Engineer's Report

October 17, 2018

Edina Stream Stabilization Project: Phase II of the project has continued with stabilization measures installed on Reaches 12 and 13; however frequent rain has slowed progress. Sunram was able to install rock vanes and excavate the off-channel pond prior to heavy rains that caused the creek to flow out of its banks for a few days. All appropriate erosion control measures were in place prior to the high flow event, and some erosion control measures required repair after the water receded. To date, Sunram has been able to complete stabilization work between 70th Street and 72nd Street.

A pay request for Sunram for Phase II work has been submitted in the amount of $159,377.85 for work completed through September 30. The work completed for this pay application included:

- Clearing vegetation for all four reaches
- Traffic control for construction access on 70th Street
- Excavating new channels in Reach 12
- Installing root wads and rock vanes for bank protection on Reaches 12 and 13.
- Installing and maintaining erosion control measures.
- Clearing channel debris

Despite the delays due to wet weather, the project is expected to be completed on schedule. Photos from construction are included below.

Phase 2 grass growing in excavated channel after flood.

Phase 2 rock vane at the entrance channel to off-channel pond.

Phase 2 stream remeander with root wads held up to flood flows.

Debris jam removed in Reach 13

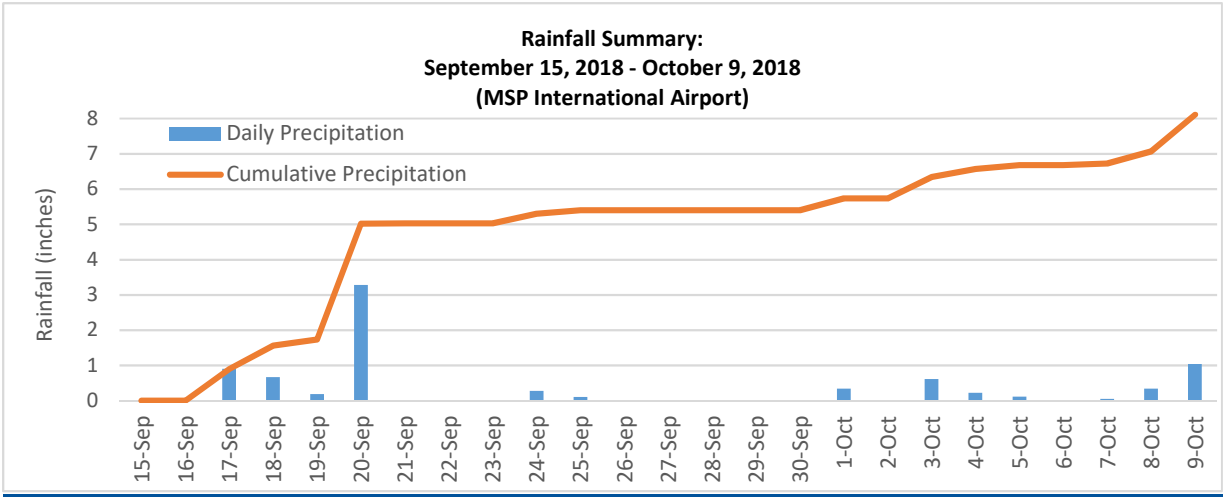
Normandale Lake Water Quality Improvement Project: The Normandale Lake drawdown began the week of August 20th. Through use of the existing 18-inch bypass pipe and pumps discharging 4600 gallons per minute, the lake had drained to an elevation of approximately 804 feet (target elevation) by September 15th. Significant rainfall amounts in subsequent weeks has caused the lake level to rebound, reaching as high as 811 feet (three feet above the normal water elevation) following over 3 inches of rainfall across the watershed on September 20th. As shown in the graph below, approximately 8 inches of rain has fallen in the area since September 15th, which is well above normal.

Exposed lake bottom near island on September 15, 2018.

Exposed lake bottom near storm sewer outfall on north side of lake on September 15, 2018.

High water levels in upstream channel after 3-inch rain.

High water in downstream channel after 3-inch rain.



Normandale Lake Water Quality Improvement Project (continued):

Rachel Contracting installed the manhole and downstream portion of the new 36-inch HDPE bypass pipe system on October 4th and 5th. Upon installation, the pumps were turned off and the downstream portion of the new 36-inch bypass pipe system is being utilized to draw down the lake, in addition to the existing 18-inch bypass pipe.

A pay request for Rachel Contracting has been submitted in the amount of $47,473.88, which covers work completed through the end of September. Barr is recommending payment of the pay application. The pay request includes a Change Order for $4,900, which reflects payment for an increase in the amount of material that was required to construct the temporary weir in the channel of Nine Mile Creek upstream of Normandale Lake. The quantify of material was greater than anticipated due to the specific channel shape/geometry at the location of the temporary weir and the displacement of soft, mucky material underneath the temporary weir during construction.

Based on results of the recent fish survey, Barr and District staff have begun discussing carp management options for Normandale Lake. We met with Dr. Przemyslaw G Bajer, Research Assistant Professor at the University of Minnesota and staff from Carp Solutions to discuss potential options for carp tracking and management during the lake drawdown. Their preliminary recommendation was to consider tracking carp this fall to understand their whereabouts during the drawdown and spring spawning season. However, due to the significant rebound in water levels in mid-September and the uncertainty in timing of the following drawdown, among other factors, District staff decided to hold off on installing tracking devices into a sampling of carp. Tracking and potential management of carp will be considered in spring 2019.

Installation of downstream portion of 36-inch HDPE bypass pipe, which discharges into Nine Mile Creek downstream of the Normandale Lake outlet structure.

Installation of manhole structure on the 36-inch bypass system. Stop logs will be installed inside the structure to prevent passage of water and refill the lake in spring.

Bush Lake Outlet Project:

On September 5th, shoreline vegetation management (spot spraying and spot mowing) was conducted within the lake buffer, excluding the Izaak Walton League shoreline property. Target mowed species included flowering invasives and flowering Canada goldenrod (Solidago canadensis). Target sprayed species included leafy spurge (Euphorbia esula), purple loosestrife (Lythrum salicaria), Canada thistle (Cirsium arvense), and other invasives.

Follow-up management visits focused on controlling woody volunteers and maintaining the high-quality areas of the site are scheduled to occur this fall. Another selective treatment should occur within the next 3-4 weeks targeting cool-season grasses, primarily reed canary grass, followed by woody/willow control in specific areas in late fall.

Shoreline vegetation management at Bush Lake.

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. Progress on the project over the past month has included the finalization of three calibrated in-lake water quality models for each lake basin (one model for three different years) and the brainstorming of Best Management Practices (BMPs) to assess the effort required to attain water quality goals for the lakes. A meeting with the District and the City of Edina took place on September 28, 2018 to discuss the results of the model calibrations and to talk through proposed modeling expectations. We anticipate a meeting with Lake Cornelia and Lake Edina residents in late-November or early-December to discuss the results of the lake modeling analyses and to provide information on potential lake and watershed management strategies for the lakes based on preliminary modeling results.

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

Cherokee-Chamberlain Drainage System Analysis (in partnership with the city of Eden Prairie): Results of the analysis were summarized in a technical memo, which was provided to the City of Eden Prairie January 12, 2018. No response has been received from the City of Eden Prairie.

District Office (Discovery Point): The restoration at Discovery Point has been very eventful this past month. Minnesota Native Landscapes (MNL) began by planting the screening and other trees and shrubs around the south and west side of the phase 2 area. After planting, they tilled the site to prepare the soil for good seed contact. Unfortunately, several inches of rain fell immediately after seeding was wrapped up and prior to the straw mulched being applied and eroded sediment was deposited at the bottom of the slope (see below). With additional rain in the forecast, erosion control log was deployed to prevent further damage. Cleanup of the eroded sediment was negotiated with MNL and a full reseeding was performed at no cost to the District due to the poor timing of the original seeding.

Erosion evident after large rainfall event on Sept.18, 2018

Delivery of screen and other trees to Discovery Point

Phase 1 restoration is well established after the second full year of management.

Regional Stormwater Volume Reduction Opportunity Study: Barr completed a district-wide, screening-level GIS analysis that identified potential sites for infiltration-based volume reduction best management practices (BMPs) within the Nine Mile Creek watershed. An overview of the study was presented to the Board of Managers at a meeting on August 15, 2018. Since the meeting, Barr staff have reviewed and discussed the feedback received from the Board and staff and will be compiling a summary of deliverable options (e.g., specific maps, data layers, and/or data summaries) in early-October for review by the NMCWD Administrator. Upon determination of preferred deliverables (and format), Barr will compile the information for District staff and the Board. The District Administrator is also considering hosting a meeting of the District's Technical Advisory Committee (TAC) to share the compiled information regarding soil conditions and opportunities for stormwater infiltration.

Wetland Conservation Act Administration:

- Review of information and communication regarding the Braemar Boulevard sediment removal and Rabun pond projects in the City of Edina

Status of Permitted Construction Projects: The monthly inspection report is provided for the Managers review.