

Memorandum

To: Riley-Purgatory-Bluff Creek Watershed District Board of Managers and District Administrator
From: Barr Engineering Co.
Subject: Engineer's Report Summarizing March 2023 Activities for April 12, 2023 Board Meeting
Date: March 30, 2023

The purpose of this memorandum is to provide the Riley-Purgatory-Bluff Creek Watershed District (RPBCWD) Board of Managers and the District Administrator with a summary of the activities performed by Barr Engineering Co., serving in the role of District Engineer, during March 2023.

General Services

- a. Participated in a March 2 meeting with the City of Chanhassen and Administrator Jeffery to discuss preliminary analysis results related to potential BMPs in North Lotus Lake Park and along several tributary ravines west of the lake.
- b. Met virtually with Administrator Jeffery and Counsel Welch March 7 to discuss the Purgatory Creek Park berm repair, need for a simple project status tracking tool (i.e. CIP matrix), cooperative agreement and No Rise analysis challenges for the Upper Riley Creek Restoration project, Chanhassen decant facility design, and work without permits.
- c. Took part in the March 23 RPBCWD summit discussing fisheries and plant management in the Riley and Purgatory Creek watershed. There were about 16 attendees representing RPBCWD staff, the cities in the district, DNR, Three River Parks District, UofM, and herbicide applicator. Key takeaways include, Lake Susan water clarity needs to improve to enhance native plant growth, low flows in creek significantly impacted water quality in creeks, Lake Riley had the best water quality in the district, Lake Susan curly-leaf pondweed (CLP) density presents opportunity to treat CLP and long-term management plan needed, future alum application of planned second dose is likely needed over a larger area of Lotus Lake to increase effectiveness and longevity. Need additional discussions about shallow lake health based on reference lakes and emerging metrics/goals for measuring success.
- d. Prepared draft CIP project status matrix for Administrator review (*see draft version attached to end engineer's report*).
- e. Met virtually with Administrator Jeffery, President Ziegler, Counsel Smith and Counsel Welch to review draft agenda for March 30 regular board of managers meeting.
- f. Met virtually with Administrator Jeffery on March 30 to discuss the potential for a comprehensive whole-lake/watershed assessment for Duck and Mitchell Lakes.
- g. Participated in the March 16 workshop with the Board of Managers meeting.
- h. Participated in the March 1 regular Board of Managers meeting.
- i. Prepared Engineer's Report for engineering services performed during March 2023.

Permitting Program

- a. *Permit 2022-053 Fox Ridge (aka Fox Hill Drive)* - The project proposes to split the existing lot at 581 Fox Hill Dr. in Chanhassen into three single family home lots and an outlet. The permit was conditionally approved at the January 4 meeting. Continued working with applicant on maintenance declaration.
- b. *Permit 2022-068 KIWATCHI--* The project proposes the subdivision of an existing single family home parcel into a four-lot single-family residential development with associated sewer and utilities, and the construction of an infiltration basin for stormwater management. The project also includes the removal of an existing gravel drive and demolition of an existing home and driveway. The project triggers RPBCWD erosion prevention and sediment control rule, creek and wetland buffer rule, and the stormwater management rule. Reviewed March 17 revised submittal and drafted the permit report for consideration at the April 12, 2023 meeting.
- c. *Permit 2022-076 CSAH 4 Culvert Lining* – The project proposes to repair and slip line the failing culvert, which conveys Riley Creek flows under the under CSAH 4 (aka Spring Road), just upstream of Fredrick Miller Spring. The ultraviolet-cured liner will involve lining the existing steel pipe with a 10.8 mm liner; the entire process will take 4-6 hours. The project triggers RPBCWD floodplain management (Rule B) and waterbody crossings and structures (Rule G). Reviewed February 28 revised submittal and drafted the permit report for consideration at the April 12, 2023 meeting.
- d. *Permit 2022-077 Dunibar Court-* – The project proposes construction of a 5-lot single family residential development south of Ridgewood Road, east of Dunibar Ridge Road in Minnetonka. The project triggers RPBCWD erosion prevention and sediment control rule, creek and wetland buffer rule, and the stormwater management rule. Reviewed March 8 revised submittal and drafted the permit report for consideration at the April 12, 2023 meeting.
- e. *Permit 2023-005 Sunnybrook Road culvert replacement* – The project proposes to replace a waterbody crossing under Sunnybrook Road in Eden Prairie. The project triggers RPBCWD floodplain management (Rule B), erosion prevention and sediment control (Rule C), Wetland and Creek Buffer (Rule D), and waterbody crossings and structures (Rule G). Reviewed February 28 revised submittal and drafted the permit report for consideration at the April 12, 2023 meeting.
- f. *Permit 2023-003 Galpin Boulevard Reconstruction* – The project proposes the reconstruction of roughly two miles of Galpin Boulevard (CR 117) between Hwy 5 and the Chanhassen/Shorewood border by converting the roadway from rural roadway to an urbanized section with curb and gutter. The project triggers RPBCWD floodplain management rule, erosion prevention and sediment control rule, creek and wetland buffer rule, waterbody crossing and structures rule, and the stormwater management rule. Responded to email questions from the applicant about the application of RPBCWD rules, infiltration testing, soil borings, and the District's CIP near the project. Also discuss the projects timeline to potentially acquire additional property to facilitate the project on March 22.
- g. Preapplication meeting with the City of Minnetonka about a potential flood mitigation project near Groveland Elementary school and the desire to coordinate with the school district's

planned improvements at the site. The project would involve the replacement of an 18-inch pipe with a 42 inch pipe and be designed in a manner so as to not materially increase discharges at the site boundary, thus the project might only require approval under RPBCWD's Rule C – erosion Prevention and Sediment Control.

- h. Miscellaneous preapplication calls from future applicants with questions about rule applicability and criteria.

Data Management/Sampling/Equipment Assistance

- a. Prepared, loaded, and verified four RMB Laboratory (RMB) reports to the database.
- b. Made corrections to 2022 data in the database.

Task Order 6: WOMP Station Monitoring

Purgatory Creek Monitoring Station at Pioneer Trail

- a. No activity this month.

Purgatory Creek Monitoring Station at Valley View Rd

- a. Review and approve MCES Lab invoice for Qtr. 4 and phone bill.
- b. Prep for 2023 monitoring – equipment mobilization, calibration, and maintenance.
- c. File management – lab submission forms.
- d. Download and review data.

Task Order 24B: Silver Lake Water Quality Improvement Project

- a. This project will have no other activity until vegetation maintenance starts in spring 2023.

Task Order 28B: Rice Marsh Lake (RM_12a) Water Quality Improvement Project

- a. The three-year vegetation establishment period is in process.
- b. This project will not have other activity until spring 2023 when vegetation maintenance work will occur.

Task Order 29B: Middle Riley Creek (Reach R3) Stabilization Project Design

- a. The 3-year vegetation maintenance plan is in process, additional live plugs will be planted in Spring 2023.

Task Order 30B: Pioneer Trail Wetland Restoration Project

- a. The three-year vegetation establishment period is in process.
- b. This project will not have other activity until spring 2023 when vegetation maintenance work will occur.

Task Order 032B: Upper Riley Creek Ecological Enhancement Project

- a. Completed additional hydraulics analysis to modify the proposed design to achieve a “No Rise” in the 100-year floodplain because this reach of Riley Creek is within a FEMA flood hazard zone with an AE designation, meaning a detailed study of this reach was conducted FEMA and imposing unanticipated analysis requirements on the project. This has resulted in the project timeline extending and unanticipated design revisions. In discussions with the MNDNR and city of Chanhassen on February 22 it was indicated that the “No Rise” requires hydraulic modeling to demonstrate the flood elevations to not increase by more than 0.00 feet increase or decrease by more than 0.094 feet. If the “No Rise” condition is unachievable the project will need to complete and submit a conditional letter of map revision to FEMA which would further impact the project timeline as well as require additional engineering budget to complete the analysis
- b. Distributed 90% level design drawings and specifications to RPBCWD staff and City staff review.
- c. Submitted Minnesota Department of Natural Resources Work in Public Waters Permit application. Minnesota Joint Permit Application for U.S. Army Corps of Engineers and Minnesota Wetland Conservation Act permit coverage and RPBCWD permit are planned for submittal in early April.

Task Order 033: Wetland Assessment – Phase 1

- a. Continued drafting Phase 1 report to define ecosystem services and describe methodology for assessing each service.
- b. Draft report expected to be delivered in May.

Task Order 035: Eden Prairie Stormwater Model Update and Flood-Risk Area Prioritization

- a. This month staff received additional comments from City of Eden Prairie staff regarding inundation extents. City comments are being incorporated into the final prioritization scoring and project documentation.
- b. In April, staff will submit the draft report for MPCA review, as required by the grant agreement. Staff anticipate receipt of MPCA comments towards the end of the month, and then submitting final deliverables to RPBCWD, MPCA and City of Eden Prairie.

Task Order 037: Sediment Analysis

- a. Draft Lake Sediment Analysis Technical Memorandums for Lake Riley, Lake Susan, and Rice Marsh Lake to be delivered by the end of April.
- b. Working with District staff it was determined to postpone Lake Susan wetland sampling until Spring of 2023 due to low water levels and to further investigate wetland sediment analytical approach.

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Task Order 039A: Lotus Lake Water Quality Project – Preliminary Engineering

- a. Prepare for and attend meeting with district and city staff to review preliminary BMP concepts.
- b. Follow-up on discussion items from the meeting with district and city staff, including evaluation of several additional BMP concepts.
- c. District staff need to perform soil health sampling and infiltration testing in Spring 2023 at the various BMP sites. Once complete, we will finalize BMP concepts, costs, and summary.
- d. Started drafting feasibility study report.

Task Order 040: Alum Application on Lotus Lake

- a. Draft memo will be delivered to the Administrator by the end of April.

Task Order 41: Chanhassen Decant Facility

- a. Soil testing was completed and geotechnical report was started.
- b. Continued preliminary design.

Task Order 42: Bluff Creek Culvert Reconstruction

- a. The culvert replacement alternatives were discussed with the District during the March workshop. The Board expressed hesitation to complete this project and that funds might be better spent elsewhere. Barr is working on incorporating the District's Prioritization Tool into the draft technical memorandum.

Task Order 43: Ecosystem Health Plan

- Met twice monthly with District staff to discuss team efforts.
- Began to develop GIS maps of historic ecological conditions as well as current ecological conditions within the district. This will serve as a baseline for the improvement of ecological conditions.
- Continued to develop the advisory panel of local experts to serve to advise this project through a series of workshops. The first workshop is expected in May and will set goals for the process as well as discuss ecological issues within the District.
- Assisted District staff in the soil health literature review.
- Began a literature review of the altered hydrology of green space. Many think that because land is not developed it readily infiltrates stormwater and does not contain nutrients in the runoff. Due to many factors from previous farming, to lawn establishment, to earthworms, to deer herbivory, the hydrology of green space does not function effectively. This will be described in detail.

Capital Project	Project Phase (% Complete)								Comments
	Regional Analysis	Feasibility Study	Project Ordering	Design	Permitting	Construction	Substantial Completion	Final Completion	
Bluff Creek									
Bluff Creek Tributary Restoration	100%	100%	100%	100%	100%	100%	100%	99%	Final vegetation review in 2023
Pioneer Wetland Restoration	100%	100%	100%	100%	100%	100%	100%	30%	3-year vegetation management underway
Bluff Creek Reach 5 Restoration	100%	100%							
BT3	100%								
B4	100%								
B3	100%								
Riley Creek									
Lake Riley - Alum Treatment	100%	100%	100%	100%	100%	100%	100%	100%	
Rice Marsh Lake in-lake phosphorus load	100%	100%	100%	100%	100%	33%	33%	33%	The first of three alum doses applied in 2018
Rice Marsh Lake Water Quality Improvement Phase 1	100%	100%	100%	100%	100%	100%	100%	40%	3-year vegetation management underway
Riley Creek Restoration (Reach E and D3) (aka Lower Riley Creek Restoration)	100%	100%	100%	100%	100%	100%	100%	99%	Coordinating final vegetation review in spring 2023
Upper Riley Creek Stabilization (aka Upper Riley Creek Ecological Enhancement Project)	100%	100%	100%	90%	20%				
Middle Riley Creek Restoration	100%	100%	100%	100%	100%	100%	100%	40%	3-year vegetation management underway
St. Hubert Water Quality Project	100%	100%	100%	100%	100%	100%	100%	40%	3-year vegetation management underway
Lake Susan Park Pond	100%	100%	100%	100%	100%	100%	100%	100%	
Susan In-Lake	100%								
LU-A1.10c	100%								
LU-A3.4	100%								
Lake Susan Park Pond Reuse Inlet Enhancement				60%					
Chanhassen Decant Facility				10%					
Purgatory Creek									
Purgatory Creek Rec Area- Berm/retention area	100%			50%					
Lotus Lake in-lake phosphorus load control	100%	100%	100%	50%	100%	50%	50%	50%	The first of two alum doses applied in 2018. Second dose planned in fall 2023
Silver Lake Water Quality BMP	100%	100%	100%	100%	100%	100%	100%	40%	3-year vegetation management underway
Scenic Heights Forest Restoration	100%	100%	100%	100%	100%	100%	100%	100%	
Hyland Lake in-lake phosphorus load control	100%	100%	100%	100%	100%	100%	100%	100%	Three Rivers Park took over project.
Duck Lake Watershed Load	100%	100%	100%	100%	100%	100%	100%	100%	
Duck Lake Road Partnership (aka bridge)			100%				100%	100%	Partnership project with Eden Prairie. RPBCWD limited to financial contribution. Construction is complete. RPBCWD has fulfilled 2 of 5 year financial contributions.
Lotus Lake Watershed Improvement Project (LL_1, LL_3, LL_7, LL_8)	100%	70%							
Staring Lake StL_21	100%								
Lotus Lake LL_9	100%								
Staring Lake StL_1	100%								
Red Rock Lake RRL_7	100%								
Staring Lake StL_17	100%								
Mitchell Lake ML_3	100%								
PC_1	100%								
PC_2	100%								
Kerber Ravine	100%	100%							