status of Permitted Construction Projects:** Barr staff completed the monthly inspections of permitted sites on November 30, 2018. An abbreviated version of the monthly inspection report is provided for the Managers review (attached). Of the 67 sites inspected, 6 of the sites required corrective action or follow-up. The full inspection report is available upon request.