MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION
455 HAYWARD AVENUE, OAKDALE, MINNESTOA 55082
Phone 651.796.2227 fax 651.330.7747 www.mscwmo.org

Regular Meeting of the Middle St. Croix Watershed Management Organization
Remotely held as posted on www.mscwmo.org
Physical location - Washington Conservation District, 455 Hayward Ave N
Thursday, April 10th, 2025
6:00PM

1. Call to Order – 6:00PM
   - **a.** Approval of Agenda

2. Approval of Minutes
   - **a.** Draft minutes – February 13th, 2025 **pg. 1-8**
3. Treasurer's Report
   - **a.** Report of savings account, assets for April 10th, 2025
   - **b.** Approve payment of bills for April 10th, 2025

4. Public Comment

5. Watershed Management Plan Update

6. Old Business

7. New Business
   - **a.** Water Quality Monitoring 2024 Summary **pg. 9-44**
   - **b.** Water Quality Monitoring Equipment Repair Request **pg. 45-46**

8. Grant and Cost Share Applications
   - **a.** ArtReach St. Croix Stewardship Grant Request **pg. 47**
   - **b.** Lake St. Croix Beach Stewardship Grant Request **pg. 48**
   - **c.** St. Croix United Water Quality Grant Request **pg. 49-50**

9. Plan Reviews/Submittals
   - **a.** Plan Review and Submittal Summary **pg. 51-93**
   - **b.** Erosion and Sediment Control Inspection Reports **pg. 94-102**

10. Staff Report **pg. 103-105**
10. 1W1P Updates
    a. Policy Committee Meeting – April 28th
11. Other
12. Adjourn

Regular Meeting of the Middle St. Croix Watershed Management Organization
Washington Conservation District, 455 Hayward Ave N
Thursday, February 13th, 2025
6:00PM
Present: Tom McCarthy (remote), Lake St. Croix Beach; Annie Perkins, Afton; Rachel Dana, West Lakeland; Tom Grahek, St. Mary's Point; Avis Peters, Baytown; Dave Millard, Lakeland; Carly Johnson, Oak Park Heights; Administrator Matt Oldenburg-Downing; Amanda Herbrand, WCD; Cameron Blake, WCD; Brett Stolpestad, WCD
Audience: Brian Zeller (remote), Dawn Bulera, Dwayne Sikich (remote)

Call to Order
Manager McCarthy called the meeting to order at 6:00PM.

Approval of Agenda
Manager Johnson motioned to approve the agenda. Manager Peters seconded the motion.

Hybrid meetings require a roll call vote for all motions and participating board members must state their reason for being remote.

Manager McCarthy states he is on vacation.

The motion carried on a roll call vote with all in favor.

Approval of Minutes
Manager McCarthy motioned to approve the draft December 12th, 2024 board meeting minutes, Manager Johnson seconded the motion. The motion carried on a roll call vote. Manager Grahek abstained from the vote.

Treasurer's Report
Administrator Oldenburg-Downing presented the treasurer's report. The remaining checking account balance on February 13th was $138,468.93. First Bank CD's were valued at $213,549.15. The ending value on the RBC savings account from January was $97,726.87. Manager McCarthy motioned to approve the report of the savings account and assets for February 13th, 2025. Manager Johnson seconded the motion. The motion carried on a roll call vote with all in favor.

Bills to approve for January are five bills to the Washington Conservation District for admin, watershed plan, EMWREP, water monitoring, and technical services totaling $19,442.65. The bills to approve for February are three bills to the Washington Conservation District and one bill to Town Law Center PLLP, totaling $17,463.25. The total for January and February's bills is $36,905.90. Manager Peters motioned to approve payment of bills for $36,905.90 for January 9 and February 13, 2025. Manager Perkins seconded the motion. The motion carried on a roll call vote. Manager Dana abstained from the vote.

Public Comment

None

Watershed Management Plan Update
Draft Plan Submittal
Manager Oldenburg-Downing presented the draft watershed management plan to the board. The draft as presented contains tracked changes as requested by the board. Manager Oldenburg-Downing also presented a short presentation on behalf of Rebecca Oldenburg-Downing from the WCD showcasing the major changes from the previous management plan.

The board asked for clarification regarding an update to the "emerging contaminants" section which highlights chloride concerns but does not highlight concerns about PFAS, though PFAS is listed as an example of an emerging contaminant. The board requests rewording of the section.

Manager Johnson requests that economic status be added to the environmental justice section.

Manager Johnson motioned to approve the draft MSCWMO Management Plan 2025-2035 as presented with permission to convert the document to a finalized version with the requested changes and any additional non-substantive changes, including merging or combining sections, and then submit the plan for 60-day agency review. Manager McCarthy seconded the motion. The motion carried on a roll call vote with all in favor.

Old Business
None

New Business
2025 WMO Officer Appointments
Administrator Oldenburg-Downing informs the board officer appointments need to be confirmed for 2025 and reminds the board of current officer assignments. The position of Treasurer is unfilled as the previous holder is no longer a member of the board.

Manager Perkins nominates Manager Johnson for the position of Treasurer, Manager Johnson accepts.

Manager Perkins motions to instate Manager Johnson as Treasurer, remove Beth Olfelt-Nelson as an authorized signer, add Manager Johnson as an authorized signer, and roll over the remaining 2024 officer appointments to 2025. Manager McCarthy seconded the motion. The motion carried on a roll call vote with all in favor.

Chair – Manager Zeller
Vice Chair – Manager McCarthy
Secretary – Manager Perkins
Treasurer – Manager Johnson

2024 WMO Budget Summary

Administrator Oldenburg-Downing presents the 2024 MSCWMO budget, $153,262.00, versus actual expenditure, $147,120.17, a difference of about four percent. This is an informational item.

Adopt-a-Drain 2024 Summary
In 2024 the adopt-a-drain program had 18 new participants in MSCWMO. Participants in MSCWMO collected 1,081.4lbs of debris from their adopted storm drains in 2024. Metro Watershed Partners, along with the 2024 Summary also sent a requested for continued membership in 2024 for $500.00

Manager McCarthy motioned to continue the Adopt-A-Drain membership in 2025 for $500.00. Manager Peters seconded the motion. The motion carried on a roll call vote with all in favor.

2024 Annual Report Draft
A draft copy of the 2024 annual report is included in the board packet for review and approval.

Manager Johnson motioned to approve finalizing the 2024 Annual Report draft with the option for staff to make any final edits as needed. Manager Perkins seconded the motion. The motion carried on a roll call vote with all in favor.

2024 BMP Maintenance Report
Cameron Blake and Brett Stolpestad from the WCD presented a summary of maintenance conducted and new BMP installations from 2024. Thirteen BMPs were installed in 2024, including 8 native landscaping projects, 4 streambank or shoreline protection projects, and 1 woodland restoration project. The maintenance season was busy due to frequent rains early in the season, notable maintenance items include golden creeper eradication efforts in the Mulberry Ravine and cleanouts at the Stillwater Country Club inlet and Lily Lake Basin inlet.

2024 Audit Engagement
Administrator Oldenburg-Downing is seeking board authorization to engage in the 2024 Audit.

Manager Johnson motioned to authorize Administrator Oldenburg-Downing to engage in the 2024 Audit and authorize Manager Johnson to sign. Manager Peters seconded the motion. The motion carried on a roll call vote with all in favor.

2024 First Half Payment Notifications
Administrator Oldenburg-Downing is seeking authorization to send out first half payment notifications to MSCWMO member communities for 2025.

Manager Peters motions to authorize Administrator Oldenburg-Downing to send out first half payment notifications to the MSCWMO member communities for 2025. Manager Perkins seconded the motion. The motion carried on a roll call vote with all in favor.

Biennial Professional Services Solicitation
Pursuant to Minnesota Statues Annotated 103B.227, Subd. 5, the Middle St. Croix Watershed

Management Organization must solicit Letters of Interest Proposals for legal and engineering consulting services every two years. Per board direction, advertising was done via the Middle St. Croix WMO Website and direct mail to local firms.

Proposals were received from MSCWMO's current legal and engineering services providers.

Manager Johnson motioned to accept the proposals from the current providers. Manager Dana seconded the motion. The motion carried on a roll call vote with all in favor.

Liability Insurance Binding
The Board reviewed the 2025 insurance coverage binder required for liability insurance binding. Manager Perkins motioned to authorize client to bind coverage and authorize Manager Johnson to sign. Manager Peters seconded the motion. The motion carried on a roll call vote with all in favor.

CSAH 5 Retrofit Pilot
In 2022 the MSCWMO received $153,750 from Washington County as cash-in-lieu of on-site stormwater treatment associated with the CSAH 5 Phase 2 Improvement Project, located within MSCWMO boundaries and in the City of Stillwater.

WMO staff have engaged Washington County Public Works staff to identify alternative on-site pollutant load reduction strategies to count toward the 60% TP load reduction target of 4 lbs/yr for the project. A portion of this TP load reduction target may be achieved through the installation of catch-basin inserts or "gutter bins" for trash and coarse particulate pollutant removal. Frog Creek Partners, manufacturer of the original "Gutter Bin", has provided a quote for design, fabrication and installation of a series of 10 gutter bins along Owens Street North between Laurel Street West and Wilkins Street West.

Administrator Oldenburg-Downing requests board approval to encumber $27,048 cash-in-lieu for design, fabrication and installation of the gutter bin series on Owens Street North, and for staff time needed for project oversite, technical assistance and five years of routine maintenance.

Manager Perkins motioned to approve encumbrance of $27,048.00 cash-in-lieu for the installation of the Frog Creek Partners "Gutter Bin" series on CSAH 5, Owens Street North. Manager Millard seconded the motion. The motion carried on a roll call vote with all in favor.

Lower St. Croix Watershed Partnership Funding Request
WMO staff are requesting authorization to apply for up to $49,000 in funding through the Lower St. Croix Partnership to incentivize and allocate funds toward bioengineered bluff stabilization techniques and buffer enhancement efforts for landowners on Lake St. Croix. WMO staff are in the process of developing criteria for cost-share distribution and prioritization based on landowner interest and evaluated site condition. The draft criteria are as follows:

1. Using LSCP funds, the MSCWMO will fund eligible projects 100% up to $10,000 for projects focused on bioengineered bluff to stabilization techniques and bluffland enhancement efforts. Exceptions will be made for limited armoring to protect existing

infrastructure. Landowners will have the opportunity to apply for MSCWMO Water Quality Improvement cost-share up to $5,000* for activities such as invasive species removal and revegetation with Minnesota native seed and/or plant material.

2. In cases where the landowner elects to pursue hard armoring at the bluff toe, or where it is recommended by the WCD District Engineer, the MSCWMO will cost-share projects up to $5k for properly installed vegetated "root rap" in place of or as an enhancement to proposed riprap. Landowners will have the opportunity to apply for MSCWMO Water Quality Improvement cost-share up to $5,000* for activities such as invasive species removal and revegetation with Minnesota native seed and/or plant material.

**Pollutant load reduction estimates and associated MSCWMO Water Quality Improvement cost-share recommendations will be determined using a combination of RUSLE2 modeling software and the BWSR Water Erosion Pollution Reduction Estimator (v2.0) to estimate rates of erosion before and after bluffland stabilization or enhancement efforts. MSCWMO Water Quality Improvement cost-share policy shall apply.*

Manager Peters motioned to authorize Administrator Oldenburg-Downing to apply for Lower St. Croix Partnership funding up to $49,000.00. Manager Perkins seconded the motion. The motion carried on a roll call vote with all in favor.

Grant and Cost Share Applications
Eckle Stewardship Grant Request
Stillwater residents Angie and Matt Eckel are applying for a MSCWMO Stewardship Grant to establish a 650 ft2 native pollinator garden at their residence at 6260 Lookout Trl N. Angie and Matt request $500 in MSCWMO cost share to help pay for locally-sourced native plant material. Project estimate is $2,500.00.

Manager Perkins motioned to approve encumbrance of $500.00 cost share for the Eckel native landscaping project. Manager Peters seconded the motion. The motion carried on a roll call vote with all in favor.

Bird City Gardens Stewardship Grant Request
Wendy Gorski, Stillwater resident and founder of the local nonprofit Bird City Gardens is applying for a MSCWMO Stewardship Grant to install a 5,000 square-foot native demonstration garden to provide habitat for birds, pollinators, and other wildlife. The demonstration garden will be open to the public and used as a tool to "empower people to protect birds and pollinators and to take joy in connecting with nature." Project estimate is $13,000.00.

Manager Peters motioned to approve encumbrance of $500.00 cost share for the Gorski/Bird City Gardens demonstration garden at the Mulberry Ravine Bird Station. Manager Johnson seconded the motion. The motion carried on a roll call vote with all in favor.

McCready Stewardship Grant Request
Bayport resident Andrea McCready is applying for a MSCWMO Stewardship Grant to manage invasive species and enhance habitat for wildlife on 0.5 acres located at 132 7th St S. The

residents have reached out Edge Ecosystems to perform the enhancement work in spring of 2025. Project estimate is $1,240.89.

Manager Perkins motioned to approve encumbrance of $500.00 cost share for the McCready woodland enhancement project. Manager Peters seconded the motion. The motion carried on a roll call vote with all in favor.

McGinnis Stewardship Grant Request
Stillwater resident Allison McGinnis is applying for a 2025 MSCWMO Stewardship Grant to revitalize landscaped areas and install native pocket plantings (totaling 1,500 square feet) on her property located at 415 Willard St W to provide habitat for birds, pollinators, and other wildlife. She is requesting $500 cost-share for native perennial sedges, wildflowers, and shrubs. Project estimate is $2,150.00.

Manager Peters motioned to approve encumbrance of $500.00 cost share for the McGinnis native landscaping project. Manager Dana seconded the motion. The motion carried on a roll call vote with all in favor.

Plan Reviews/Submittals
Lakeland Shores Properties – ACTION
Submittal items were received on October 24th, 2024 for a proposed commercial building development within the MSCWMO boundaries and the City of Lakeland Shores. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP) since it involves approximately 0.8 acres of new impervious surfaces. Revised materials were submitted on January 23rd, 2025. The proposed project fully complies with MSCWMO volume control performance standards with an infiltration basin proposed for stormwater management. MSCWMO staff recommends approval with one condition.

Manager McCarthy motioned to approve the project with the one condition. Manager Johnson seconded the motion. The motion carried on a roll call vote with all in favor.

BayHaven at Bayport – ACTION
Submittal items were received on November 18th, 2024 for a proposed 28 acre single and multi-family residential development within the MSCWMO boundaries and the City of Bayport. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP) since it involves approximately 7 acres of new impervious surfaces. Revised materials were submitted on January 9th and 23rd, 2025. The proposed project fully complies with MSCWMO volume control performance standards utilizing 3 infiltration basins (deemed appropriate with higher level of engineering review) and disconnected impervious. To offset treatment of the new turn lane impervious not routed to BMP, existing impervious along Stagecoach is captured for treatment in lieu of the turn lane. MSCWMO staff recommends approval with four conditions.

Manager Johnson motioned to approve the project with the four conditions. Manager Dana seconded the motion. The motion carried on a roll call vote with all in favor.

St. Croix WWTP – ACTION
Submittal items were received on November 21st, 2024 for reconstruction of 2.1 acres of pavement and future expansions and improvements of the WWTP within the MSCWMO boundaries and the City of Oak Park Heights. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP) since it involves approximately 2 acres of reconstructed impervious surfaces. Revised materials were submitted on December 20th, 2024 and January 17th, 2025. Bedrock in close proximity to the surface precludes the use of infiltration at one of the BMP locations therefore volume control was achieved to the maximum extent practicable at two other locations and iron enhance filtration was utilized to achieve 73% total phosphorus load reduction in compliance with MIDS FTO #2. MSCWMO staff recommends approval with two conditions.

Manager Perkins motioned to approve the project with the two conditions. Manager Peters seconded the motion. The motion carried on a roll call vote with all in favor.

Cheep Storage Expansion – ACTION
Submittal items were received on December 20th, 2024 for Cheep Storage at 228 St. Croix Trail N within the MSCWMO boundaries and the City of Lakeland. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP) since it involves approximately 1.7 acres of new impervious surfaces. Revised materials were submitted on January 7th, 2025. The proposed project fully complies with MSCWMO volume control performance standards with an infiltration basin proposed for stormwater management. MSCWMO staff recommends approval with two conditions.

Manager Millard motioned to approve the project with the two conditions. Manager Dana seconded the motion. The motion carried on a roll call vote with all in favor.

Erosion and Sediment Control Inspection Reports
None

Staff Report
Administrator Oldenburg-Downing presented the staff report. Work is ongoing on the 10-Year Management Plan Update. The 2024 Water Monitoring Summary can be expected in March or April.

1W1P Updates
Policy Committee Representation
No official representative from MSCWMO has been selected for the 1W1P Policy Committee since the position was held by former Manager Runk. Manager Zeller has been filling in when able but has not been able to attend all meetings. Administrator Oldenburg-Downing suggests a new representative be selected.

Manager Millard volunteered to represent MSCWMO in the 1W1P Policy Committee.

Manager Johnson motioned to appoint Manager Millard as MSCWMO representative to the 1W1P Policy Committee and appoint Manager Zeller as the alternate. Manager Perkins seconded the motion. The motion carried on a roll call vote with all in favor.

Other
None

Adjourn
Manager Johnson motioned to adjourn the meeting, Manager Peters seconded the motion. The meeting adjourned at 7:54.

Middle St. Croix Watershed Management Organization 2024 Water Monitoring Summary

Prepared For:

MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

Prepared by:

WASHINGTON CONSERVATION DISTRICT

This Page Intentionally Left Blank.

ACKNOWLEDGEMENTS

Multiple agencies and individuals were directly involved in many aspects of this project, such as data collection and data analysis, as well as technical and administrative assistance.

Middle St. Croix WMO (MSCWMO) Board of Managers
Annie Perkins, Secretary
John Dahl
Avis Peters
Brian Zeller, Chair
Dave Millard
Tom McCarthy, Vice Chair
Carly Johnson
Beth Olfelt-Nelson, Treasurer
Ryan Collins
Rachel Dana

Washington Conservation District
Matthew Oldenburg-Downing, MSCWMO Administrator

Metropolitan Council
Brian Johnson
Jennifer Keville
Steven Louwerse
Mike Moger
Patricia Phua
Monica Rose
Mallory Vanous

Minnesota Department of Natural Resources (MN DNR)
Sandy Fecht

The WCD would also like to thank the volunteers and landowners who assist with data collection and allow property access.

TABLE OF CONTENTS

ABBREVIATIONS, DEFINITIONS, ACRONYMS, AND SYMBOLS

Anoxic	Lacking oxygen
BCWD	Brown's Creek Watershed District
Benthic	The area nearest lake bed
Biweekly	Every two weeks
BMP	Best management practice
cf	cubic feet
cfs	cubic feet per second
Chl-α	Chlorophyll-α
DO	Dissolved oxygen
E. coli	*Escherichia coli*
IESF	Iron enhanced sand filter
Littoral zone	The area of a body of water where sunlight penetrates to the sediment and allows aquatic plants (macrophytes) to grow
MCES	Metropolitan Council Environmental Services
mg/L	milligram per liter
mL	milliliter
MN DNR	Minnesota Department of Natural Resources
MPCA	Minnesota Pollution Control Agency
MPN	Most probable number
MSCWMO	Middle St. Croix Watershed Management Organization
NAVD 88	North American Vertical Datum of 1988, used for determining lake elevations
NGVD 29	National Geodetic Vertical Datum of 1929, used for determining lake elevations
OHW	Ordinary high water level
SOP	Standard operating procedure
TKN	Total Kjeldahl nitrogen
TP	Total phosphorus
TSI	Trophic State Index
TSMP	Trout Stream Mitigation Project
TSS	Total suspended solids
µg/L	micrograms per liter
VSS	Volatile suspended solids
WCD	Washington Conservation District

EXECUTIVE SUMMARY

This report focuses on the summary and comparison of lake and stream water quality data collected by the Washington Conservation District (WCD) in 2024, as well as previous years. In 2024 the Middle St. Croix Watershed Management Organization (MSCWMO) monitored water quality and water surface elevation on McKusick Lake and Lily Lake, water surface elevation on Brick Pond, and flow and water quality at Perro Creek at the Diversion Structure (Figure 1). The purpose of this monitoring is to assess and document current water quality conditions of the lakes and streams, as well as continuation of a long-term monitoring program that will enable the MSCWMO to identify trends associated with best management practice (BMP) implementation and land use changes in the watershed. Also included in this report is data collected at the Brown's Creek Diversion Structure, which is a tributary to McKusick Lake that is monitored by the WCD for the Brown's Creek Watershed District (BCWD).

Lake Monitoring

Lily Lake was classified as mesotrophic and received an A grade in 2024 (APPENDIX A). All samples collected June – September met the Minnesota Pollution Control Agency's (MPCA) standards for total phosphorus (TP) and for chlorophyll-α (chl-α) corrected for pheophytin. All Secchi disk transparency measurements also met the MPCA standard (APPENDIX A).

In 2024 McKusick Lake was classified as eutrophic and received a grade of C+ (APPENDIX A). Three of the nine samples collected June – September did not meet the Minnesota Pollution Control Agency's standard for total phosphorus and one sample did not meet the standard for chlorophyll-α corrected for pheophytin. All Secchi disk transparency measurements met the MPCA shallow lake standard (APPENDIX A).

Stream Monitoring

Water quality sampling continued on Perro Creek at the Diversion Structure in 2024 and the total recorded discharge to the St. Croix River was 26,605,792 cubic feet, which included discharge through the overflow structure. This was an increase from 2023 as a result of a wet spring and

summer. The average baseflow TP concentration was 0.034 mg/L (similar to 2018-2021) and the average baseflow TSS concentration was 3 mg/L (consistent since 2018). The average TP concentration from storm samples was 0.283 mg/L (highest since 2021) and the average TSS concentration from storm samples was 208 mg/L (highest since 2021). TP and TSS loads to the St. Croix River were calculated only during monitored periods, and in 2024 the TP load was 76.4 lbs. and the TSS load was 21,247 lbs.

Discharge at the Brown's Creek Diversion Structure site doubled from 2023 to 2024 due to the wet spring and summer, with a volume of 72,832,083 cubic feet exported to McKusick Lake. The total annual TP and TSS loads also increased, and were 573 lbs. and 230,855 lbs., respectively. Concentrations of metals were again low in 2024. There was one copper result and three lead results that exceeded MPCA chronic standards.

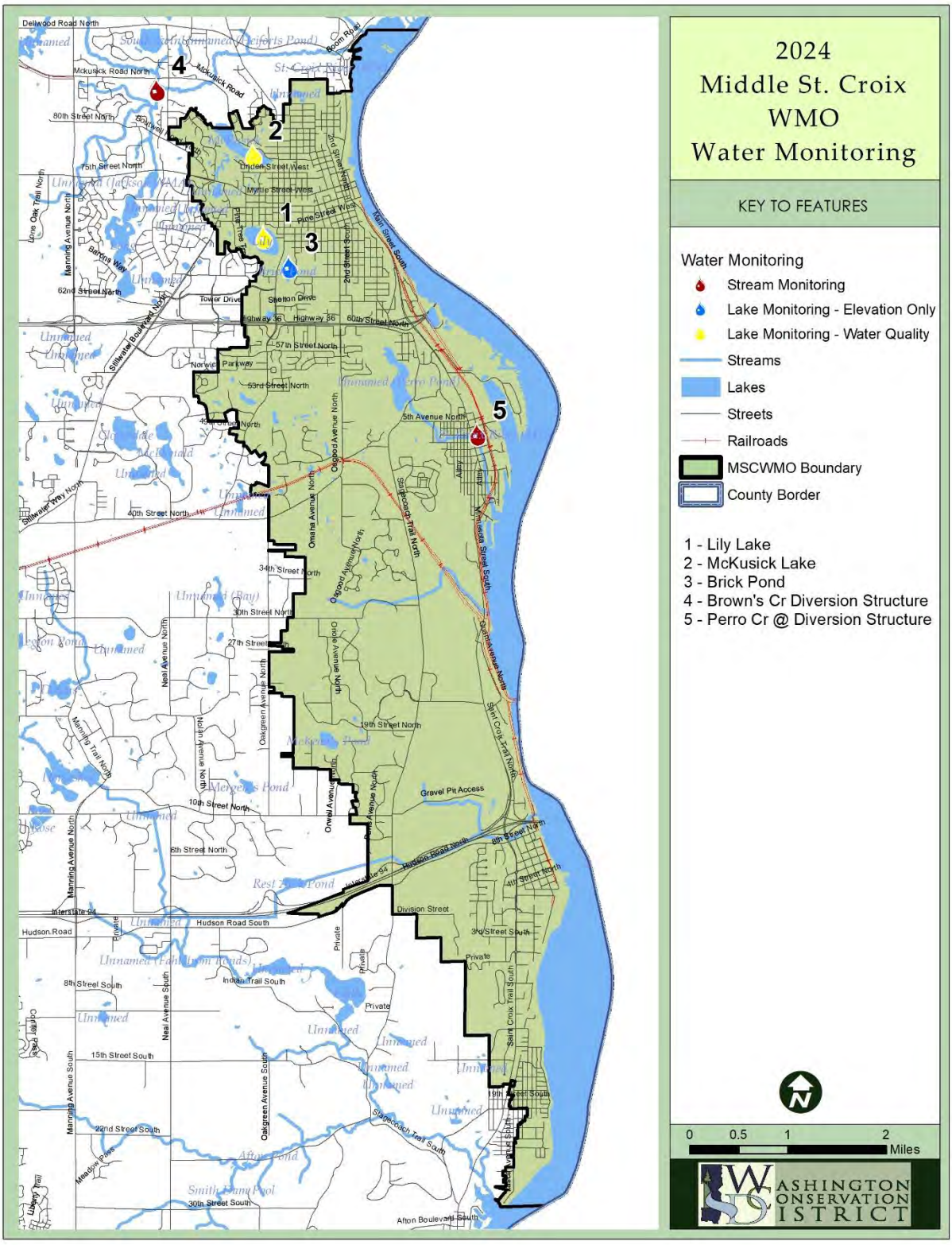


Figure 1. MSCWMO 2024 Water Monitoring Locations

LAKE MONITORING

A. METHODS, RESULTS AND DISCUSSION

In 2024 water quality data was collected biweekly on Lily Lake and McKusick Lake, over seven consecutive months (April–October) by the WCD. Measurements obtained during the summer sampling season (June–September) are averaged for a comparison of individual lake dynamics from year to year between lakes within the watershed and to the Minnesota Pollution Control Agency's (MPCA) impairment standards. Lake grades are based on the averages of samples collected May–September. Average values for all parameters are presented in APPENDIX A and Figure 2 through Figure 5, which show the current and historic summer averages for each parameter. Water quality samples were collected by the WCD with a two-meter (6.56 feet) integrated surface water column sampler. A full description of WCD Standard Operating Procedures (SOP) is available on the Washington Conservation District website at http://www.mnwcd.org/water-monitoring. The Metropolitan Council Environmental Services (MCES) Laboratory analyzed the surface water samples for TP, chl-α, and total Kjeldahl nitrogen (TKN).

Total phosphorus is analyzed as it is a major nutrient involved in the eutrophication of lakes and is generally associated with the growth of aquatic plants and/or algal blooms. Common sources of phosphorus include runoff from agricultural fields, livestock areas, urban areas, lakeshore lawns, and improperly operating septic systems. With most lakes in this region, phosphorus is the least available nutrient; therefore, its abundance or scarcity controls the extent of algal growth. Excess algal growth, in turn, negatively affects the clarity, or transparency, and ability of light to penetrate the water. The MPCA sets lake eutrophication standards for aquatic life and recreation. The standard for TP is 0.040 mg/L for deep lakes and 0.060 mg/L for shallow lakes. In general, shallow lakes are defined as less than 15 feet deep, with greater than 80% littoral area, and less than 10 acres. The 2024 summer average of TP values of MSCWMO lakes can be found in Figure 2.

Chlorophyll-α is measured because it's the photosynthetic component found in algae and aquatic plants and is an indicator of algal productivity. The MPCA standard for pheophytin-corrected

chl-α is 14 µg/L for deep lakes and 20 µg/L for shallow lakes. The 2024 summer average chl-α concentrations of MSCWMO lakes can be found in Figure 3.

TKN, the sum of organic nitrogen and ammonia, was analyzed in MSCWMO lakes. While no standard exists for TKN because TP is often the limiting nutrient, TKN can contribute to eutrophication. The 2024 summer average TKN concentrations of MSCWMO lakes can be found in Figure 4.

Field measurements are recorded while collecting lake samples, including Secchi disk transparency. The measurement of light penetration using a Secchi disk gives a simple measure of water transparency, or clarity. A reduction in water transparency is typically the result of turbidity composed of suspended sediments, organic matter and/or phytoplankton (algae). The MPCA standard for Secchi disk transparency is 1.4 meters for deep lakes and 1.0 meter for shallow lakes. The 2024 summer average transparency of MSCWMO lakes can be found in Figure 5.

User perception and physical/recreational suitability of lakes were recorded, along with temperature and dissolved oxygen (DO) profile measurements taken by the WCD during each sampling event. Profiles are recorded at one-meter increments from the water surface to the lake bottom. The data show the extent of summer stratification and are useful in identifying the development of a thermocline (the layer of water in which the temperature rapidly declines). As a lake stratifies, the water column becomes more stable and mixing is less likely to occur. If mixing occurs during the growing season, nutrients from the lake bottom become available and can result in increased algal production. Lake DO profile data is useful in determining excessive production (algae/plants) in a lake. Increased production creates more DO, for a time, but as plants and algae die off and decay, the bacteria that decompose them consume DO. Low DO conditions may stress fish populations and under anoxic conditions nutrients may be released from the sediment. Data collected from the rankings and profiles are contained in a database at the WCD, and can be obtained by request, as well as on the MPCA website at https://webapp.pca.state.mn.us/surface-water/search.

A lake grading system is used in this summary, to allow for a better understanding of lake water quality data and to aid in the comparison of lakes. The lake water quality grading system was developed following the 1989 sampling season by MCES. The concept of the lake grading system is a ranking of water quality characteristics by comparing measured values to those of other metro area lakes. The grading system represents percentile ranges for three water quality indicators: the May through September average values of TP, uncorrected trichromatic chl-α, and Secchi disk transparency. These percentiles use ranked data from 119 lakes sampled from 1980-1988 and are shown in Table 1. This method has since been replicated and the grading system has been verified with more recent data. The variables used in the grading system strongly correlate to open-water nuisance aspects of a lake (i.e. algal blooms), which can indicate accelerated aging (cultural eutrophication). There is a strong correlation when comparing trophic status to the lake grade. Summaries of all lake results are presented in APPENDIX A.

Table 1. Lake Grade Ranges

Grade	Percentile	TP (µg/L)	Chl-α (µg/L)	SD (m)
A	<10	<23	<10	>3.0
B	10-30	23-32	10-20	2.2-3.0
C	30-70	32-68	20-48	1.2-2.2
D	70-90	68-152	48-77	0.70-1.2
F	>90	>152	>77	<0.70

There are several metrics and systems that can also be used to assess lakes including the Carlson Trophic State Index (TSI) and ecoregion values. The Carlson Trophic State Index is used to quantify the relationship between water quality data and trophic status. Trophic states vary from oligotrophic (low biological activity and high clarity) to hypereutrophic (highly productive with very low clarity). The MSCWMO is located in the North Central Hardwood Forest Ecoregion where lakes are often mesotrophic. Ecoregion values are assigned for TP, TKN, chl- α, and Secchi disk transparency. This report will focus on the methods used by the MPCA and the Metropolitan Council, as previously discussed.

Water elevation monitoring was conducted on two lakes, McKusick and Lily, from April to October 2024. Lake elevation readings are compared to the lake's Ordinary High Water level (OHW)[1]. The OHW for Lily and McKusick Lakes are 844.8 ft. and 851.7 ft., respectively (NGVD 29). Changes in lake water elevation are often attributed to the changes in precipitation. The highest recorded elevation in 2024 for Lily Lake occurred on 6/20/2024 at 846.83 ft. and on 6/20/2024 at 855.05 ft. for McKusick Lake. Complete lake elevation data for 2024 can be found in APPENDIX A. For historical lake elevations, visit the MN DNR Lake Finder webpage at http://www.dnr.state.mn.us/lakefind/index.html.

Water elevation monitoring also occurred on Brick Pond by a citizen volunteer, April to September. The lowest recorded elevation was on 9/10/2024 at 847.73 ft. and the highest was on 6/19/2024 at 848.61 ft. (NAVD 88).

1. LILY LAKE

In 2024 WCD staff conducted two-tailed Kendall's Tau statistical analysis based on data collected by professional agencies for both lakes monitored in MSCWMO to determine trends for TP, Secchi, and chl-α ($p<0.05$). Lily Lake had a statistically significant improving trend for TP, average Secchi disk transparency, and chl-α. Lily Lake had an average summertime TP concentration of 0.017 mg/L, which was lower than 2023 average of 0.022 (Figure 2). All nine summertime results met the MPCA lake nutrient impairment standard for TP. The 2024 average summertime concentration of chl-α was 4.5 µg/L, higher than the 2.5 µg/L measured in 2023 (Figure 3). All nine summertime water quality results for chl-α met the MPCA lake impairment standard (APPENDIX A). Lily Lake had an average summertime TKN concentration of 0.53 mg/L in 2024; higher than the average of 0.50 mg/L in 2023 (Figure 4). Secchi disk readings

[1] Minnesota State Statutes defines the ordinary high water level (OHW) as follows: Minnesota Statutes 103G.005 Subd. 14. Ordinary High Water Level. "Ordinary high water level" means the boundary of water basins, watercourses, public waters and public waters wetlands, and: The ordinary high water level is an elevation delineating the highest water level that has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly the point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial;

1) For watercourses, the ordinary high water level is the elevation of the top of the bank of the channel; and
2) For reservoirs and flowages, the ordinary high water level is the operating elevation of the normal summer pool.

were measured in 2024 with a summertime average of 3.42 meters (Figure 5), with all nine summertime water quality readings meeting the MPCA lake standard for Secchi disk transparency (APPENDIX A). Lily Lake received an A grade in 2024, matching the A it received in 2023. Temperature and DO profiles indicate that Lily Lake exhibited thermal stratification during the summer months with the thermocline between 4 and 5 meters; therefore, the lake was less likely to completely mix throughout the summer. The elevation was above the OHW for the entire monitoring season, with the highest recorded level occurring on 6/20/2024 with a level of 846.83 ft. The lowest recorded level of the monitoring season occurred on 10/28/2024 with an elevation of 844.99 ft. A summary of all lake results is presented in APPENDIX A.

2. MCKUSICK LAKE

A two-tailed Kendall's Tau analysis based on data collected by professional agencies showed that McKusick Lake has statistically significant ($p<0.05$) improving trends for TP and average Secchi transparency, and no trend for chl-α. The McKusick Lake summertime average TP concentration in 2024 was 0.064 mg/L; higher than the 0.037 mg/L observed in 2023 (Figure 2). Three of the nine summertime samples collected in 2024 did not meet the MPCA shallow lake standard for TP (APPENDIX A). McKusick Lake had a summertime average chl-α concentration of 15.6 µg/L; higher than the chl-α average of 8.7 µg/L from 2023 (Figure 3). One of the nine summertime samples collected in 2024 did not meet the MPCA shallow lake standard for chl-α. The average summertime TKN concentration in 2024 was 0.79 mg/L, higher than the 0.70 mg/L in 2023 (Figure 4). The 2024 summertime average water transparency measured by Secchi disk was 1.79 meters (Figure 5). All nine summertime Secchi disk readings in 2024 met the MPCA shallow lake impairment standard. McKusick Lake received a grade of a C+ in 2024, a downgrade from the B- it received in 2023. No temperature and DO profiles were collected so the occurrence of thermal stratification in the deepest part of the lake cannot be determined. A majority of McKusick Lake is very shallow and does not stratify, and therefore is likely to have mixed throughout the summer. The elevation of McKusick Lake remained above the OHW for the entire monitoring season, reaching its highest recorded level of the season on 6/20/2024 with a level of 855.05 ft. and the lowest recorded level of the season occurred on 10/08/2024 with an elevation of 854.14 ft. A summary of all lake results is presented in APPENDIX A.

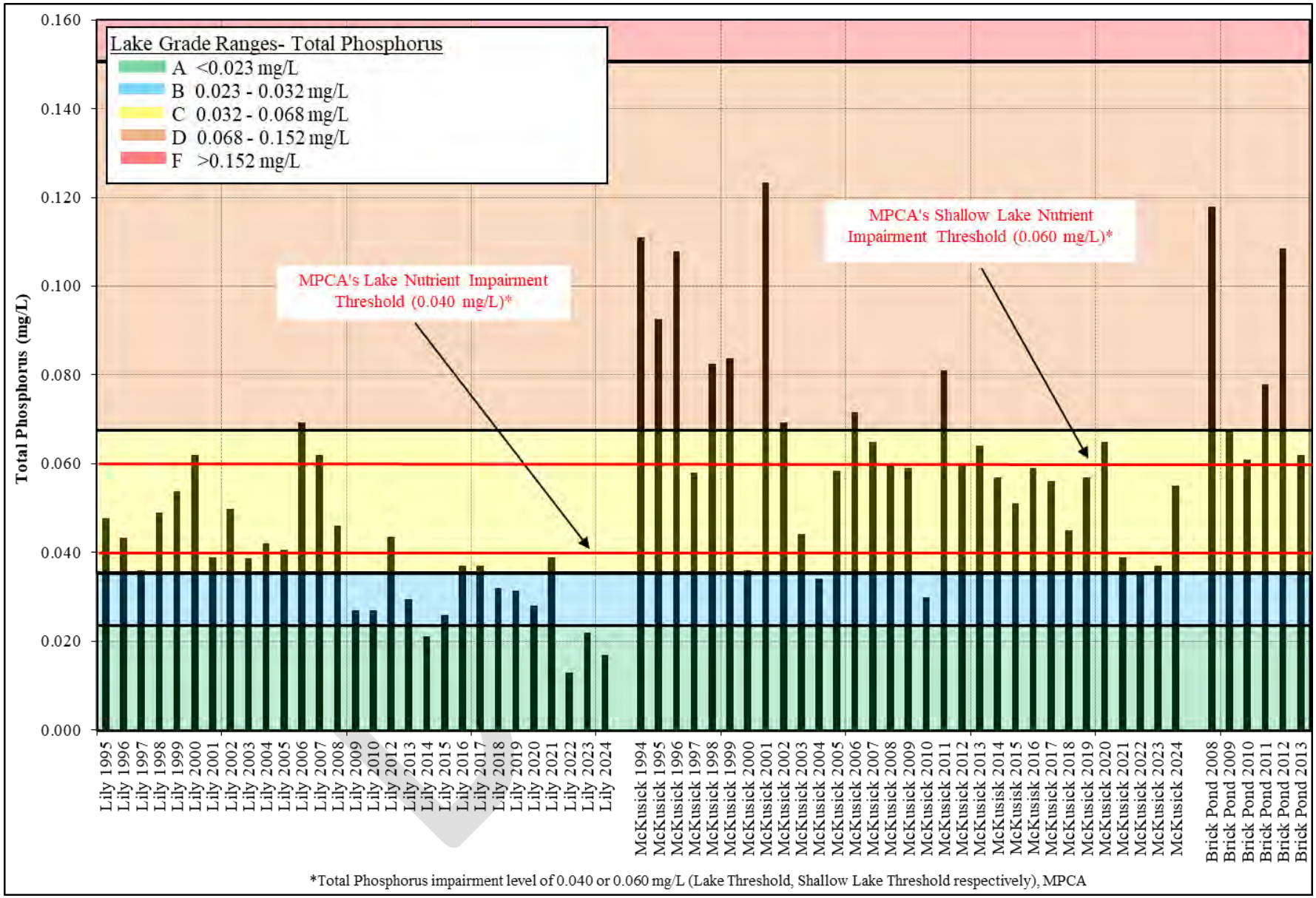


Figure 2. MSCWMO Historic Summer Average Total Phosphorus

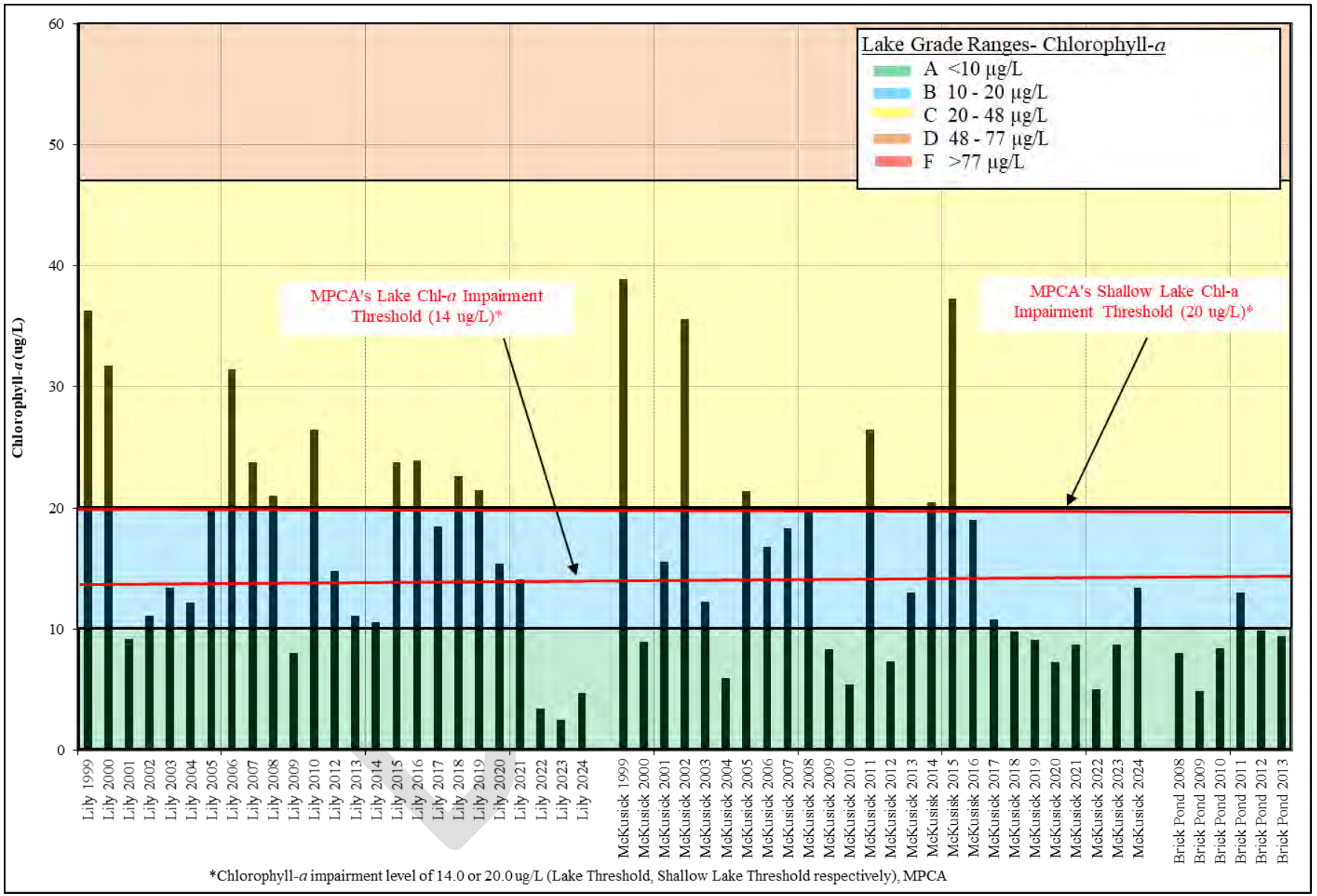


Figure 3. MSCWMO Historic Summer Average Chlorophyll-α

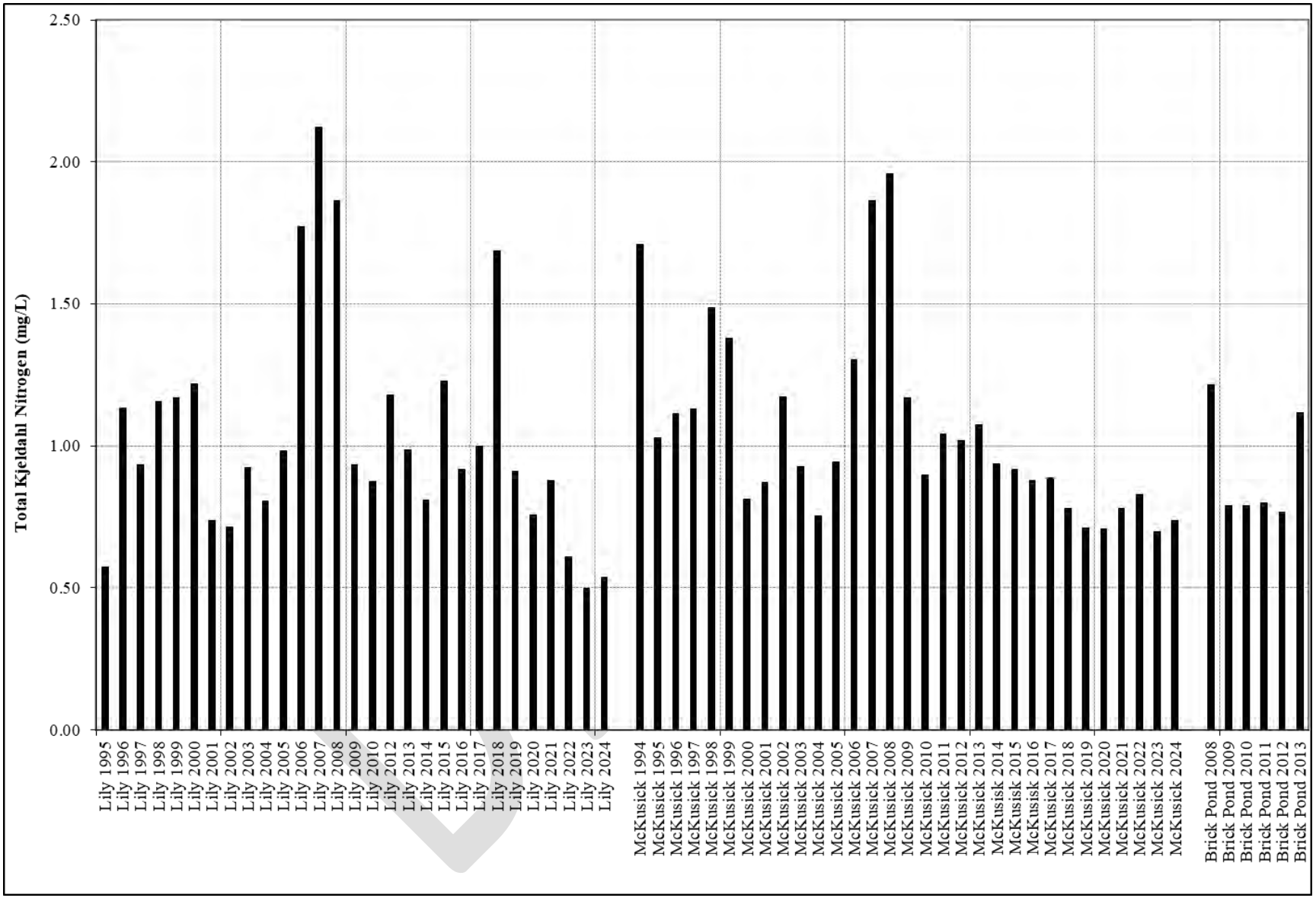


Figure 4. MSCWMO Historic Summer Average Total Kjeldahl Nitrogen

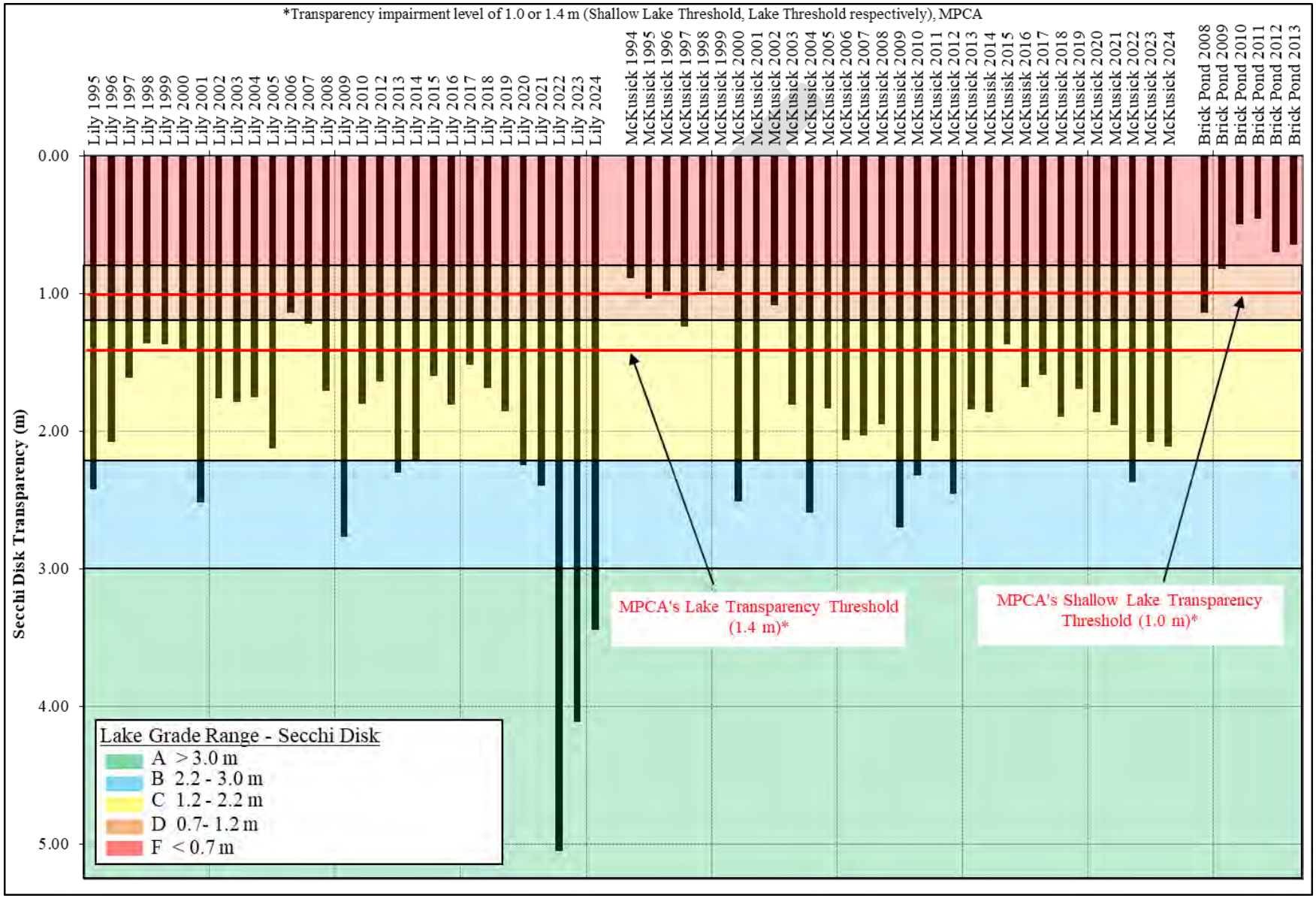


Figure 5. MSCWMO Historic Summer Average Secchi Disk Transparency

STREAM MONITORING

A. PERRO CREEK MONITORING

The goal of monitoring Perro Creek in 2016-2017 was to identify where the greatest contribution of nutrients and sediment to the St. Croix River was occurring. Monitoring continued in 2018 and 2019 to further refine previous observations. In 2020 water monitoring activities were reduced on Perro Creek and no traditional water quality samples were collected. Beginning in 2021, and continuing through 2024, water quality sampling was conducted on Perro Creek at the Diversion Structure site by collecting in-stream grab samples during baseflow periods and using an automated sampler to collect flow-weighted composite storm samples. The automated sampler allowed for multiple samples to be collected during storm events, which were then combined into one sample representing the storm event. This methodology can provide more accurate data for calculating nutrient loads during storm events than grab samples alone. Continuous 15-minute stage and velocity data were collected at the site and in the Diversion Structure Overflow from 4/10/24 – 10/30/24. Discharge was calculated using an area/velocity relationship, and the recorded discharge in 2024 to the St. Croix River was 26,605,792 cubic feet (Table 2).

Twelve water quality samples were collected in 2024 and analyzed for several parameters, including total phosphorus and total suspended solids (Table 3). Seven baseflow grab samples were collected May – October, one of which was only analyzed for E. coli. Four storm composite samples and one storm grab were collected April – August. The 2024 baseflow average TP concentration was 0.034 mg/L, which is similar to the baseflow averages for 2018-2021 (Table 4). The baseflow average TSS concentration was 3 mg/L, which is similar to the baseflow averages since 2018. The average TP concentration from storm samples collected in 2024 was 0.283 mg/L, which is similar to 2022 and is the highest since 2021 (Table 4). The average TSS concentration from storm samples was 208 mg/L, which was the highest since 2021. The 7/23 storm grab sample was collected during a high flow period after a storm event but the sample results indicate the water quality had already returned to baseflow conditions. Therefore the results from this sample were excluded from the storm averages. TP and TSS loads

to the St. Croix River were calculated for both the creek and the Diversion Structure Overflow during monitored periods. In 2024 the TP load was 76.4 lbs. (Table 2 and Figure 6) and the TSS load was 21,247 lbs. (Table 2 and Figure 7).

Perro Creek is listed as impaired for TSS on the MPCA's 303(d) Impaired Waters List. The stream is in the Central River Nutrient Region and the MPCA standard is 30 mg/L for class 2B waters. The MPCA's protocols for assessments are as follows:

"A stream is considered to exceed the standard for TSS if 1) the standard is violated more than 10% of the days of the assessment season (April through September) as determined from a data set that gives an unbiased representation of conditions over the assessment season, and 2) at least three measurements violate the standard. A stream is considered to meet the standard for TSS if the standard is met at least 90% of the days of the assessment season. A designation of meeting the standard for TSS generally requires at least 20 suitable measurements from a data set that gives an unbiased representation of conditions over at least two different years. However, if it is determined that the data set adequately targets periods and conditions when exceedances are most likely to occur, a smaller number of measurements may suffice."

Perro Creek is also listed as impaired for *E. coli* bacteria on the MPCA's 303(d) Impaired Waters List. *E.* coli is used as an indicator in waterbodies for the possible presence of fecal contamination, including pathogens. The primary source of *E. coli* is human and animal waste, making high *E. coli* presence a concern for human health. A summary table by month can be found in Table 5. The MPCA standard is defined as follows, and is based on the latest ten years of data as per MPCA protocol:

"*Not to exceed 126 organisms per 100 milliliters as a geometric mean of not less than five samples representative of conditions within any calendar month, nor shall more than ten percent of all samples taken during any calendar month individually exceed 1,260 organisms per 100 milliliters. The standard applies only between April 1 and October 31.*"

Table 2. Perro Creek 2024 Monitored Discharge and TP & TSS Loading

Site	Date range	Discharge (cf)	Discharge (ac-ft)	Percent of Total Discharge	TP Load (lbs)	Percent of TP Load	TSS Load (lbs)	Percent of TSS Load
Perro at Diversion Structure Baseflow	4/10/24 - 10/30/24	18,228,352	418.68	69%	38.5	50%	3,129	15%
Perro at Diversion Structure Stormflow [1]	4/10/24 - 10/30/24	540,569	12.42	2%	9.3	12%	6,809	32%
Perro at Diversion Overflow Baseflow [2]	4/10/24 - 10/30/24	7,063,928	162.25	27%	14.9	20%	1,213	6%
Perro at Diversion Overflow Stormflow [1 2]	4/10/24 - 10/30/24	772,943	17.75	3%	13.7	18%	10,097	48%
Total to the St. Croix River		26,605,792	611.10	100%	76.4	100%	21,247	100%

[1] *7/23 results were excluded from averages used for load calculations*

[2] *Result averages from samples collected in-stream at the Diversion Structure were used for Diversion Overflow loading calculations*

Table 3. Perro Creek at Diversion Structure 2024 Water Quality Results

Sample Type	Start	End	TP (mg/L)	Dissolved P (mg/L)	TSS (mg/L)	TKN (mg/L)	Ammonia Nitrogen (mg/L)	Nitrate N (mg/L)	Nitrite N (mg/L)	*E. coli* (mpn/100 mL)
Base Grab	5/16/24 10:13	5/16/24 10:13		0.015	6					96
Base Grab	6/26/24 13:33	6/26/24 13:33	0.054	0.042	3					48
Base Grab [1]	7/25/24 12:37	7/25/24 12:37	0.033	0.020	<3					111
Base Grab	8/28/24 9:13	8/28/24 9:13								376
Base Grab [1]	9/12/24 12:42	9/12/24 12:42	0.026	0.024	<3					
Base Grab	9/24/24 10:00	9/24/24 10:00	0.034	0.022	3					488
Base Grab [1]	10/21/24 15:20	10/21/24 15:20	0.022	0.022	<3					120
Storm Composite	4/16/24 16:22	4/16/24 17:03	0.302		225	1.74				
Storm Composite	5/21/24 17:39	5/21/24 20:19	0.295	0.025	232					
Storm Grab [2]	7/23/24 11:01	7/23/24 11:01	0.040	0.019	5		0.15	0.30	0.07	
Storm Composite	8/5/24 10:28	8/5/24 12:33	0.139	0.034	47	0.99	0.38	0.52	<0.06	
Storm Composite	8/27/24 6:04	8/27/24 6:39	0.396	0.098	327					

[1] *TSS results that are less than the Reporting Limit were divided in half for calculating averages*

[2] *Results excluded from averages*

Table 4. Perro Creek Historical TP and TSS Averages and Ranges

Perro @ Diversion Sample Type	2016	2017	2018	2019	2020	2021 [b]	2022 [b]	2023 [c]	2024
Baseflow Samples	**8**	**6**	**8**	**6**	**No**	**6**	**5**	**6**	**7**
Stormflow Samples	**5**	**5**	**4**	**3**	**Samples**	**8**	**9**	**5**	**5**
TP (mg/L) - Baseflow Average	0.051	0.046	0.036	0.034		0.035	0.015	NA	0.034
Baseflow Range	*~0.023 - 0.090*	*<0.020 - 0.120*	*0.020 - 0.058*	*0.021 - 0.065*		*0.024 - 0.210*	*<0.020 - 0.065*	*<0.05*	*0.022 - 0.054*
TP (mg/L) - Stormflow Average	0.435	0.108	0.124	0.372		0.427	0.279	0.216	0.283
Stormflow Range	*0.126 - 1.330*	*~0.023 - 0.218*	*0.047 - 0.252*	*0.133 - 0.597*		*0.185 - 0.862*	*<0.020 - 0.524*	*0.089 - 0.370*	*0.040 - 0.396*
TSS (mg/L) - Baseflow Average	16	12	4	2		2	3	2	3
Baseflow Range [a]	*<1 - 77*	*~1 - 60*	*1 - 16*	*1 - 3*		*1 - 33*	*<3 - 18*	*<3 - 18*	*<3 - 6*
TSS (mg/L) - Stormflow Average	118	36	20	58		217	86	102	208
Stormflow Range	*32 - 308*	*12 - 76*	*8 - 31*	*21 - 97*		*75 - 429*	*3 - 154*	*10 - 243*	*5 - 327*

[a] *Beginning in 2022 the laboratory changed TSS reporting to as low as the Reporting Limit (3 mg/L) rather than the Method Detection Limit (1 mg/L)*

[b] *Results from base composite sample excluded from averages (Sampled during initial opening of Perro Pond outlet)*

[c] *In 2023 the laboratory reported TP results to as low as the Reporting Limit (0.05 mg/L) rather than the Method Detection Limit (0.02 mg/L). All baseflow results were <0.05 mg/L*

Table 5. Monthly Geometric Means of *E. coli*- Latest Ten Years

Site	April	May	June	July	August	September	October
Perro at Diversion Structure [1]	Insufficient Data	109	310	210	158	444	160

Exceeds geometric mean of 126 #/100mL from not less than 5 samples in a calendar month, collected in last 10 yrs

[1] *>10% of samples collected in the last 10 years exceeded 1,260 #/100mL*

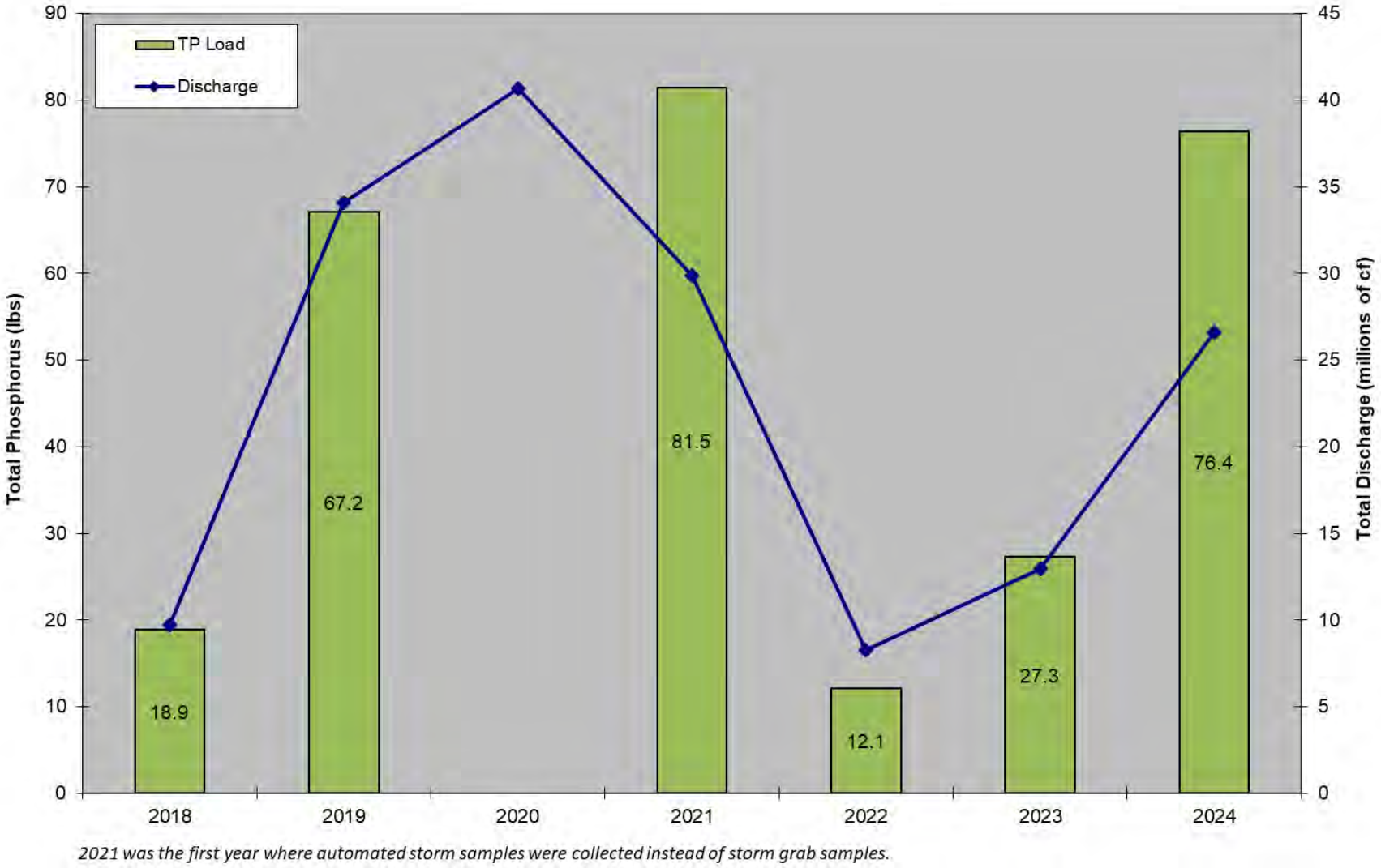


Figure 6. Perro Creek at Diversion Structure Monitored Discharge and Total Phosphorus Load

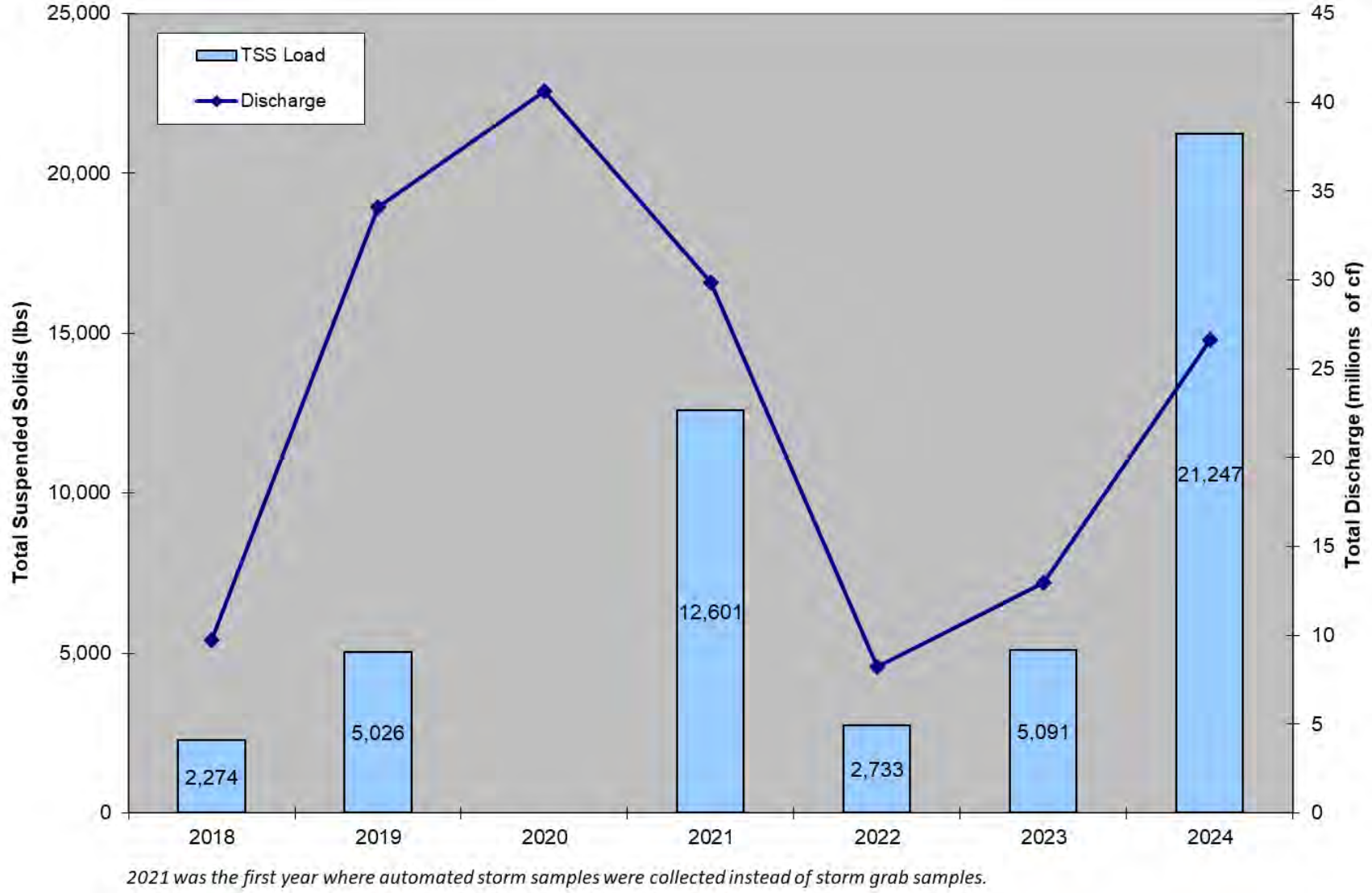


Figure 7. Perro Creek at Diversion Structure Monitored Discharge and Total Suspended Solids Load

B. BROWN'S CREEK DIVERSION STRUCTURE

As part of Brown's Creek Watershed District's long-term monitoring, the WCD collected grab samples and automated flow-weighted samples during both baseflow and storm event conditions at the Brown's Creek Diversion Structure for BCWD in 2024, and that data is provided to the MSCWMO. The City of Stillwater constructed the diversion structure in June of 2003, as part of the completion of the Trout Stream Mitigation Project (TSMP). It has been functioning to divert water from the 1,800-acre annexation area away from Brown's Creek through McKusick Lake, and ultimately to the St. Croix River. While this diversion structure keeps the warmer urban stormwater runoff from the southern tributary out of the temperature and nutrient sensitive Brown's Creek Ravine, it means that this is discharged to McKusick Lake and does affect the lake water quality. Data collected at this site by the WCD includes continuous stage and total discharge, and water quality samples analyzed for nutrients, sediment, and metals. Discharge in 2024 was 72,832,083 cubic feet, which was twice as much as in 2023 (Table 6). This was due to a wet spring and summer. All stream flow and chemistry data from 2024 can be found in Table 6 and Table 7.

The TP load to McKusick Lake was 573 lbs., or 0.149 lbs. of phosphorus per acre of watershed land, and the TSS load was 230,855 lbs. of sediment, or 59.88 lbs. per acre (Table 6). Erosional head cuts on the tributary branches of the creek were identified as a source of TP and TSS loads. BCWD has worked since 2018 to repair head cuts and increase floodplain connectivity through the installation of rock vanes. Beavers were again active in the area in 2024, creating dams between the Iron Enhanced Sand Filter (IESF) harvest pond and the monitoring site. The dams can enhance floodplain connectivity and settling of nutrients while improving habitat, and a resulting reduction in TP and TSS loads is likely reflected in annual loads. Due to these considerations BCWD has opted to leave dams in place. The IESF also continues to operate to reduce TP loads in the drainage.

The calculation of MPCA metal standards is described in the Minnesota Administrative Rules Part 7050.0222 and are divided into three categories of toxicity; chronic, maximum, and final acute value (FAV). The chronic standard protects organisms from long term exposure to a pollutant with minimal effects, the maximum standard from short term exposure with no or little

mortality, and the FAV is the concentration at which mortality can be expected. In 2024 one sample result exceeded the chronic standard for copper and three results exceeded the chronic standard for lead. The number and severity of exceedances of metals standards at this site were again among the lowest observed since metals analysis began in 2007. Improvements made to reduce erosion and the natural settling of sediments that may have metals bound to them in beaver impoundments are the most likely drivers of this. In most cases, severe exceedances of metals seem to be associated with extreme TSS concentrations. Sources of metals may include improperly disposed wastes, such as deep cycle batteries. The combination and concentration of metals observed over time appear to point to this as a possible source.

Table 6. Brown's Creek Diversion Historic Annual Discharge and Loading- Latest Ten Years

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Brown's Creek Diversion Structure										
Discharge (cf)	46,276,327	70,780,581	39,625,672	45,453,990	112,468,888	68,165,935	46,792,341	41,610,620	35,622,586	72,832,083
Total pounds of Phosphorus exported	1,837	1,574	784	964	3,598	760	446	389	367	573
TP (lbs/ac/yr)	0.447	0.408	0.203	0.250	0.933	0.197	0.116	0.101	0.095	0.149
Total pounds of TSS exported	1,008,346	1,533,496	596,382	505,314	2,707,186	246,238	401,069	75,429	74,875	230,855
TSS (lbs/ac/yr)	261.57	397.79	154.70	131.08	702.25	63.87	104.01	19.57	19.42	59.88

Table 7. Brown's Creek Diversion 2024 Chemistry Results

Sample Type	Start	End	TSS (mg/L)	VSS (mg/L)	TKN (mg/L)	TP (mg/L)	Dissolved P (mg/L)	Copper (mg/L)	Nickel (mg/L)	Lead (mg/L)	Zinc (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Chloride (mg/L)	Nitrite N (mg/L)	Nitrate N (mg/L)	Ammonia Nitrogen (mg/L)	Hardness (mg/L _CaCO3)
Storm Composite	4/16/2024 16:47	4/17/2024 0:42	90	27	2.23	0.373	0.058	0.00370	0.00290	0.00170	0.01600	0.00020	<0.00250	60.3	<0.06	0.73	<0.06	134
Storm Composite	5/21/2024 18:11	5/22/2024 6:11	186	53	2.18	0.432	0.081	0.00460	0.00420	0.00260	0.01370	0.00019	0.00400	40.9	<0.06	0.23	<0.06	99
Storm Composite	6/3/2024 5:43	6/3/2024 12:23	96	28	1.44	0.193	0.032	0.00260	0.00230	0.00140	0.00820	0.00020	<0.00250	70.6	<0.06	<0.20	<0.06	121
Storm Composite	6/4/2024 19:53	6/4/2024 23:34	1,080	336	4.68	0.905	0.064	0.01120	0.01110	0.00910	0.04380	0.00030	0.00970	51.8	<0.06	0.20	<0.06	121
Storm Composite	6/16/2024 2:29	6/16/2024 5:52	148	42	1.92	0.344	0.054	0.00400	0.00380	0.00240	0.01240	0.00018	0.00320	42.0			<0.06	111
Storm Composite	6/28/2024 6:34	6/28/2024 8:33	758	184	1.86	0.675	0.060	0.00870	0.00860	0.00710	0.03100	0.00030	0.00840	39.9			<0.06	158
Storm Composite	7/22/2024 18:31	7/22/2024 21:26	396	104	4.02	0.697	0.072	0.00800	0.00790	0.00570	0.03260	0.00024	0.00720	34.2	<0.06	0.40	<0.06	144
Storm Composite	8/5/2024 12:11	8/5/2024 23:28	234	57	2.91	0.483	0.072	0.00560	0.00640	0.00350	0.02070	0.00020	0.00510	26.3	<0.06	0.36	<0.06	123
Base Grab	5/20/2024 14:27	5/20/2024 14:27	6	3	0.60	0.080	0.044	<0.00100	0.00077	<0.00050	<0.00500	<0.00010	<0.00250	76.1	<0.06	0.23	<0.06	158
Base Grab	6/27/2024 13:56	6/27/2024 13:56	5	<3	0.58	0.073	0.040	<0.00100	0.00056	<0.00050	<0.00500	<0.00010	<0.00250	73.4	<0.06	<0.20	<0.06	90
Base Grab	7/25/2024 13:47	7/25/2024 13:47	3	<3	0.46	0.051	0.039	0.00130	0.00052	<0.00050	<0.00500	<0.00010	<0.00250	56.8	<0.06	<0.20	<0.06	79
Base Grab	9/3/2024 9:51	9/3/2024 9:51	3	<3	0.48	0.054	0.039	<0.00100	0.00054	<0.00050	<0.00500	<0.00010	<0.00250	38.9	<0.06	<0.20	<0.06	73
Base Grab	9/24/2024 9:18	9/24/2024 9:18	3	<3	0.46	0.073	0.044							42.2	<0.06	0.28	<0.06	136
Base Grab	10/21/2024 14:30	10/21/2024 14:30	3	<3	0.37	0.065	0.023	<0.00100	0.00070	<0.00050	<0.00500	<0.00010	<0.00250	46.6	<0.06	0.32	<0.06	295

Exceeds Water Quality Standard
No Exceedance Determinable
Exceeds Chronic Standard
Exceeds Max Standard
Exceeds Final Acute Standard

MSCWMO: CONCLUSIONS AND RECOMMENDATIONS

A. LAKES

Lake monitoring in MSCWMO continues to provide valuable baseline water quality information. To determine the health of the lakes in MSCWMO, physical and chemical parameters are compared on a year-to-year basis and to other lakes in the region. Water quality in a lake depends on a number of different variables such as: size of the contributing watershed, external nutrient sources, depth of the lake, and the current amount of nutrients available to be periodically released from the lake bottom. Low water quality ratings of MSCWMO lakes are most likely due to long-term contribution of urban runoff (Lily Lake) or due to the sensitivity of shallow lakes being prone to summertime mixing (McKusick Lake). Shallow lakes typically exist in a low algal production, clear-water state with abundant aquatic macrophytes or in a high-algal production, turbid water state. Shallow lakes may not completely stratify in the summer, and therefore have the capability to continually mix throughout the summer. That mixing causes phosphorus to be distributed throughout the water column, causing more frequent and heavy algal blooms. This is unlike deeper, stratified lakes where phosphorus below the thermocline is not available for primary production.

The MPCA previously listed both Lily and McKusick Lake on the 303(d) Impaired Waters list for nutrient/eutrophication impairment. If a water body is listed, it indicates that it does not currently meet water quality criteria. McKusick Lake was delisted in 2012 because restoration activities within its watershed led the lake to meet the water quality standards. In 2022, the MPCA delisted Lily Lake because the lake was meeting the standards due to restoration activities within its watershed.

Summertime (June-September) TP, chlorophyll-α, and Secchi disk transparency averages have remained relatively consistent over the last thirty years in Lily Lake with the exceptions of 1995, 2001, 2009, 2013, and 2014 where overall water quality dramatically improved (Figure 2, Figure 3, and Figure 5). In 2001 phosphorus and chl-α levels dropped and the lake grade improved significantly. In 2006-2008, summer average TP, chl-α, and Secchi disk transparency deteriorated when compared to the averages seen from 2001 to 2005. In 2024 Lily Lake received

a grade of an A, matching the grade from 2023 and well above the long-term average lake grade of a C+.

The cause of these one-year increases (1995, 2001, 2009, 2013, and 2014) in water quality is presently unknown, and there may be several possible explanations which could be investigated further in the future. Lily Lake has received herbicide and algaecide treatments from 1995-2011 and 2016-2018. In 2018-2021 the City of Stillwater and the Lily Lake Association did not request any large-scale herbicide and algaecide treatments but individual landowner treatments have occurred. In 2010 a native buffer planting was installed at the public access and the Lily Lake watershed underwent a subwatershed assessment. As a result, fifteen raingardens were constructed in the Lily Lake watershed from 2011-2012, six large raingardens were installed in 2014, a gully stabilization project installed at Lakeview Hospital discharging to Brick Pond in 2017, and a large gully stabilization and stormwater treatment system discharging to Brick Pond in 2018. In 2019 another raingarden was installed. Construction of a large infiltration basin in the Greeley storm catchment subwatershed was completed in 2022 and the lake was treated with alum on May 24th, 2022. The effects of these BMPs may have been seen from 2012 to 2024 monitoring seasons with the 2016-2024 seasons having a statistically significant ($p<0.05$) improving trend for total phosphorus. Continued monitoring is needed to show changes to long term trends due to the implementation of these BMPs. In 2019 the Lily Lake Phosphorus Reductions for Delisting grant was secured. More information about the Lily Lake Impaired Waters Delisting Road Map can be found at http://www.mscwmo.org/subwatershed-assessments.

A subwatershed assessment was conducted on the McKusick Lake watershed in 2010. In 2011 six raingardens were constructed as a result of the subwatershed assessment. With renewed funding, seven additional raingardens were planned to be installed in the McKusick Lake watershed in 2013 but were not due to issues with utilities; instead, six larger raingardens were installed in 2014. The impacts of previously installed raingardens may have been seen in 2017-2024 with statistically significant ($p<0.05$) improving trends for average TP and average Secchi disk transparency. For more information on the McKusick Lake subwatershed assessment refer to the McKusick Lake Stormwater Retrofit Assessment found at http://www.mscwmo.org/subwatershed-assessments.

B. STREAMS

Water quality sampling continued on Perro Creek at the Diversion Structure in 2024. The wet spring and summer led to an increase in flow and higher TP and TSS loads. Stormflow periods accounted for only 5% of the monitored discharge to the St. Croix River but 30% of the TP load and 80% of the TSS load occurred during these periods in 2024. Stormflow periods in 2023 were nearly identical, accounting for 5% of the monitored discharge, 30% of the TP load, and 76% of the TSS load during a year of drought conditions. Flow-weighted composite samples should continue to be collected to more accurately calculate TP and TSS loads during storm events. Sediment and debris was present in the diversion structure channel which made the streambed within the structure artificially high. This may have impacted the automated storm sampling because it allowed more stormwater to flow through the overflow pipe rather than the open channel stream, which is where the sampling equipment is located. The diversion structure should be kept clear of excessive sediment and debris to ensure this doesn't become a problem.

Perro Creek is listed as impaired for TSS on the MPCA's 303(d) Impaired Waters List and is assessed using an unbiased dataset. Flow-weighted composite samples are considered biased towards higher flow periods because more samples are collected during the higher flows, and these samples are therefore not used for TSS assessments. In 2024 there were no TSS results from grab samples collected April – September that exceeded the MPCA standard of 30 mg/L for class 2B waters. Water quality grab samples should continue to be collected at Perro Creek during different levels of flow to provide an unbiased dataset for assessing the stream for TSS impairment.

Perro Creek is listed as impaired for *E. coli* bacteria on the MPCA's 303(d) Impaired Waters List. The 10-year geometric means in June – October exceed the MPCA standard, while the May geometric mean meets the standard. Samples collected in 2024 in May, June, July, and October were less than the monthly geometric means from the last 10 years of data, while the August and September samples were higher than the monthly geometric mean. All samples collected in 2023 were less than the monthly geometric means. Monthly *E. coli* samples should continue to be collected from May through October at Perro Creek to expand the dataset for calculating monthly geometric means.

This Page Intentionally Left Blank.

APPENDIX A – LILY LAKE AND MCKUSICK LAKE WATER QUALITY DATA

This Page Intentionally Left Blank.

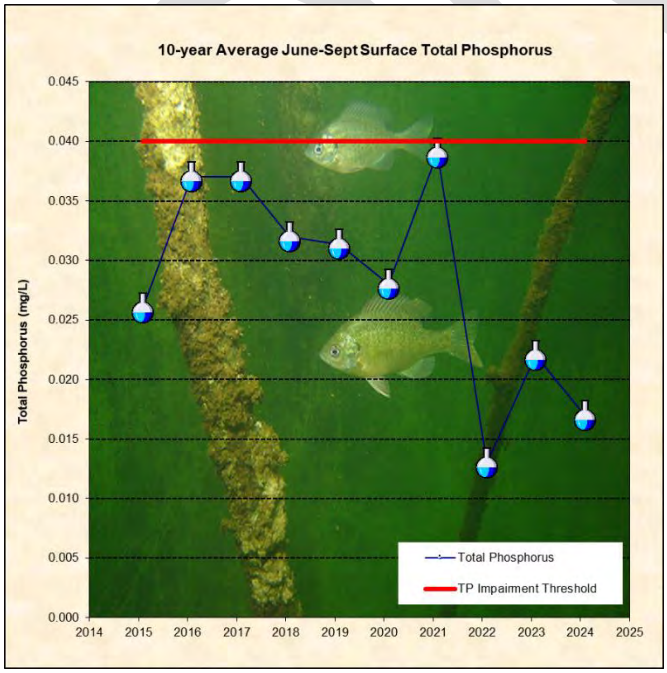
LILY LAKE

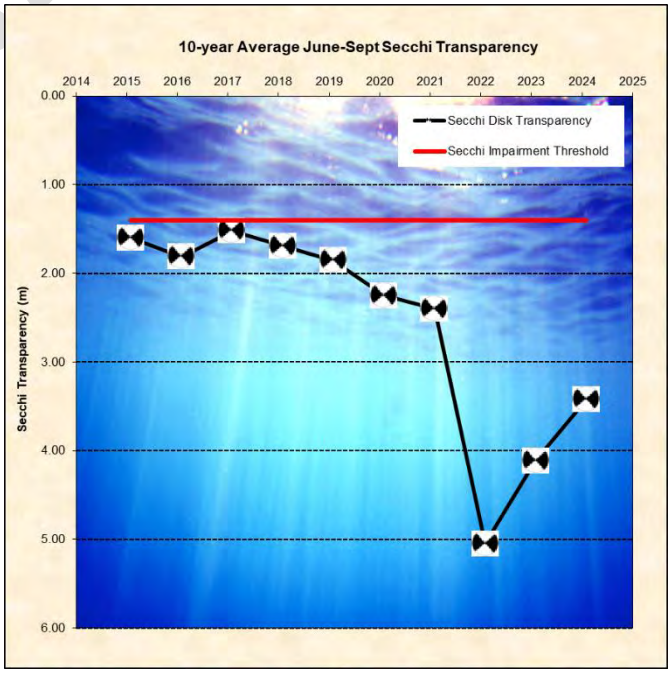
2024 Lake Grade: A

- DNR ID #: 820023
- Municipality: City of Stillwater
- Location: NE ¼ Section 32, T30N-R20W
- Lake Size: 35.90 Acres
- Maximum Depth (2024): 51 ft.
- Ordinary High Water Mark: 844.8 ft.
- 55%Littoral
  Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.
- Publicly accessible

Summary Points

- Based on the chlorophyll-α results Lily Lake was considered mesotrophic in 2024, according to the Carlson Trophic State Index.
- Using a Kendall's Tau correlation test ($p<0.05$) there is a statistically significant **improving** trend for average total phosphorus, average Secchi transparency, and average chlorophyll-α.
- The major land use is urban/residential.
- The lake stratified in 2024 with the thermocline around 4 meters deep.
- The lake was treated with alum on May 24th, 2022.
- Lily Lake was delisted in 2022 for its impairment for nutrients on the Minnesota Pollution Control Agency's Impaired Waters List.
- Lab methodology was changed for 2023 total phosphorus sample analysis, as such no results were reported <0.022 mg/L (April-mid September).





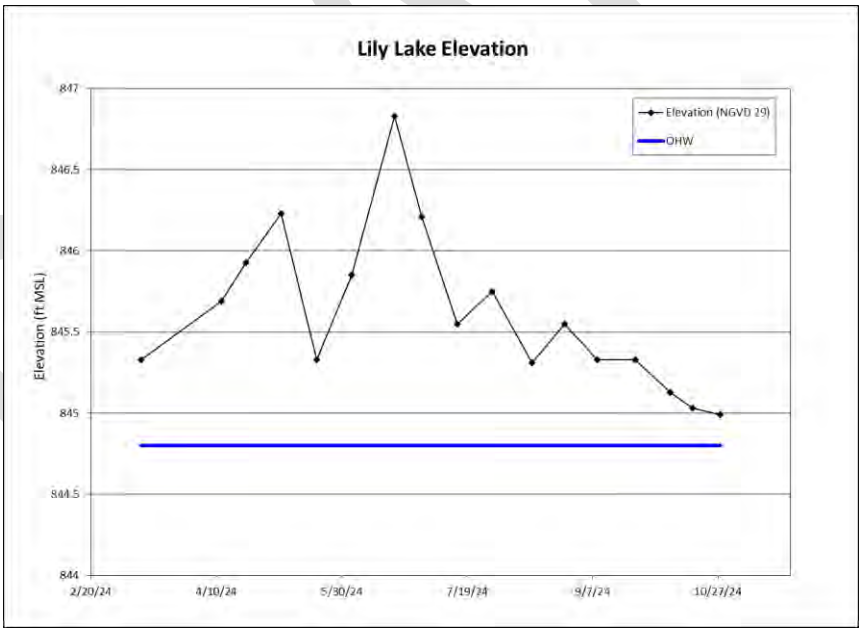
Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-*a* (ug/L)	Pheophytin-Corrected Chlorophyll-*a* (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/22/2024 10:30	0.016	9.2	8.5	0.57	2.90	10.0	16.77
5/6/2024 14:53	0.017	3.8	3.5	0.53	3.20	16.2	10.59
5/20/2024 15:10	0.014	1.3	1.1	0.60	3.20	21.6	8.15
6/3/2024 14:20	0.016	1.2	1.1	0.49	5.18	22.2	8.35
6/20/2024 11:56	0.019	2.5	2.4	0.39	4.88	22.5	8.72
7/1/2024 14:43	0.018	3.9	3.7	0.46	3.35	23.3	10.27
7/15/2024 12:24	0.020	5.6	4.8	0.48	2.74	26.3	10.11
7/29/2024 14:45	0.014	4.9	5.1	0.64	3.20	28.3	10.72
8/14/2024 11:36	0.015	5.9	5.3	0.53	3.20	24.1	13.13
8/27/2024 14:45	0.019	6.5	6.1	0.61	1.98	25.6	11.35
9/9/2024 12:54	0.016	5.4	5.1	0.54	3.05	22.3	12.78
9/24/2024 8:20	0.017	7.2	6.9	0.64	3.20	21.1	11.89
10/8/2024 9:03	0.014	5.3	4.8	0.53	4.11	16.5	9.56
10/17/2024 9:23	0.016	3.7	3.2	0.52	3.96	13.1	10.03
2024 Average	0.017	4.7	4.4	0.54	3.44	20.9	10.89
2024 Summer Average	0.017	4.8	4.5	0.53	3.42	24.0	10.81

Water quality thresholds are 0.04 mg/L TP, 14 µg/L CL-a, 1.4 m Secchi depth*

Shallow lake water quality thresholds are 0.06 mg/L TP, 20 µg/L CL-a, 1.0 m Secchi depth*

	High	High Date	Low	Low Date	Average
2024 Elevation (ft)	846.83	6/20/2024	844.99	10/28/2024	845.61

*Data requirements and determinations of use assessment according to the MPCA's Guidance Manual for Assessing the Quality of Minnesota Surface Waters: "Samples must be collected over a minimum of 2 years and data used for assessments must be collected from June to September. Typically, a minimum of 8 individual data points for TP, corrected chlorophyll-a (chl-a corrected for pheophytin), and Secchi are required. Data used for phosphorus and chlorophyll-a calculations are limited to those collected from the upper most 3 meters of the water column (surface). If more than one sample is collected in a lake per day, these values are averaged to yield a daily average value. Following this step, all June to September data for the 10-year assessment window are averaged to determine summer-mean values for TP, corrected chl-a, and Secchi depth. These values are then compared to the standards and the assessment is made."



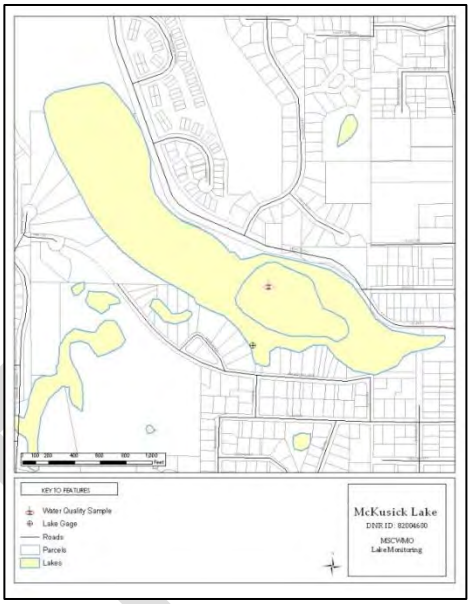
Lake Water Quality Summary										
	Summertime Lake Grades (May-Sept)									
	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015
Total Phosphorus (mg/L)	A	A	A	C	B	B	B	C	C	B
Chlorophyll-*a* (ug/L)	A	A	A	C	B	B	B	B	C	C
Secchi depth (ft)	A	A	A	B	B	C	C	C	B	C
Overall	**A**	**A**	**A**	**C+**	**B**	**B-**	**B-**	**C+**	**C+**	**C+**

MCKUSICK LAKE

2024 Lake Grade: C+

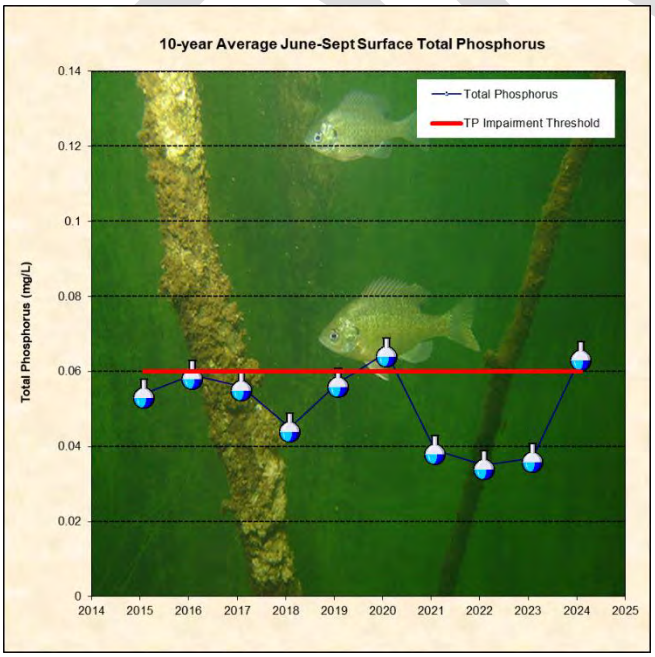
DNR ID #: 820020

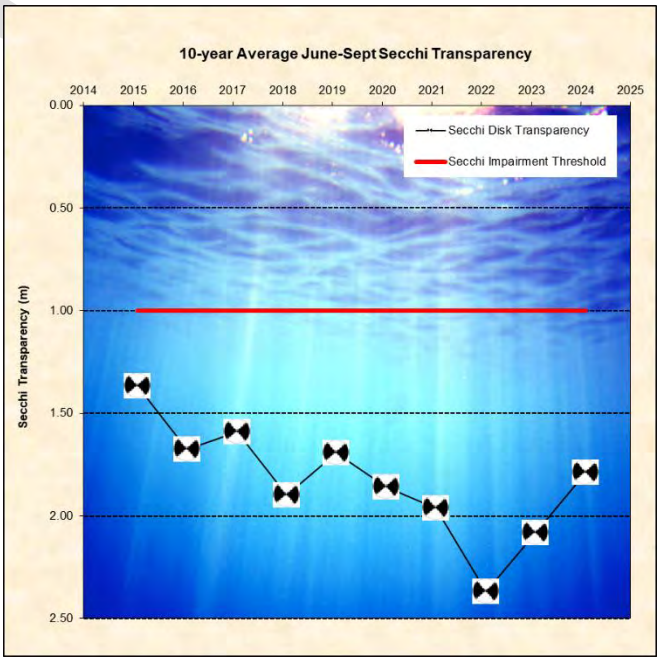
- Municipality: City of Stillwater
- Location: NE ¼ Section 29, T30N-R20W
- Lake Size: 46 Acres
- Maximum Depth (2024): 14 ft.
- Ordinary High Water Mark: 851.7 ft.
- 100% Littoral
  Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.



Summary Points

- Based on the chlorophyll-α results McKusick Lake was considered eutrophic in 2024, according to the Carlson Trophic State Index.
- Using a Kendall's Tau correlation test ($p<0.05$) there is a statistically significant **improving** trend for average Secchi transparency, average total phosphorus, and no trend for the average chlorophyll-α.
- The major land use is urban/residential.
- Temperature and dissolved oxygen profiles were not collected in 2024 so stratification cannot be determined.
- McKusick Lake was delisted in 2012 for its impairment for nutrients on the Minnesota Pollution Control Agency's Impaired Waters List.





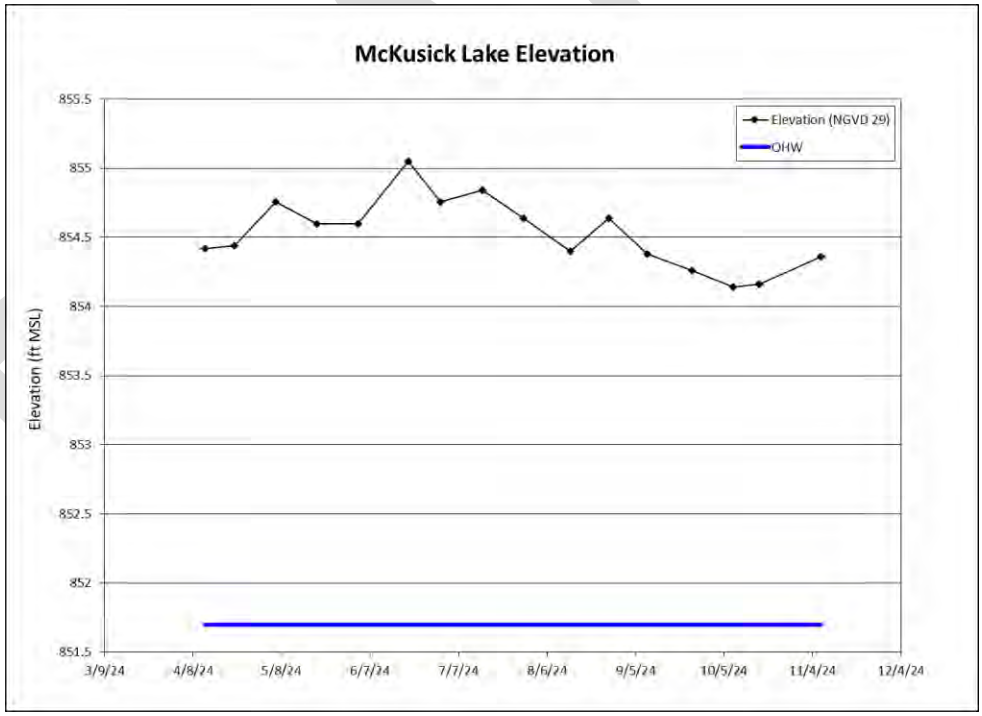
Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-*a* (ug/L)	Pheophytin-Corrected Chlorophyll-*a* (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/22/2024 11:06	0.058	2.0	1.6	0.57	2.90	9.7	16.27
5/6/2024 14:27	0.030	3.0	2.9	0.56	3.20	17.4	10.01
5/20/2024 14:45	0.028	5.3	5.1	0.56	3.20	22.4	9.74
6/3/2024 13:48	0.041	6.1	5.6	0.68	1.98	22.8	10.06
6/20/2024 11:25	0.031	7.6	5.1	0.51	2.29	21.5	12.33
7/1/2024 14:14	0.041	8.2	7.5	0.61	1.52	22.9	7.58
7/15/2024 11:22	0.135	20.0	19.0	0.92	1.68	25.5	8.81
7/29/2024 14:08	0.149	61.0	61.0	1.24	1.22	28.2	7.88
8/14/2024 12:45	0.037	6.8	6.4	0.77	1.98	23.6	12.61
8/27/2024 14:13	0.067	18.0	16.0	1.00	1.52	24.7	7.92
9/9/2024 13:32	0.037	11.0	9.1	0.65	2.13	22.0	9.60
9/24/2024 8:50	0.042	13.0	11.0	0.74	1.83	20.1	9.45
10/8/2024 9:35	0.051	18.0	16.0	0.84	1.68	14.6	10.23
10/17/2024 8:52	0.029	7.4	6.4	0.72	2.44	10.7	11.05
2024 Average	0.055	13.4	12.3	0.74	2.11	20.4	10.25
2024 Summer Average	0.064	16.9	15.6	0.79	1.79	23.5	9.58

Water quality thresholds are 0.04 mg/L TP, 14 µg/L CL-a, 1.4 m Secchi depth*

Shallow lake water quality thresholds are 0.06 mg/L TP, 20 µg/L CL-a, 1.0 m Secchi depth*

	High	High Date	Low	Low Date	Average
2024 Elevation (ft)	855.05	6/20/2024	854.14	10/8/2024	854.53

*Data requirements and determinations of use assessment according to the MPCA's Guidance Manual for Assessing the Quality of Minnesota Surface Waters: "Samples must be collected over a minimum of 2 years and data used for assessments must be collected from June to September. Typically, a minimum of 8 individual data points for TP, corrected chlorophyll-a (chl-a corrected for pheophytin), and Secchi are required. Data used for phosphorus and chlorophyll-a calculations are limited to those collected from the upper most 3 meters of the water column (surface). If more than one sample is collected in a lake per day, these values are averaged to yield a daily average value. Following this step, all June to September data for the 10-year assessment window are averaged to determine summer-mean values for TP, corrected chl-a, and Secchi depth. These values are then compared to the standards and the assessment is made."



Lake Water Quality Summary										
	Summertime Lake Grades (May-Sept)									
	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015
Total Phosphorus (mg/L)	C	C	C	C	C	C	C	C	C	C
Chlorophyll-*a* (ug/L)	B	A	A	A	A	A	B	B	B	C
Secchi depth (ft)	C	C	B	C	C	C	C	C	C	C
Overall	**C+**	**B-**	**B**	**B-**	**B-**	**B-**	**C+**	**C+**	**C+**	**C**

WASHINGTON CONSERVATION DISTRICT
455 HAYWARD AVE N
OAKDALE, MN 55128
651-330-8220 (PHONE)
651-330-7747 (FAX)
WWW.MNWCD.ORG

MEMORANDUM

TO: **MSCWMO Board of Managers**

FROM: Aaron DeRusha, WCD

DATE: **3/20/2025**

RE: **MSCWMO Water Monitoring Equipment Replacement Request**

Winter testing of the watershed management organization's stage and velocity sensors identified one sensor for the Perro Creek Diversion monitoring station to be evaluated by the manufacturer for drifting stage. The manufacturer confirmed the sensor is faulty and was deemed unrepairable. The stage and velocity sensor is integral to the function and performance of the monitoring station and pollutant load calculation method. I am requesting the MSCWMO Board approve the replacement cost, including extended warranty, of one stage and velocity sensor for $2,323.00 plus applicable shipping. Attached is a quote detailing these costs. The equipment will be purchased and installed by WCD, to be reimbursed by MSCWMO. MSCWMO will retain ownership of the equipment.

Requested board action: Approve equipment replacement expenditures as described above, and payment not to exceed $2,450 to Washington Conservation District for reimbursement.

Q U O T A T I O N

Quotation For:

Washington Conservation District
455 Hayward Ave N
Oakdale MN 55128
Ph: (651) 330-8220 **Fx:** (651) 330-7747

Quotation#: 2250338
Revision#:
Date: 03/19/25

Attn: Aaron DeRusha **E-Mail:** ADeRusha@mnwcd.org
Ref: Isco 750 AV Sensors w/ Additional Warranty

Please Address Order To:

TECH SALES CO.
311 W. 44TH STREET
MINNEAPOLIS MN 55409

FOB: Factory
Shipment: 3-4 Weeks ARO
Salesman: Travis DeGroot
Validity: 30 Days
Terms: NET 30 DAYS

Item	Qty	Part#/Description	Unit Price	Total Price
1	5	603254021 Low Profile Area Velocity Sensor with 10' range and 25' cable.	2,090.70	10,453.50
2	5	Warranty Additional 1 year Warranty	232.30	1,161.50
			Quote Total:	**11,615.00**

Prices shown do not include freight or sales tax. MasterCard/Visa payments are accepted but may be subject to a 4% surcharge. Please review this quotation and let us know if you have any questions.

By: _____
Travis DeGroot

BCWD: $2,323
MSCWMO: $2,323
SWWD: $6,969

MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

MEMORANDUM

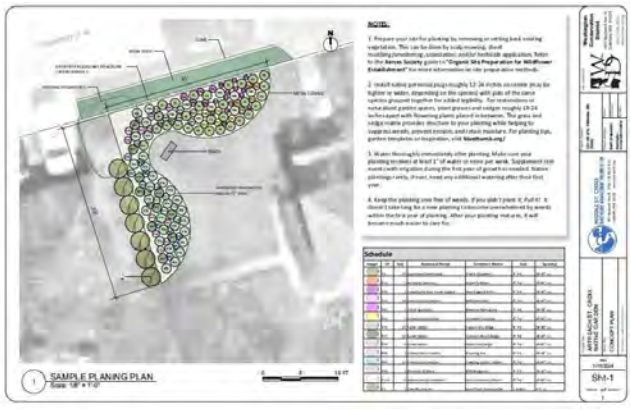
TO: Middle St. Croix Board of Managers
FROM: Brett Stolpestad, Landscape Restoration Specialist, Washingon Conservation District
DATE: February 18, 2025
RE: Rutledge/ArtReach St. Croix Stewardship Grant Request

Heather Rutledge, Executive Director of ArtReach St. Croix in Stillwater, is applying for a MSCWMO Stewardship Grant to install a 350 square-foot native pollinator garden to provide habitat for birds, pollinators, and other wildlife on the ArtReach St. Croix property located at 224 4th St N, Stillwater, MN 55082. The garden will be open to the public and used as an opportunity to educate visitors on the importance of native landscaping in support of pollinators.

Project Estimate: $2,000
Amount of Phosphorus removed: n/a
Cost Share requested: $500

Requested Board Action: Motion by Board Member 1, seconded by Board Member 2, to approve encumbrance of $500 cost share for the Rutledge/ArtReach St. Croix native pollinator garden.

Location & Photos:



MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

MEMORANDUM

TO: Middle St. Croix Board of Managers
FROM: Brett Stolpestad, Landscape Restoration Specialist, Washingon Conservation District
DATE: April 3rd, 2025
RE: Lake St. Croix Beach Stewardship Grant Request

The City of Lake St. Croix Beach is applying for a MSCWMO Stewardship Grant to enhance a 500 sf area of bluffland on the St. Croix in partnership with Natural Shore Technologies. The project will include invasive species removal, seeding, and planting to restore native plant communities within the buffer.

Project Estimate: $1,500
Amount of Phosphorus removed: n/a
Cost Share requested: $500

Requested Board Action: Motion by Board Member 1, seconded by Board Member 2, to approve encumbrance of $500 cost share for the Lake St. Croix Beach Bluffland Enhancement Project.

Location & Photos:

MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

MEMORANDUM

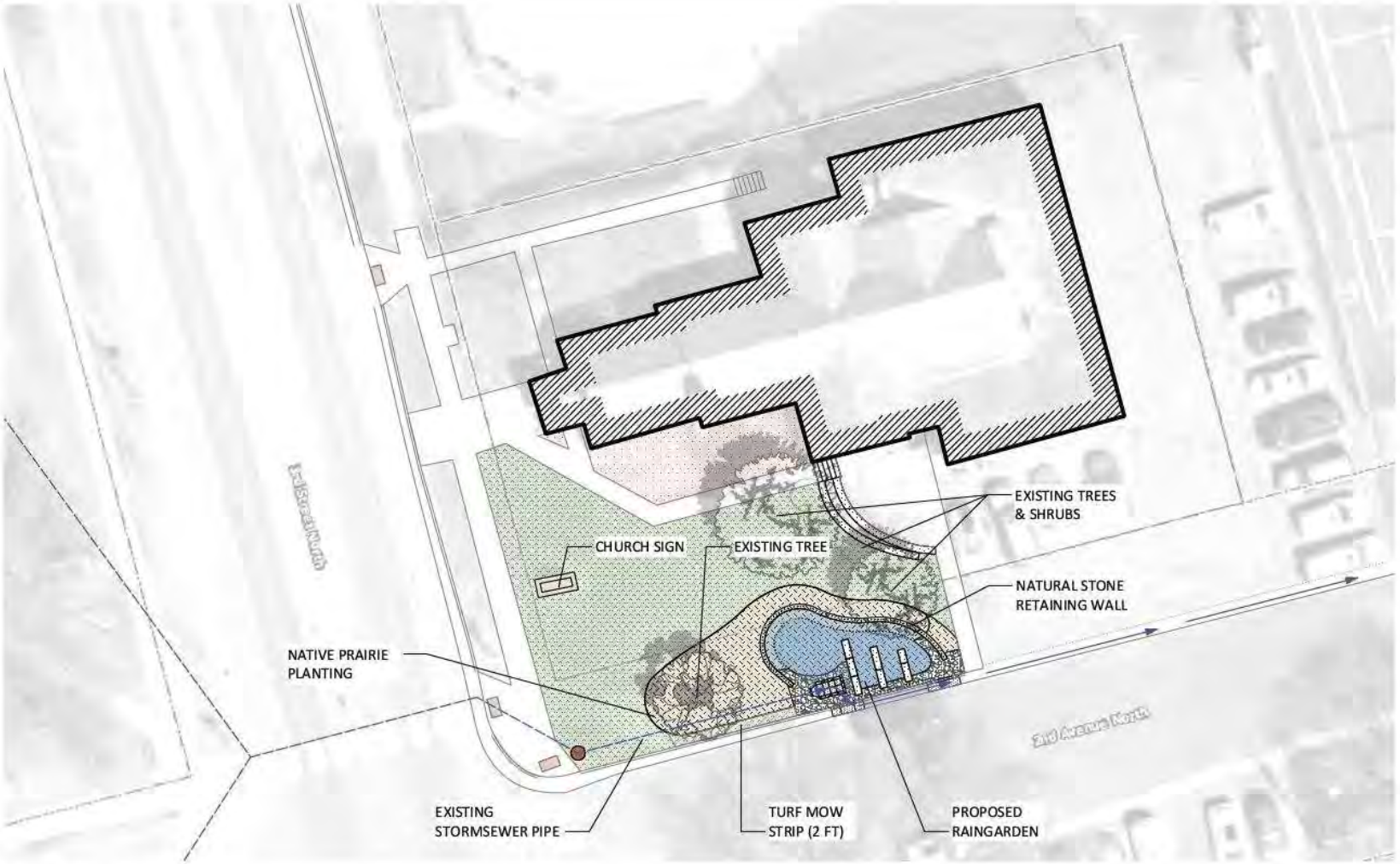
TO: Middle St. Croix Board of Managers
FROM: Brett Stolpestad, Landscape Restoration Specialist, Washingon Conservation District
DATE: April 3rd, 2025
RE: St. Croix United Church Bioretention Water Quality Improvement Grant Request

St. Croix United Church is applying for the Landscaping for Water Quality Grant to replace an existing raingarden located in front of St. Croix United Church in Bayport (309 3rd St N, Bayport, MN 55003). The existing raingarden was originally constructed by the MSCWMO in partnership with the City in 2011, and is now evaluated as non-functional by WCD staff due to sediment accumulation and difficulties with the current "online" configuration. The proposed project would expand the garden onto church property, relocate the outlet, and add a more robust pre-treatment system for sediment capture. This project was identified as a priority retrofit location in the MSCWMO BMP Retrofit Analysis completed in 2024. The project will be funded in part by the Washington Conservation District (up to $40,000) using FY22 Clean Water Fund dollars.

Project Estimate: $45,177.75
Amount of Phosphorus removed: 2.16 lbs.
Cost Share requested: 50% of the match contributed by St. Croix United Church up to $5,000.00, depending on bid selected.

Requested Board Action: Motion by Board Member 1, seconded by Board Member 2, to approve encumbrance of 50% of the match contributed by St. Croix United Church up to $5,000.00 from the Water Quality Improvement Grant program for the installation of the St. Croix United Church Bioretention project.

Location & Photos:



1 CONCEPT PLAN
Scale: 1" = 20'-0"

Washington Conservation District
455 Hayward Ave N
Oakdale, MN 55128
(651) 330-8220
www.mnwcd.org

Plan created by:

Project Address
309 3rd St N, Bayport, MN 55003

Project Manager: Brett Stolpestad
Washington Conservation District

Drawn: BS
Reviewed: RSN
Revision

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Engineer Name Date 3/12/2025
Reg. No. 49246

Project Title
ST. CROIX UNITED CHURCH BIORETENTION

Sheet Title
CONCEPT PLAN

Date
3/12/2025

Sht-3
of
12

MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

MEMORANDUM

TO: Matt Oldenburg-Downing, Administrator
FROM: Rebecca Nestingen, PE
DATE: April 4, 2025
RE: 9a) Plan Reviews/Submittals

The following is a summary of recent activity on projects submittals which qualify for plan review under the MSCWMO 2015 Watershed Management Plan (WMP):

- **10 Point Road.** Submittal items were received on February 13th, 2025 for the proposed residential reconstruction within the MSCWMO boundaries and the City of Bayport. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP) since it involves reconstruction of more than 500 square feet of new impervious surface in the St. Croix Riverway and grading impacts within the bluffline setback. Revised materials were submitted on February 24th, 2025. The proposed project fully complies with MSCWMO volume control performance standards with green roof and pervious pavement for stormwater management. *MSCWMO staff recommends approval with two conditions.*
- **West Lakeland Road Improvements.** Submittal items were received on February 19th, 2025 for street improvements within the MSCWMO boundaries and West Lakeland Township. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP) since it involves grading moving more than 100 cubic yards of material or removal of vegetation on greater than 10,000 square feet of land. The project does not create or fully reconstruct impervious surfaces and does not require permanent stormwater management features. The proposed project fully complies with MSCWMO sediment and erosion control performance standards. *MSCWMO staff recommends approval.*
- **16757 25th St S.** Submittal items were received on February 20th, 2025 for the residential reconstruction at 16757 25th St S located within the MSCWMO boundaries and the City of St. Mary's Point. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP) since it involves reconstruction of more than 500 square feet of impervious surface in the St. Croix Riverway. Revised materials were submitted on March 31st, 2025. The project meets MSCWMO volume control performance standards with four proposed raingardens. *MSCWMO staff recommends approval with one condition.*
- **1045 Quentin Ave S.** Submittal items were received on February 27th, 2025 for deck and stairway construction at 1045 Quentin Ave S within the MSCWMO boundaries and the City of Lakeland. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP) since it involves a variance from local bluffline setback zoning requirements. The proposed project demonstrates complies with MSCWMO erosion and sediment control performance standards. M*SCWMO staff recommends approval with three conditions.*
- **2025 Stillwater Streets.** Submittal items were received on February 7th, 2025 for the proposed 2025 Stillwater Street Improvement Project within the MSCWMO boundaries and the City of Stillwater. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP) since it creates or fully reconstructs 6000 square feet or more of impervious surface. Revised submittal materials that address initial comments were received on

March 11th, 2025. The project complies with MSCWMO volume control performance standards utilizing boulevard tree boxes for volume retention. *MSCWMO staff recommends approval.*

- **115 Lakeland Shores Rd.** Submittal items were received on March 20th, 2025 for a proposed garage, driveway expansion and septic replacement at 115 Lakeland Shores Rd N within the MSCWMO boundaries and the City of Lakeland Shores. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP) since it creation of more than 500 square feet of impervious in the St. Croix Riverway. The proposed project demonstrates complies with MSCWMO volume control standards with a proposed raingarden for volume retention. *MSCWMO staff recommends approval with three conditions.*
- **Stillwater 2nd Street Parking Lot.** Submittal items were received on March 20th, 2025 for the proposed 2025 Stillwater Parking Lots and Trails Project which is partially within the MSCWMO boundaries. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP) since it creates or fully reconstructs 6000 square feet or more of impervious surfaces. The majority of the new impervious portions of the project are in Brown's Creek Watershed District (BCWD) and the project is going through the BCWD permitting process. The MSCWMO portions of the project involve less than 6,000 square feet of new/reconstructed impervious and were reviewed for conformance with MSCWMO erosion and sediment control performance standards. *MSCWMO staff recommends approval.*

MIDDLE ST. CROIX
WATERSHED MANAGEMENT ORGANIZATION

455 Hayward Ave N
Oakdale, MN 55128
651-796-2227
www.mscwmo.org

March 7, 2025

Matt Kline
City of Bayport
294 N Third St.
Bayport, MN 55003

Dear Mr. Kline,

The Middle St. Croix Watershed Management Organization (MSCWMO) received submittal items on February 13th, 2025 for proposed residential reconstruction at 10 Point Road within the MSCWMO boundaries and the City of Bayport. Revised materials following an initial review and comment were received on February 24th, 2025. The project involves reconstruction of a residential structure primarily within the footprint of the existing residential structure. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP) since it involves the reconstruction of 500 square feet or more of impervious in the St. Croix Riverway and grading impacts within bluffline setbacks. The MSCWMO staff recommends approval with the following two conditions:

1. OHWL elevations and setbacks are shown correctly on plans and a variance for the OHWL and bluffline setbacks is approved by the City of Bayport
2. Plans include the type and estimated quantity of stabilizing cover to be used over seeded areas for erosion prevention.

MSCWMO review process information can be downloaded from www.mscwmo.org. Please contact me at 651-796-2227 or moldenburg-downing@mnwcd.org if you have any questions or comments regarding this correspondence.

Sincerely,

Matt Oldenburg-Downing | Administrator
Middle St. Croix Watershed Management Organization

MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

SLR PROJECT REVIEW CHECKLIST

MSCWMO Review ID: 25-001

Project Name: 10 Point Road

Applicant: Jason Aune

Review Date: 3/6/2025

Location: 10 Point Road, Bayport

Purpose: Residential reconstruction

Recommendation: Approval with two conditions:

1. OHWL elevations and setbacks are shown correctly on plans and a variance for the OHWL and bluffline setbacks is approved by the City of Bayport
2. Plans include the type and estimated quantity of stabilizing cover to be used over seeded areas for erosion prevention.

Submittal Items:

☒ A completed and signed project review application form and $350 review fee.

☒ Grading plan showing grading limits, existing and proposed site contour elevations related to NAVD 1988 datum (preferred) or NGVD, 1929.

☒ Location of proposed and existing permanent structures.

☒ Ordinary High Water (OHW) elevations and location of all existing water bodies. Two OHWL elevations are shown on the plans. There should be a single OHWL which is 680 ft (MSL 1912) as set by the MNDNR. The structure setback shown should be from the 680 ft OHWL.

☒ Location of all bluff lines.

☒ Lowest floor elevations of structures built adjacent to stormwater management features and other water bodies must be a minimum of two feet above the regulator flood protection elevation.

☒ Delineation of existing wetlands, shoreland, ordinary high water levels, drain tiling, and floodplain areas.

☒ Details of proposed buffer upslope of water resources including site and vegetation characteristics (when applicable).

☒ Location of the 100-year flood elevation, natural overflow elevation, and lowest floor elevations.

☒ Erosion and sediment control plan demonstrating locations, specifications, and details of the following items:

A. Erosion Prevention
   i. Stabilize all exposed soil areas (including stockpiles) with temporary erosion control (seed and mulch or blanket) within 7 days after construction activities in the area have temporarily or permanently ceased.
   ii. Identify location, type and quantity of temporary erosion prevention practices. Plans do not indicate type and quantity of stabilizing cover to be used over seeded areas for erosion prevention.
   iii. Identify permanent vegetation.

B. Sediment Control
    i. Sediment control practices will be placed down-gradient before up-gradient land disturbing activities begin.
    ii. Identify the location, type and quantity of sediment control practices.
    iii. Vehicle tracking practices must be in place to minimize track out of sediment from the construction site. Streets must be cleaned if tracking practices are not adequate to prevent sediment from being tracked onto the street.
C. Inspections and Maintenance
    i. Applicant must inspect all erosion prevention and sediment control practices once every 7 days or after a ½" rain event to ensure integrity and effectiveness. All nonfunctional practices must be repaired, replaced or enhanced the next business day after discovery.
    ii. Plans shall include contact information including email and a phone number of the person responsible for inspection and compliance with erosion and sediment control.
D. Pollution Prevention
    i. Solid waste must be stored, collected and disposed of in accordance with state law.
    ii. Provide effective containment for all liquid and solid wastes generated by washout operations (concrete, stucco, paint, form release oils, curing compounds).
    iii. Hazardous materials that have potential to leach pollutants must be under cover to minimize contact with stormwater.
E. Final Stabilization
    i. For residential construction only, individual lots are considered final stabilized if the structures are finished and temporary erosion protection and down gradient sediment control has been completed.
    ii. Grading and landscape plans shall include soil tillage and soil bed preparation methods that are employed prior to landscape installation to a minimum depth of 8" and incorporate amendments to meet Minnesota State Stormwater Manual predevelopment soil type bulk densities.
        1. Observe minimum setbacks for areas within the dripline of existing trees, over utilities within 30 in of the surface, where compaction is required by design and inaccessible slopes.

☒ Details of proposed structural stormwater practices (Meets Minnesota Stormwater Manual guidelines)

A. Stormwater flows are diverted away from bluffs whenever feasible.
B. Volume control facilities must drain down within 48 hours, as required by the MPCA NPDES Construction Stormwater Permit.
    i. The period of inundation shall be calculated using the maximum water depth below the surface discharge elevation and the soil infiltration rate.
C. The maximum water depth for volume control facilities is 1.5 feet.
D. Planting plan identified vegetation suitable for the hydrology of the basin.
E. Separation from seasonally saturated soils or bedrock is 3 feet or more for bioretention and infiltration practices.

F. Volume control facilities meet the following setback requirements:

Setback	Minimum Distance (ft.)
Property line	10
Building foundation*	10
Private well	35
Public water supply well	50
Septic system tank/leach field	35

*Minimum with slopes directed away from the building

G. Volume control is provided for the first 1.1”inch of runoff for all impervious:

Volume Retention Required (cu. ft.)	Volume Retention Provided (cu. ft.)	
$2{,}711\ sq.ft. \times \frac{1.1\ in}{12\ {}^{in}/_{ft}} = 249\ cu.ft.$	**BMP**	**Volume**
	Driveway pervious paver	286 cu. ft.
	Patio pervious paver	23 cu. ft.
Total Required Volume Retention = 249 cu. ft.	**Total Provided Volume Retention = 308 cu. ft.**	

H. Construction Standards
   i. To prevent soil compaction, the proposed volume control facility must be staked off and marked during construction to prevent heavy equipment and traffic from traveling over it.
   ii. Facilities may not be excavated within 2.0 feet of final grade until the contributing drainage area has been constructed and fully stabilized.
   iii. Facilities are in-place during construction activities, all sediment and runoff must be diverted away the facility, using practices such as pipe capping or diversions.
   iv. Facilities installation must occur in dry soil conditions. Excavation, soil placement and rapid stabilization of perimeter slopes must be accomplished prior to the next precipitation event.
   v. Excavation shall be performed by an excavator with a toothed bucket. Use excavator bucket to place materials. Construction equipment shall not be allowed into the basin.
   vi. Prior to the release of any remaining fee or security, the owner must provide documentation that constructed volume control facilities perform as designed.

I. Details
   i. Include a standard cross section of the infiltration device similar to those identified in the Minnesota Stormwater Manual (https://stormwater.pca.state.mn.us/index.php/Bioretention_plan_and_section_drawings)
   ii. The cross section must detail the infiltration media used in the device. Typically, devices use Mix B as described in the Minnesota Stormwater Manual: A well-blended, homogenous mixture of 70 to 85 percent washed construction sand; and 15 to 30 percent MnDOT Grade 2 compost.

MIDDLE ST. CROIX
WATERSHED MANAGEMENT ORGANIZATION

455 Hayward Ave N
Oakdale, MN 55128
651-796-2227
www.mscwmo.org

March 28, 2025

Carrie Seifert
West Lakeland Township
959 Paris Avenue Circle N
West Lakeland Township, MN 55082

Dear Ms. Seifert,

The Middle St. Croix Watershed Management Organization (MSCWMO) received submittal items on February 19th, 2025 for the proposed West Lakeland Township 2025 Street Improvements within the MSCWMO boundaries and West Lakeland Township. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP) since it involves grading involving movement of more than 100 cubic yards of material or removal of vegetation on greater than 10,000 square feet of land. The project does not create or fully reconstruct impervious surfaces therefore the rate and flood control and volume control performance standards are not applicable. The project is in conformance with the sediment and erosion control performance standards and will require permit coverage under the MPCA NPDES/SDS Construction Stormwater General Permit. The MSCWMO board recommends the project is approved.

MSCWMO review process information can be downloaded from www.mscwmo.org. Please contact me at 651-796-2227 or moldenburg-downing@mnwcd.org if you have any questions or comments regarding this correspondence.

Sincerely,

Matt Oldenburg-Downing | Administrator
Middle St. Croix Watershed Management Organization

MIDDLE ST. CROIX
WATERSHED MANAGEMENT ORGANIZATION

PROJECT REVIEW CHECKLIST

MSCWMO Review ID: 25-002

Project Name: West Lakeland Township 2025 Street Improvements

Applicant: Chad Isakson

Recommendation: Approval

Review Date: 3/28/2025

Location: Omaha Ave , Olene Ct & Ave, Oldridge Ave

Purpose: reclamation and repaving of several township roads

Applicability:

☒ Any project undertaking grading, filling, or other land alteration activities which involve movement of 100 cubic yards of earth or removal of vegetation on greater than 10,000 square feet of land.

☐ Any project that creates or fully reconstruct 6,000 square feet or more of impervious surface.

☐ All major subdivisions or minor subdivisions that are part of a common plan of development. Major subdivisions are defined as subdivisions with 4 or more lots.

☐ Any project with wetland impacts, grading within public waters, grading within buffers or within 40-feet of the bluff line.

☐ Development projects that impact 2 or more of the member communities.

☐ New or redevelopment projects within the St. Croix Riverway that require a building permit that add 500 square feet of additional impervious surface.

☐ Any project requiring a variance from the current local impervious surface zoning requirements for the property.

☐ Any land development activity, regardless of size, that the City determines is likely to cause an adverse impact to an environmentally sensitive area or other property, or may violate any other erosion and sediment control standard set by the member community.

Submittal Items:

☒ A completed and signed project review application form and review fee.

☒ Grading Plan/Mapping Exhibits:

- ☒ Property lines and delineation of lands under ownership of the applicant.
- ☒ Delineation of existing on-site wetlands, shoreland and/or floodplain areas (including any buffers).
- NA Ordinary High Water (OHW) elevations and datum, as determined by the MDNR (if applicable).
- ☒ Existing and proposed site contour elevations related to NAVD 1988 datum (preferred) or NGVD, 1929. Datum must be noted on exhibits.

NA Drainage easements covering land adjacent to ponding areas, wetlands, and waterways up to their 100-year flood levels and covering all ditches and storm sewers. Access easements to these drainage easements and to other stormwater management facilities shall also be shown. (Not required for sites within public right-of-way)

NA Minimum building elevation for each lot.

☒ Identification of downstream water body.

☒ Delineation of the subwatersheds contributing runoff from off-site, proposed and existing on-site subwatersheds, and flow directions/patterns.

NA Location, alignment, and elevation of proposed and existing stormwater facilities.

NA Existing and proposed normal water elevations and the critical (the highest) water level produced from the 100-year 24-hour storms.

NA Location of the 100-year flood elevation, natural overflow elevation, and lowest floor elevations.

☒ A Stormwater Pollution Prevention Plan in compliance with the requirements of the NPDES SDS Construction Stormwater Permit.

NA Permanent Stormwater Management System in compliance with the requirements of the NPDES SDS Construction Stormwater Permit and MSCWMO Performance Standards.

☒ Impervious areas (Pre- and Post-Construction).

NA Construction plans and specifications for all proposed stormwater management facilities.

NA Location(s) of past, current or future onsite well and septic systems (if applicable).

NA Other exhibits required to show conformance to these Performance Standards.

NA Hydrologic/Hydraulic Design Exhibits:

NA All hydrologic and hydraulic computations completed to design the proposed stormwater management facilities shall be submitted. Model summaries must be submitted. The summaries shall include a map that corresponds to the drainage areas in the model and all other information used to develop the model.

NA A table (or tables) must be submitted showing the following:

NA A listing of all points where runoff leaves the site and the existing and proposed stormwater runoff rates and volumes.

NA A listing of the normal water levels under existing and proposed conditions and the water levels produced from the storm and runoff events listed above for all on-site wetlands, ponds, depressions, lakes, streams, and creeks.

NA A proposed maintenance agreement, which may be in the format of Appendix I, or other form approved by the city.

NA This site drains to, and is within one mile of special or impaired water and complies NPDES CSW additional requirements.

STORMWATER MANAGEMENT PERFORMANCE STANDARDS

NA Water quality treatment is provided prior to direct discharge of stormwater to wetlands and all other water bodies.

Rate and Flood Control Standards

NA The peak rate of stormwater runoff from a newly developed or redeveloped site shall not exceed the 2-, 10-, and 100-year 24-hour storms with respective 2.8, 4.2, and 7.3-inch rainfall depths with MSCWMO approved time distribution based on Atlas 14 for existing and proposed conditions. The runoff curve number for existing agriculture areas shall be less than or equal to the developed condition curve number. The newly developed or redeveloped peak rate shall not exceed the existing peak rate of runoff for all critical duration events, up to and including the 100-year return frequency storm event for all points where discharges leave a site during all phases of development.

NA Predevelopment conditions assume "good hydrologic conditions" for appropriate land covers as identified in TR−55 or an equivalent methodology. Runoff curve numbers have been increased where predevelopment land cover is cropland:

Hydrologic Soil Group A	Runoff Curve Number 56
Hydrologic Soil Group B	Runoff Curve Number 70
Hydrologic Soil Group C	Runoff Curve Number 79
Hydrologic Soil Group D	Runoff Curve Number 83

NA Computer modeling analyses includes secondary overflows for events exceeding the storm sewer systems level-of-service up through the critical 100-year event.

NA In sub-areas of a landlocked watershed, the proposed project does not increase the predevelopment volume or rate of discharge from the sub-area for the 10-year return period event.

NA Flowage easements up to the 100-yr flood level have been secured for stormwater management facilities (such as ditches and storm sewers).

NA Lowest floor elevations of structures built adjacent to stormwater management features and other water bodies are a minimum of two feet above the 100-year flood elevation and a minimum of two feet above the natural overflow of landlocked basins.

Volume Control Standards

NA Calculations/computer model results indicate stormwater volume is controlled for new development and redevelopment requirements per the MSCWMO Design Standards.

Volume Retention Required (cu. ft.)	Volume Retention Provided (cu. ft.)
$XX,XXX\ sq.ft. \times \frac{1.1\ in}{12\ in/ft} = X,XXX\ cu.ft.$ $XX,XXX\ sq.ft. \times \frac{0.55\ in}{12\ in/ft} = X,XXX\ cu.ft.$ **Total Required Volume Retention = X,XXX cu. ft.**	**BMP** **Volume** BMP #1 X,XXX cu. ft. BMP #2 X,XXX cu. ft. **Total Provided Volume Retention = X,XXX cu. ft.**

Flexible Treatment Options (when applicable)

NA Applicant demonstrated qualifying restrictions as defined in Section 7.2.2 (4) of the 2015 MSCWMO Watershed Management Plan that prohibits the infiltration of the entire required volume.

NA FTO #1: MIDS calculator submission removes 75% of the annual total phosphorous.

NA FTO #2: MIDS calculator submission removes 60% of the annual total phosphorous.

NA FTO #3: Offsite mitigation equivalent to the volume reduction standard is provided.

Infiltration/Filtration Design Standards

NA Proposed stormwater management features meet or exceed NPDES General Construction Permit requirements are designed in conformance with the most recent edition of the State of Minnesota Stormwater Manual.

NA None of the following conditions exist that prohibit infiltration of stormwater on the site

a. Areas where vehicle fueling and maintenance occur.
b. Areas where contaminants in soil or groundwater will be mobilized by infiltrating stormwater.
c. Areas where soil infiltration rates are field measured at more than 8.3 inches per hour unless amended to slow the infiltration rate below 8.3 inches per hour.
d. Areas with less than three (3) feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally saturated soils or the top of bedrock.
e. Areas of Hydrologic Soil Group D (clay) soils
f. Areas within DSWMAs and ERAs unless infiltration is deemed appropriate based on Minnesota Stormwater Manual Guidance
g. Areas within 1,000 feet up-gradient, or 100 feet down-gradient of active karst features unless allowed by a local unit of government with a current MS4 permit.
h. Areas that receive runoff from industrial facilities not authorized to infiltration stormwater under the NPDES stormwater permit for industrial activites.

NA Minimum setbacks from the Minnesota Department of Health for infiltration practices are met

Setback	**Minimum Distance (ft.)**
Property line	10
Building foundation*	10
Private well	35
Public water supply well	50
Septic system tank/leach field	35

*Minimum with slopes directed away from the building

NA Pretreatment devices(s) remove at least 50% of sediment loads. If downstream from a potential hot spot, a skimmer is in place to facilitate cleanup.

NA Water quality volume will be discharged through infiltration or filtration media in 48 hours or less.

NA For bioretention (biofiltration and bioinfiltration) volume control management facilities above ground with vegetation the period of inundation shall be calculated using the maximum water depth below the surface discharge elevation and the soil infiltration rate.

NA For infiltration basin volume control management facilities the period of inundation shall be calculated using the maximum water depth below the surface discharge elevation and the soil infiltration rate.

NA Appropriate soil borings have been conducted that meet the minimum standards.

a. A minimum of one boring was conducted at the location of the infiltration facility for facilities up to 1,000 ft^2; between 1,000 and 5,000 ft^2, two borings; between 5,000 and 10,000 ft^2, three borings; and greater than 10,000 ft^2, 4 borings plus an additional boring for every 2,500 ft^2 beyond 12,500 ft^2.

b. Soil borings extend a minimum of five feet below the bottom of the infiltration practice. If fractured bedrock is suspected, the soil boring goes to a depth of at least ten feet below the proposed bottom of the volume control facility.
c. A minimum of three feet of separation to the seasonal water table and/or bedrock.
d. Identify unified soil classification.

NA The least permeable soils horizon identified in the soil boring dictated the infiltration rate.

NA Additional flows are bypassed and are routed through stabilized discharge points.

NA Filtration basin demonstrates a basin draw down between 24 hours and 48 hours.

NA Filtration system Iron Enhanced Sand Filter is sized to bind soluble phosphorous removal for 30 year functional life of the system using the published value of 17lbs.phosphorous removal per 20 yards of 5% by weight iron filings to 95% sand.

NA Identify as build survey and method to demonstrate infiltration or filtration basin is functioning.

NA Construction plans provide adequate construction guidance to prevent clogging or compaction and demonstrate performance.
a. Excavation within 2.0 feet of final grade for infiltration/filtration systems is prohibited until contributing drainage areas are constructed and fully stabilized.
b. Rigorous sediment and erosion controls planned to divert runoff away from the system.
c. Installation of volume control facilities must occur in dry soil conditions. Excavation, soil placement and rapid stabilization of perimeter slopes must be accomplished prior to the next precipitation event.
d. Excavation shall be performed by an excavator with a toothed bucket. Use excavator bucket to place materials. Construction equipment shall not be allowed into the basin.
e. Prior to the release of any remaining fee or security, the permit holder must provide documentation that constructed volume control facilities perform as designed.

NA There is a way to visually verify the system is operating as designed.

NA A minimum 8.0’ maintenance access is provided to all stormwater facilities.

Erosion and Sediment Control Performance Standards

☒ A Stormwater Pollution Prevention Plan (SWPPP) that meets the National Pollutant Discharge Elimination System (NPDES) requirements.

Narrative

☒ Identify the person knowledgeable and experienced who will oversee the implementation of the SWPPP; the installation, inspection, and maintenance of the BMPs.
a. Identifies the person who will oversee the BMP inspection and maintenance.
b. Identify the training requirements are satisfied.
c. Inspections performed once every 7 days.
d. Inspections performed within 24 hours of a rain event greater than 0.5 in/24 hours.
e. Inspection and Maintenance records include:
i. Date and time of inspection.
ii. Name of person(s) conducting inspections.
iii. Finding of inspections, including the specific location where corrective actions are needed.

iv. Corrective actions taken (including dates, times, and party completing maintenance activities).
v. Date and amount of rainfall events greater than 0.5 in/24 hours.
vi. Rainfall amounts must be obtained by a properly maintained rain gauge installed onsite, or by a weather station that is within one mile or by a weather reporting system.
vii. Requirements to observe, describe, and photograph any discharge that may be occurring during the inspection.
viii. All discovered nonfunctional BMPs must be repaired, replaced, or supplemented with functional BMPs within 24 hours after discovery, or as soon as field conditions allow.

☒ Describes procedures to amend the SWPPP and establish additional temporary ESC BMPs as necessary for site conditions.

☒ Describes the installation timing for all Erosion Sediment Control (ESC) Best Management Practices (BMPs).

☒ Describes final stabilization methods for all exposed areas.

☒ Methods used to minimize soil compaction and preserve topsoil must be described.

NA Describes dewatering technique to prevent nuisance conditions, erosion, or inundation of wetlands.

NA Identifies any specific chemicals and the chemical treatment systems that may be used for enhancing the sedimentation process on the site, and how compliance will be achieved with the permit requirements.

☒ Describes the following pollution prevention management measures:
a. Storage, handling, and disposal of construction products, materials, and wastes.
b. Fueling and maintenance of equipment or vehicles; spill prevention and response.
c. Vehicle and equipment washing.
d. No engine degreasing allowed on site.
e. Containment of Concrete and other washout waste.
f. Portable toilets are positioned so that they are secure.

Plan Sheets

NA Temporary Sediment Basins required (10 acres draining to common location or 5 acres App. A) and design meets the following criteria:
a. Adequately sized – 2-year, 24-hour storm, minimum 1,800 feet/acre; or no calculative minimum 3,600ft3/acre.
b. Designed to prevent short circuiting.
c. Outlets designed to remove floating debris.
d. Outlets designed to allow complete drawdown.
e. Outlets designed to withdraw water from the surface
f. Outlets have energy dissipation.
g. Have a stabilized emergency spillway.
h. Situated outside of surface waters and any natural buffers.

☒ Locations and types of all temporary and permanent Erosion Control BMPs.
a. Exposed soils have erosion protection/cover initiated immediately and finished within 7 days.
b. Wetted perimeters of ditches stabilized within 200 feet of surface water within 24 hours.
c. Pipe outlets have energy dissipation within 24 hours of connecting.

☒ Locations and types of all temporary and permanent Sediment Control BMPs.
   a. Sediment control practices established on down gradient perimeters and upgradient of any buffer zones.
   b. All inlets are protected.
   c. Stockpiles have sediment control and placed in areas away from surface waters or natural buffers.
   d. Construction site entrances minimize street tracking?
   e. Plans minimize soil compaction and, unless infeasible to preserve topsoil.
   f. Fifty foot natural buffers preserved or (if not feasible) provide redundant sediment controls when a surface water is located within 50 feet of the project's earth disturbances and drains to the surface water.

☒ Tabulated quantities of all erosion prevention and sediment control BMPs.

☒ Stormwater flow directions and surface water divides for all pre- and post-construction drainage areas.

NA Locations of areas not to be disturbed (buffer zones).

NA Location of areas where construction will be phased to minimize duration of exposed soil areas.

NA Blufflines are protected from construction activities in urban (40 foot buffer) areas and rural areas (100-foot buffer).

Wetland Performance Standards

NA Direct discharge of stormwater to wetlands and all other water bodies without water quality treatment is prohibited.

NA Any potential changes to the hydrology of the wetland (i.e. changes to the outlet elevation or contributing drainage area) must be reviewed to evaluate the impact of both the existing and proposed wetland conditions and approved by the MSCWMO.

NA Land-altering activities shall not increase the bounce in water level or duration of inundation from a 2.0-inch 24-hour storm for any downstream wetland beyond the limit specified in Table 7.2 for the individual wetland susceptibility class.

Lake, Stream and Wetland Buffer Performance Standards

NA A buffer zone of unmowed natural vegetation is maintained or created upslope of all water bodies (wetlands, streams, lakes).

NA A 50 foot natural buffer or (if a buffer is infeasible) provide redundant sediment controls when a surface water is located within 50 feet of the project's earth disturbances and stormwater flows to the surface water.

NA If adjacent to a Special or Impaired Water an undisturbed buffer zone of not less than 100 linear feet from the special water is maintained both during construction and as a permanent feature post construction.

MIDDLE ST. CROIX
WATERSHED MANAGEMENT ORGANIZATION

455 Hayward Ave N
Oakdale, MN 55128
651-796-2227
www.mscwmo.org

April 4, 2025

Cindie Reiter
City of St. Mary's Point
16491 St. Mary's Drive
St. Mary's Point, MN 55043

Dear Ms. Reiter,

The Middle St. Croix Watershed Management Organization (MSCWMO) received submittal items on February 20th, 2025 for a proposed home reconstruction at 16757 25th St S with in the MSCWMO boundaries and the City of St. Mary's Point. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP) since it is within the St. Croix Riverway and involves creating/reconstruction more than 500 square feet of impervious. Revised submittal items were received on March 31st, 2025 after MSCWMO staff sent the applicant initial review comments. The MSCWMO board recommends approval with the following one condition:

1. City floodplain administrator shall confirm vehicular access requirements of the NFIP are met.

MSCWMO review process information can be downloaded from www.mscwmo.org. Please contact me at 651-796-2227 or moldenburg-downing@mnwcd.org if you have any questions or comments regarding this correspondence.

Sincerely,

Matt Oldenburg-Downing | Administrator
Middle St. Croix Watershed Management Organization

MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

SLR PROJECT REVIEW CHECKLIST

MSCWMO Review ID: 25-003

Project Name: Mildon Residence

Applicant: Jake Mildon

Review Date: 4/4/2025

Location: 16757 25th St S, St. Mary's Point

Purpose: Demolish existing home and detached garage and build a new slab on grade home

Recommendation: Approval with one condition:

1. City floodplain administrator shall confirm vehicular access requirements of the NFIP are met.

Submittal Items:

☒ A completed and signed project review application form and $350 review fee.

☒ Grading plan showing grading limits, existing and proposed site contour elevations related to NAVD 1988 datum (preferred) or NGVD, 1929.

☒ Location of proposed and existing permanent structures.

☒ Ordinary High Water (OHW) elevations and location of all existing water bodies.

☒ Location of all bluff lines.

☒ Lowest floor elevations of structures built adjacent to stormwater management features and other water bodies must be a minimum of two feet above the regulator flood protection elevation. City floodplain administrator shall confirm vehicular access requirements of the NFIP are met.

☒ Delineation of existing wetlands, shoreland, ordinary high water levels, drain tiling, and floodplain areas.

☒ Details of proposed buffer upslope of water resources including site and vegetation characteristics (when applicable).

☒ Location of the 100-year flood elevation, natural overflow elevation, and lowest floor elevations.

☒ Erosion and sediment control plan demonstrating locations, specifications, and details of the following items:

A. Erosion Prevention
   i. Stabilize all exposed soil areas (including stockpiles) with temporary erosion control (seed and mulch or blanket) within 7 days after construction activities in the area have temporarily or permanently ceased.
   ii. Identify location, type and quantity of temporary erosion prevention practices.
   iii. Identify permanent vegetation.

B. Sediment Control
   i. Sediment control practices will be placed down-gradient before up-gradient land disturbing activities begin.
   ii. Identify the location, type and quantity of sediment control practices.

iii. Vehicle tracking practices must be in place to minimize track out of sediment from the construction site. Streets must be cleaned if tracking practices are not adequate to prevent sediment from being tracked onto the street.

C. Inspections and Maintenance
   i. Applicant must inspect all erosion prevention and sediment control practices once every 7 days or after a ½" rain event to ensure integrity and effectiveness. All nonfunctional practices must be repaired, replaced or enhanced the next business day after discovery.
   ii. Plans shall include contact information including email and a phone number of the person responsible for inspection and compliance with erosion and sediment control.

D. Pollution Prevention
   i. Solid waste must be stored, collected and disposed of in accordance with state law.
   ii. Provide effective containment for all liquid and solid wastes generated by washout operations (concrete, stucco, paint, form release oils, curing compounds).
   iii. Hazardous materials that have potential to leach pollutants must be under cover to minimize contact with stormwater.

E. Final Stabilization
   i. For residential construction only, individual lots are considered final stabilized if the structures are finished and temporary erosion protection and down gradient sediment control has been completed.
   ii. Grading and landscape plans shall include soil tillage and soil bed preparation methods that are employed prior to landscape installation to a minimum depth of 8" and incorporate amendments to meet Minnesota State Stormwater Manual predevelopment soil type bulk densities.
      1. Observe minimum setbacks for areas within the dripline of existing trees, over utilities within 30 in of the surface, where compaction is required by design and inaccessible slopes.

☒ Details of proposed structural stormwater practices (Meets Minnesota Stormwater Manual guidelines)

A. Stormwater flows are diverted away from bluffs whenever feasible.
B. Volume control facilities must drain down within 48 hours, as required by the MPCA NPDES Construction Stormwater Permit.
   i. The period of inundation shall be calculated using the maximum water depth below the surface discharge elevation and the soil infiltration rate.
C. The maximum water depth for volume control facilities is 1.5 feet.
D. Planting plan identified vegetation suitable for the hydrology of the basin.
E. Separation from seasonally saturated soils or bedrock is 3 feet or more for bioretention and infiltration practices.
F. Volume control facilities meet the following setback requirements:

Setback	Minimum Distance (ft.)
Property line	10
Building foundation*	10
Private well	35
Public water supply well	50
Septic system tank/leach field	35

*Minimum with slopes directed away from the building

G. Volume control is provided for the first 1.1”inch of runoff for all impervious:

Volume Retention Required (cu. ft.)	Volume Retention Provided (cu. ft.)
$11{,}441\ sq.ft. \times \frac{1.1\ in}{12\ {}^{in}/_{ft}} = 2{,}435\ cu.ft.$ **Total Required Volume Retention = 1,048 cu. ft.**	**BMP** **Volume** Raingarden #1 299 cu. ft. Raingarden #2 203 cu. ft. Raingarden #3 277 cu. ft. Raingarden #4 415 cu. ft. **Total Provided Volume Retention = 1,194 cu. ft.**

H. Construction Standards
   i. To prevent soil compaction, the proposed volume control facility must be staked off and marked during construction to prevent heavy equipment and traffic from traveling over it.
   ii. Facilities may not be excavated within 2.0 feet of final grade until the contributing drainage area has been constructed and fully stabilized.
   iii. Facilities are in-place during construction activities, all sediment and runoff must be diverted away the facility, using practices such as pipe capping or diversions.
   iv. Facilities installation must occur in dry soil conditions. Excavation, soil placement and rapid stabilization of perimeter slopes must be accomplished prior to the next precipitation event.
   v. Excavation shall be performed by an excavator with a toothed bucket. Use excavator bucket to place materials. Construction equipment shall not be allowed into the basin.
   vi. Prior to the release of any remaining fee or security, the owner must provide documentation that constructed volume control facilities perform as designed.

I. Details
   i. Include a standard cross section of the infiltration device similar to those identified in the Minnesota Stormwater Manual (https://stormwater.pca.state.mn.us/index.php/Bioretention_plan_and_section_drawings)
   ii. The cross section must detail the infiltration media used in the device. Typically, devices use Mix B as described in the Minnesota Stormwater Manual: A well-blended, homogenous mixture of 70 to 85 percent washed construction sand; and 15 to 30 percent MnDOT Grade 2 compost.

MIDDLE ST. CROIX
WATERSHED MANAGEMENT ORGANIZATION

455 Hayward Ave N
Oakdale, MN 55128
651-796-2227
www.mscwmo.org

March 28, 2025

Michelle Elsner
City of Lakeland
690 Quinnell Ave N
PO Box 321
Lakeland, MN 55043

Dear Ms. Elsner,

The Middle St. Croix Watershed Management Organization (MSCWMO) received revised submittal items on February 27th, 2025 for deck and stairway construction at 1045 Quentin Ave S within the MSCWMO boundaries and the City of Lakeland. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP) since it involves a variance from local bluffline setback zoning requirements. The project as reviewed is in compliance with the MSCWMO stormwater management and erosion and sediment control performance standards. The MSCWMO board recommends approval for this project with three conditions:

1. Redundant rows of perimeter control are planned and provided down gradient of the stairway removal.
2. Downspouts are directed away from blufflines when feasible and do not extend into bluffline setbacks.
3. A city variance is approved for the construction of a pervious deck system within the 40' bluffline setback.

MSCWMO review process information can be downloaded from www.mscwmo.org. Please contact me at 651-796-2227 or moldenburg-downing@mnwcd.org if you have any questions or comments regarding this correspondence.

Sincerely,

Matt Oldenburg-Downing | Administrator
Middle St. Croix Watershed Management Organization

MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

SLR PROJECT REVIEW CHECKLIST

MSCWMO Review ID: 25-004

Review Date: 3/28/2025

Project Name: Hamer Deck & Stairway

Location: 1045 Quentin Ave S, Lakeland

Applicant: Craig and Monica Hamer

Purpose: Replace patio and stairway

Recommendation: Approval with 3 conditions:

1. Redundant rows of perimeter control are planned and provided down gradient of the stairway removal.
2. Downspouts are directed away from blufflines when feasible and do not extend into bluffline setbacks.
3. A city variance is approved for the construction of a pervious deck system within the 40' bluffline setback.

Submittal Items:

☒ A completed and signed project review application form and $350 review fee.

☒ Grading plan showing grading limits, existing and proposed site contour elevations related to NAVD 1988 datum (preferred) or NGVD, 1929.

☒ Location of proposed and existing permanent structures.

☒ Ordinary High Water (OHW) elevations and location of all existing water bodies.

☒ Location of all bluff lines.

☒ Lowest floor elevations of structures built adjacent to stormwater management features and other water bodies must be a minimum of two feet above the regulator flood protection elevation.

☐ Delineation of existing wetlands, shoreland, ordinary high water levels, drain tiling, and floodplain areas.

NA Details of proposed buffer upslope of water resources including site and vegetation characteristics (when applicable).

☐ Location of the 100-year flood elevation, natural overflow elevation, and lowest floor elevations.

☐ Erosion and sediment control plan demonstrating locations, specifications, and details of the following items:

A. Erosion Prevention
   i. Stabilize all exposed soil areas (including stockpiles) with temporary erosion control (seed and mulch or blanket) within 7 days after construction activities in the area have temporarily or permanently ceased.
   ii. Identify location, type and quantity of temporary erosion prevention practices.
   iii. Identify permanent vegetation.

B. Sediment Control
   i. Sediment control practices will be placed down-gradient before up-gradient land disturbing activities begin. A redundant (double) row of perimeter control shall be placed down gradient of the existing stairway to prevent exposed soil or mulch material from discharging within 100' of an impaired surface water.
   ii. Identify the location, type and quantity of sediment control practices.
   iii. Vehicle tracking practices must be in place to minimize track out of sediment from the construction site. Streets must be cleaned if tracking practices are not adequate to prevent sediment from being tracked onto the street.

C. Inspections and Maintenance
   i. Applicant must inspect all erosion prevention and sediment control practices once every 7 days or after a ½" rain event to ensure integrity and effectiveness. All nonfunctional practices must be repaired, replaced or enhanced the next business day after discovery.
   ii. Plans shall include contact information including email and a phone number of the person responsible for inspection and compliance with erosion and sediment control.

D. Pollution Prevention
   i. Solid waste must be stored, collected and disposed of in accordance with state law.
   ii. Provide effective containment for all liquid and solid wastes generated by washout operations (concrete, stucco, paint, form release oils, curing compounds).
   iii. Hazardous materials that have potential to leach pollutants must be under cover to minimize contact with stormwater.

E. Final Stabilization
   i. For residential construction only, individual lots are considered final stabilized if the structures are finished and temporary erosion protection and down gradient sediment control has been completed.
   ii. Grading and landscape plans shall include soil tillage and soil bed preparation methods that are employed prior to landscape installation to a minimum depth of 8" and incorporate amendments to meet Minnesota State Stormwater Manual predevelopment soil type bulk densities.
      1. Observe minimum setbacks for areas within the dripline of existing trees, over utilities within 30 in of the surface, where compaction is required by design and inaccessible slopes.

☐ Details of proposed structural stormwater practices (Meets Minnesota Stormwater Manual guidelines)

A. Stormwater flows are diverted away from bluffs whenever feasible. There are two existing downspouts on the east side of the home the currently discharge into vegetated areas outside of the bluffline setback. Please show where the downspouts will be directed into an area that outside of the bluffline setback with the proposed deck.

B. Volume control facilities must drain down within 48 hours, as required by the MPCA NPDES Construction Stormwater Permit.
   i. The period of inundation shall be calculated using the maximum water depth below the surface discharge elevation and the soil infiltration rate.

C. The maximum water depth for volume control facilities is 1.5 feet.

D. Planting plan identified vegetation suitable for the hydrology of the basin.

E. Separation from seasonally saturated soils or bedrock is 3 feet or more for bioretention and infiltration practices.

F. Volume control facilities meet the following setback requirements:

Setback	Minimum Distance (ft.)
Property line	10
Building foundation*	10
Private well	35
Public water supply well	50
Septic system tank/leach field	35

*Minimum with slopes directed away from the building

G. Volume control is provided for the first 1.1”inch of runoff for all impervious:

Volume Retention Required (cu. ft.)	Volume Retention Provided (cu. ft.)
$XX,XXX\ sq.ft. \times \frac{1.1\ in}{12\ {}^{in}/_{ft}} = X,XXX\ cu.ft.$	**BMP** **Volume** BMP #1 X,XXX cu. ft. BMP #2 X,XXX cu. ft.
Total Required Volume Retention = X,XXX cu. ft.	**Total Provided Volume Retention = X,XXX cu. ft.**

H. Construction Standards
   i. To prevent soil compaction, the proposed volume control facility must be staked off and marked during construction to prevent heavy equipment and traffic from traveling over it.
   ii. Facilities may not be excavated within 2.0 feet of final grade until the contributing drainage area has been constructed and fully stabilized.
   iii. Facilities are in-place during construction activities, all sediment and runoff must be diverted away the facility, using practices such as pipe capping or diversions.
   iv. Facilities installation must occur in dry soil conditions. Excavation, soil placement and rapid stabilization of perimeter slopes must be accomplished prior to the next precipitation event.
   v. Excavation shall be performed by an excavator with a toothed bucket. Use excavator bucket to place materials. Construction equipment shall not be allowed into the basin.
   vi. Prior to the release of any remaining fee or security, the owner must provide documentation that constructed volume control facilities perform as designed.

I. Details
   i. Include a standard cross section of the infiltration device similar to those identified in the Minnesota Stormwater Manual (https://stormwater.pca.state.mn.us/index.php/Bioretention_plan_and_section_drawings)
   ii. The cross section must detail the infiltration media used in the device. Typically, devices use Mix B as described in the Minnesota Stormwater Manual: A well-blended, homogenous mixture of 70 to 85 percent washed construction sand; and 15 to 30 percent MnDOT Grade 2 compost.

MIDDLE ST. CROIX
WATERSHED MANAGEMENT ORGANIZATION

455 Hayward Ave N
Oakdale, MN 55128
651-796-2227
www.mscwmo.org

March 17, 2025

Shawn Sanders
City of Stillwater
216 N Fourth Street
Stillwater, MN 55082

Dear Mr. Sanders,

The Middle St. Croix Watershed Management Organization (MSCWMO) received submittal items on February 7th, 2025 for the proposed 2025 Stillwater Street Improvement Project within the MSCWMO boundaries and the City of Stillwater. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP) since it creates or fully reconstructs 6000 square feet or more of impervious surface. Revised submittal materials that addressed initial review comments were received on March 11th, 2025. The MSCWMO Board recommends the project for approval.

MSCWMO review process information can be downloaded from www.mscwmo.org. Please contact me at 651-796-2227 or moldenburg-downing@mnwcd.org if you have any questions or comments regarding this correspondence.

Sincerely,

Matt Oldenburg-Downing | Administrator
Middle St. Croix Watershed Management Organization

MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

PROJECT REVIEW CHECKLIST

MSCWMO Review ID: 25-005

Review Date: 3/17/2025

Project Name: 2025 Stillwater Street Improvements

Location: 700-798 Everett St N, Stillwater

Applicant: Reabar Abdullah

Purpose: Street reconstruction

Recommendation: Approval

Applicability:

☐ Any project undertaking grading, filling, or other land alteration activities which involve movement of 100 cubic yards of earth or removal of vegetation on greater than 10,000 square feet of land.

☒ Any project that creates or fully reconstruct 6,000 square feet or more of impervious surface.

☐ All major subdivisions or minor subdivisions that are part of a common plan of development. Major subdivisions are defined as subdivisions with 4 or more lots.

☐ Any project with wetland impacts, grading within public waters, grading within buffers or within 40-feet of the bluff line.

☐ Development projects that impact 2 or more of the member communities.

☐ New or redevelopment projects within the St. Croix Riverway that require a building permit that add 500 square feet of additional impervious surface.

☐ Any project requiring a variance from the current local impervious surface zoning requirements for the property.

☐ Any land development activity, regardless of size, that the City determines is likely to cause an adverse impact to an environmentally sensitive area or other property, or may violate any other erosion and sediment control standard set by the member community.

Submittal Items:

☒ A completed and signed project review application form and review fee.

☒ Grading Plan/Mapping Exhibits:

- ☒ Property lines and delineation of lands under ownership of the applicant.
- ☒ Delineation of existing on-site wetlands, shoreland and/or floodplain areas (including any buffers).
- ☒ Ordinary High Water (OHW) elevations and datum, as determined by the MDNR (if applicable).
- ☒ Existing and proposed site contour elevations related to NAVD 1988 datum (preferred) or NGVD, 1929. Datum must be noted on exhibits.

NA Drainage easements covering land adjacent to ponding areas, wetlands, and waterways up to their 100-year flood levels and covering all ditches and storm sewers. Access easements to these drainage easements and to other stormwater management facilities shall also be shown. (Not required for sites within public right-of-way)

NA Minimum building elevation for each lot.

☒ Identification of downstream water body.

☒ Delineation of the subwatersheds contributing runoff from off-site, proposed and existing on-site subwatersheds, and flow directions/patterns.

☒ Location, alignment, and elevation of proposed and existing stormwater facilities.

☒ Existing and proposed normal water elevations and the critical (the highest) water level produced from the 100-year 24-hour storms.

NA Location of the 100-year flood elevation, natural overflow elevation, and lowest floor elevations.

☒ A Stormwater Pollution Prevention Plan in compliance with the requirements of the NPDES SDS Construction Stormwater Permit.

☒ Permanent Stormwater Management System in compliance with the requirements of the NPDES SDS Construction Stormwater Permit and MSCWMO Performance Standards.

☒ Impervious areas (Pre- and Post-Construction).

☒ Construction plans and specifications for all proposed stormwater management facilities.

NA Location(s) of past, current or future onsite well and septic systems (if applicable).

☒ Other exhibits required to show conformance to these Performance Standards.

☒ Hydrologic/Hydraulic Design Exhibits:

☒ All hydrologic and hydraulic computations completed to design the proposed stormwater management facilities shall be submitted. Model summaries must be submitted. The summaries shall include a map that corresponds to the drainage areas in the model and all other information used to develop the model.

☒ A table (or tables) must be submitted showing the following:

☒ A listing of all points where runoff leaves the site and the existing and proposed stormwater runoff rates and volumes.

☒ A listing of the normal water levels under existing and proposed conditions and the water levels produced from the storm and runoff events listed above for all on-site wetlands, ponds, depressions, lakes, streams, and creeks.

☒ A proposed maintenance agreement, which may be in the format of Appendix I, or other form approved by the city.

☒ This site drains to, and is within one mile of special or impaired water and complies NPDES CSW additional requirements.

STORMWATER MANAGEMENT PERFORMANCE STANDARDS

☒ Water quality treatment is provided prior to direct discharge of stormwater to wetlands and all other water bodies.

Rate and Flood Control Standards

☒ The peak rate of stormwater runoff from a newly developed or redeveloped site shall not exceed the 2-, 10-, and 100-year 24-hour storms with respective 2.8, 4.2, and 7.3-inch rainfall depths with MSCWMO approved time distribution based on Atlas 14 for existing and proposed conditions. The runoff curve number for existing agriculture areas shall be less than or equal to the developed condition curve number. The newly developed or redeveloped peak rate shall not exceed the existing peak rate of runoff for all critical duration events, up to and including the 100-year return frequency storm event for all points where discharges leave a site during all phases of development.

☒ Predevelopment conditions assume "good hydrologic conditions" for appropriate land covers as identified in TR−55 or an equivalent methodology. Runoff curve numbers have been increased where predevelopment land cover is cropland:

Hydrologic Soil Group A	Runoff Curve Number 56
Hydrologic Soil Group B	Runoff Curve Number 70
Hydrologic Soil Group C	Runoff Curve Number 79
Hydrologic Soil Group D	Runoff Curve Number 83

☒ Computer modeling analyses includes secondary overflows for events exceeding the storm sewer systems level-of-service up through the critical 100-year event.

☒ In sub-areas of a landlocked watershed, the proposed project does not increase the predevelopment volume or rate of discharge from the sub-area for the 10-year return period event.

NA Flowage easements up to the 100-yr flood level have been secured for stormwater management facilities (such as ditches and storm sewers).

NA Lowest floor elevations of structures built adjacent to stormwater management features and other water bodies are a minimum of two feet above the 100-year flood elevation and a minimum of two feet above the natural overflow of landlocked basins.

Volume Control Standards

☒ Calculations/computer model results indicate stormwater volume is controlled for new development and redevelopment requirements per the MSCWMO Design Standards.

Volume Retention Required (cu. ft.)	Volume Retention Provided (cu. ft.)
$111{,}644\ sq.ft. \times \frac{0.55\ in}{12\ {}^{in}/_{ft}} = 5{,}117\ cu.ft.$	**BMP** **Volume** Tree Boxes 1,251 cu. ft.
Total Required Volume Retention = 5,117 cu. ft.	**Total Provided Volume Retention = 1,251 cu. ft.**

Flexible Treatment Options (when applicable)

☒ Applicant demonstrated qualifying restrictions as defined in Section 7.2.2 (4) of the 2015 MSCWMO Watershed Management Plan that prohibits the infiltration of the entire required volume.

NA FTO #1: MIDS calculator submission removes 75% of the annual total phosphorous.

☒ FTO #2: MIDS calculator submission removes 60% of the annual total phosphorous.

NA FTO #3: Offsite mitigation equivalent to the volume reduction standard is provided.

Infiltration/Filtration Design Standards

☒ Proposed stormwater management features meet or exceed NPDES General Construction Permit requirements are designed in conformance with the most recent edition of the State of Minnesota Stormwater Manual.

☒ None of the following conditions exist that prohibit infiltration of stormwater on the site

a. Areas where vehicle fueling and maintenance occur.
b. Areas where contaminants in soil or groundwater will be mobilized by infiltrating stormwater.
c. Areas where soil infiltration rates are field measured at more than 8.3 inches per hour unless amended to slow the infiltration rate below 8.3 inches per hour.
d. Areas with less than three (3) feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally saturated soils or the top of bedrock.
e. Areas of Hydrologic Soil Group D (clay) soils
f. Areas within DSWMAs and ERAs unless infiltration is deemed appropriate based on Minnesota Stormwater Manual Guidance
g. Areas within 1,000 feet up-gradient, or 100 feet down-gradient of active karst features unless allowed by a local unit of government with a current MS4 permit.
h. Areas that receive runoff from industrial facilities not authorized to infiltration stormwater under the NPDES stormwater permit for industrial activites.

☒ Minimum setbacks from the Minnesota Department of Health for infiltration practices are met

Setback	Minimum Distance (ft.)
Property line	10
Building foundation*	10
Private well	35
Public water supply well	50
Septic system tank/leach field	35

*Minimum with slopes directed away from the building

☒ Pretreatment devices(s) remove at least 50% of sediment loads. If downstream from a potential hot spot, a skimmer is in place to facilitate cleanup.

☒ Water quality volume will be discharged through infiltration or filtration media in 48 hours or less.

☒ For bioretention (biofiltration and bioinfiltration) volume control management facilities above ground with vegetation the period of inundation shall be calculated using the maximum water depth below the surface discharge elevation and the soil infiltration rate.

☒ For infiltration basin volume control management facilities the period of inundation shall be calculated using the maximum water depth below the surface discharge elevation and the soil infiltration rate.

☒ Appropriate soil borings have been conducted that meet the minimum standards.
   a. A minimum of one boring was conducted at the location of the infiltration facility for facilities up to 1,000 ft²; between 1,000 and 5,000 ft², two borings; between 5,000 and 10,000 ft², three borings; and greater than 10,000 ft², 4 borings plus an additional boring for every 2,500 ft² beyond 12,500 ft².
   b. Soil borings extend a minimum of five feet below the bottom of the infiltration practice. If fractured bedrock is suspected, the soil boring goes to a depth of at least ten feet below the proposed bottom of the volume control facility.
   c. A minimum of three feet of separation to the seasonal water table and/or bedrock.
   d. Identify unified soil classification.

☒ The least permeable soils horizon identified in the soil boring dictated the infiltration rate.

☒ Additional flows are bypassed and are routed through stabilized discharge points.

☒ Filtration basin demonstrates a basin draw down between 24 hours and 48 hours.

NA Filtration system Iron Enhanced Sand Filter is sized to bind soluble phosphorous removal for 30 year functional life of the system using the published value of 17lbs.phosphorous removal per 20 yards of 5% by weight iron filings to 95% sand.

☒ Identify as build survey and method to demonstrate infiltration or filtration basin is functioning.

☒ Construction plans provide adequate construction guidance to prevent clogging or compaction and demonstrate performance.
   a. Excavation within 2.0 feet of final grade for infiltration/filtration systems is prohibited until contributing drainage areas are constructed and fully stabilized.
   b. Rigorous sediment and erosion controls planned to divert runoff away from the system.
   c. Installation of volume control facilities must occur in dry soil conditions. Excavation, soil placement and rapid stabilization of perimeter slopes must be accomplished prior to the next precipitation event.
   d. Excavation shall be performed by an excavator with a toothed bucket. Use excavator bucket to place materials. Construction equipment shall not be allowed into the basin.
   e. Prior to the release of any remaining fee or security, the permit holder must provide documentation that constructed volume control facilities perform as designed.

☒ There is a way to visually verify the system is operating as designed.

☒ A minimum 8.0’ maintenance access is provided to all stormwater facilities.

Erosion and Sediment Control Performance Standards

☒ A Stormwater Pollution Prevention Plan (SWPPP) that meets the National Pollutant Discharge Elimination System (NPDES) requirements.

Narrative

☒ Identify the person knowledgeable and experienced who will oversee the implementation of the SWPPP; the installation, inspection, and maintenance of the BMPs.
   a. Identifies the person who will oversee the BMP inspection and maintenance.
   b. Identify the training requirements are satisfied.
   c. Inspections performed once every 7 days.

d. Inspections performed within 24 hours of a rain event greater than 0.5 in/24 hours.
e. Inspection and Maintenance records include:
   i. Date and time of inspection.
   ii. Name of person(s) conducting inspections.
   iii. Finding of inspections, including the specific location where corrective actions are needed.
   iv. Corrective actions taken (including dates, times, and party completing maintenance activities).
   v. Date and amount of rainfall events greater than 0.5 in/24 hours.
   vi. Rainfall amounts must be obtained by a properly maintained rain gauge installed onsite, or by a weather station that is within one mile or by a weather reporting system.
   vii. Requirements to observe, describe, and photograph any discharge that may be occurring during the inspection.
   viii. All discovered nonfunctional BMPs must be repaired, replaced, or supplemented with functional BMPs within 24 hours after discovery, or as soon as field conditions allow.

☒ Describes procedures to amend the SWPPP and establish additional temporary ESC BMPs as necessary for site conditions.

☒ Describes the installation timing for all Erosion Sediment Control (ESC) Best Management Practices (BMPs).

☒ Describes final stabilization methods for all exposed areas.

☒ Methods used to minimize soil compaction and preserve topsoil must be described.

NA Describes dewatering technique to prevent nuisance conditions, erosion, or inundation of wetlands.

NA Identifies any specific chemicals and the chemical treatment systems that may be used for enhancing the sedimentation process on the site, and how compliance will be achieved with the permit requirements.

☒ Describes the following pollution prevention management measures:
a. Storage, handling, and disposal of construction products, materials, and wastes.
b. Fueling and maintenance of equipment or vehicles; spill prevention and response.
c. Vehicle and equipment washing.
d. No engine degreasing allowed on site.
e. Containment of Concrete and other washout waste.
f. Portable toilets are positioned so that they are secure.

Plan Sheets

NA Temporary Sediment Basins required (10 acres draining to common location or 5 acres App. A) and design meets the following criteria:
a. Adequately sized – 2-year, 24-hour storm, minimum 1,800 feet/acre; or no calculative minimum 3,600ft3/acre.
b. Designed to prevent short circuiting.
c. Outlets designed to remove floating debris.
d. Outlets designed to allow complete drawdown.
e. Outlets designed to withdraw water from the surface
f. Outlets have energy dissipation.
g. Have a stabilized emergency spillway.
h. Situated outside of surface waters and any natural buffers.

☒ Locations and types of all temporary and permanent Erosion Control BMPs.
   a. Exposed soils have erosion protection/cover initiated immediately and finished within 7 days.
   b. Wetted perimeters of ditches stabilized within 200 feet of surface water within 24 hours.
   c. Pipe outlets have energy dissipation within 24 hours of connecting.

☒ Locations and types of all temporary and permanent Sediment Control BMPs.
   a. Sediment control practices established on down gradient perimeters and upgradient of any buffer zones.
   b. All inlets are protected.
   c. Stockpiles have sediment control and placed in areas away from surface waters or natural buffers.
   d. Construction site entrances minimize street tracking?
   e. Plans minimize soil compaction and, unless infeasible to preserve topsoil.
   f. Fifty foot natural buffers preserved or (if not feasible) provide redundant sediment controls when a surface water is located within 50 feet of the project's earth disturbances and drains to the surface water.

☒ Tabulated quantities of all erosion prevention and sediment control BMPs.

☒ Stormwater flow directions and surface water divides for all pre- and post-construction drainage areas.

☒ Locations of areas not to be disturbed (buffer zones).

NA Location of areas where construction will be phased to minimize duration of exposed soil areas.

NA Blufflines are protected from construction activities in urban (40 foot buffer) areas and rural areas (100-foot buffer).

Wetland Performance Standards

NA Direct discharge of stormwater to wetlands and all other water bodies without water quality treatment is prohibited.

NA Any potential changes to the hydrology of the wetland (i.e. changes to the outlet elevation or contributing drainage area) must be reviewed to evaluate the impact of both the existing and proposed wetland conditions and approved by the MSCWMO.

NA Land-altering activities shall not increase the bounce in water level or duration of inundation from a 2.0-inch 24-hour storm for any downstream wetland beyond the limit specified in Table 7.2 for the individual wetland susceptibility class.

Lake, Stream and Wetland Buffer Performance Standards

NA A buffer zone of unmowed natural vegetation is maintained or created upslope of all water bodies (wetlands, streams, lakes).

NA A 50 foot natural buffer or (if a buffer is infeasible) provide redundant sediment controls when a surface water is located within 50 feet of the project's earth disturbances and stormwater flows to the surface water.

NA If adjacent to a Special or Impaired Water an undisturbed buffer zone of not less than 100 linear feet from the special water is maintained both during construction and as a permanent feature post construction.

MIDDLE ST. CROIX
WATERSHED MANAGEMENT ORGANIZATION

455 Hayward Ave N
Oakdale, MN 55128
651-796-2227
www.mscwmo.org

March 28, 2025

Kim Points
City of Lakeland Shores
PO Box 246
Lakeland, MN 55043

Dear Ms. Points,

The Middle St. Croix Watershed Management Organization (MSCWMO) received revised submittal items on March 20th, 2025 the proposed garage, driveway expansion, and septic replacement at 115 Lakeland Shores Rd N within the MSCWMO boundaries and the City of Lakeland Shores. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP) since it involves creation of more than 500 square feet of impervious in the St. Croix Riverway. The project as reviewed is in compliance with the MSCWMO stormwater management and erosion and sediment control performance standards. The MSCWMO staff recommends approval for this project with three conditions:

1. Plans are amended to include required information such as the OHW, blufflines, and floodplains as well as the contact information of person responsible for ESC compliance.
2. Infiltration practice is shown to be in compliance with private well setback requirements
3. The specified erosion control blanket is replaced with a product that uses natural netting.

MSCWMO review process information can be downloaded from www.mscwmo.org.Please contact me at 651-796-2227 or moldenburg-downing@mnwcd.org if you have any questions or comments regarding this correspondence.

Sincerely,

Matt Oldenburg-Downing | Administrator
Middle St. Croix Watershed Management Organization

MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

SLR PROJECT REVIEW CHECKLIST

MSCWMO Review ID: 25-009

Review Date: 3/28/2025

Project Name: 115 Lakeland Shores Garage

Location: 115 Lakeland Shores Rd N

Applicant: Nathan Nohner

Purpose: New attached garage and driveway expansion

Recommendation: Approval with three conditions:

1. Plans are amended to include required information such as the OHW, blufflines, and floodplains as well as the contact information of person responsible for ESC compliance.
2. Infiltration practice is shown to be in compliance with private well setback requirements
3. The specified erosion control blanket is replaced with a product that uses natural netting.

Submittal Items:

☒ A completed and signed project review application form and $350 review fee.

☐ Grading plan showing grading limits, existing and proposed site contour elevations related to NAVD 1988 datum (preferred) or NGVD, 1929.

☒ Location of proposed and existing permanent structures.

☐ Ordinary High Water (OHW) elevations and location of all existing water bodies.

☐ Location of all bluff lines.

☒ Lowest floor elevations of structures built adjacent to stormwater management features and other water bodies must be a minimum of two feet above the regulator flood protection elevation.

☐ Delineation of existing wetlands, shoreland, ordinary high water levels, drain tiling, and floodplain areas.

NA Details of proposed buffer upslope of water resources including site and vegetation characteristics (when applicable).

☐ Location of the 100-year flood elevation, natural overflow elevation, and lowest floor elevations.

☐ Erosion and sediment control plan demonstrating locations, specifications, and details of the following items:

A. Erosion Prevention
   i. Stabilize all exposed soil areas (including stockpiles) with temporary erosion control (seed and mulch or blanket) within 7 days after construction activities in the area have temporarily or permanently ceased.
   ii. Identify location, type and quantity of temporary erosion prevention practices. Erosion control blanket identified contains a polypropylene netting. Please identify a type of erosion prevention product that use only natural fibers in the manufacture of netting.
   iii. Identify permanent vegetation.

B. Sediment Control
    i. Sediment control practices will be placed down-gradient before up-gradient land disturbing activities begin.
    ii. Identify the location, type and quantity of sediment control practices.
    iii. Vehicle tracking practices must be in place to minimize track out of sediment from the construction site. Streets must be cleaned if tracking practices are not adequate to prevent sediment from being tracked onto the street.

C. Inspections and Maintenance
    i. Applicant must inspect all erosion prevention and sediment control practices once every 7 days or after a ½" rain event to ensure integrity and effectiveness. All nonfunctional practices must be repaired, replaced or enhanced the next business day after discovery.
    ii. Plans shall include contact information including email and a phone number of the person responsible for inspection and compliance with erosion and sediment control.

D. Pollution Prevention
    i. Solid waste must be stored, collected and disposed of in accordance with state law.
    ii. Provide effective containment for all liquid and solid wastes generated by washout operations (concrete, stucco, paint, form release oils, curing compounds).
    iii. Hazardous materials that have potential to leach pollutants must be under cover to minimize contact with stormwater.

E. Final Stabilization
    i. For residential construction only, individual lots are considered final stabilized if the structures are finished and temporary erosion protection and down gradient sediment control has been completed.
    ii. Grading and landscape plans shall include soil tillage and soil bed preparation methods that are employed prior to landscape installation to a minimum depth of 8" and incorporate amendments to meet Minnesota State Stormwater Manual predevelopment soil type bulk densities.
        1. Observe minimum setbacks for areas within the dripline of existing trees, over utilities within 30 in of the surface, where compaction is required by design and inaccessible slopes.

☒ Details of proposed structural stormwater practices (Meets Minnesota Stormwater Manual guidelines)

A. Stormwater flows are diverted away from bluffs whenever feasible.
B. Volume control facilities must drain down within 48 hours, as required by the MPCA NPDES Construction Stormwater Permit.
    i. The period of inundation shall be calculated using the maximum water depth below the surface discharge elevation and the soil infiltration rate.
C. The maximum water depth for volume control facilities is 1.5 feet.
D. Planting plan identified vegetation suitable for the hydrology of the basin.
E. Separation from seasonally saturated soils or bedrock is 3 feet or more for bioretention and infiltration practices.

F. Volume control facilities meet the following setback requirements: Well location is not shown to confirm private well setback requirements are met

Setback	Minimum Distance (ft.)
Property line	10
Building foundation*	10
Private well	35
Public water supply well	50
Septic system tank/leach field	35

*Minimum with slopes directed away from the building

G. Volume control is provided for the first 1.1”inch of runoff for all impervious:

Volume Retention Required (cu. ft.)	Volume Retention Provided (cu. ft.)
$1{,}572\ sq.ft. \times \frac{1.1\ in}{12\ {}^{in}/_{ft}} = 144\ \ cu.ft.$	**BMP** **Volume** BMP #1 167 cu. ft.
Total Required Volume Retention = 144 cu. ft.	**Total Provided Volume Retention = 167 cu. ft.**

H. Construction Standards
   i. To prevent soil compaction, the proposed volume control facility must be staked off and marked during construction to prevent heavy equipment and traffic from traveling over it.
   ii. Facilities may not be excavated within 2.0 feet of final grade until the contributing drainage area has been constructed and fully stabilized.
   iii. Facilities are in-place during construction activities, all sediment and runoff must be diverted away the facility, using practices such as pipe capping or diversions.
   iv. Facilities installation must occur in dry soil conditions. Excavation, soil placement and rapid stabilization of perimeter slopes must be accomplished prior to the next precipitation event.
   v. Excavation shall be performed by an excavator with a toothed bucket. Use excavator bucket to place materials. Construction equipment shall not be allowed into the basin.
   vi. Prior to the release of any remaining fee or security, the owner must provide documentation that constructed volume control facilities perform as designed.

I. Details
   i. Include a standard cross section of the infiltration device similar to those identified in the Minnesota Stormwater Manual (https://stormwater.pca.state.mn.us/index.php/Bioretention_plan_and_section_drawings)
   ii. The cross section must detail the infiltration media used in the device. Typically, devices use Mix B as described in the Minnesota Stormwater Manual: A well-blended, homogenous mixture of 70 to 85 percent washed construction sand; and 15 to 30 percent MnDOT Grade 2 compost.

MIDDLE ST. CROIX
WATERSHED MANAGEMENT ORGANIZATION

455 Hayward Ave N
Oakdale, MN 55128
651-796-2227
www.mscwmo.org

March 28, 2025

Shawn Sanders
City of Stillwater
216 N Fourth Street
Stillwater, MN 55082

Dear Mr. Sanders,

The Middle St. Croix Watershed Management Organization (MSCWMO) received submittal items on March 20th, 2025 for the proposed 2025 Parking Lots and Trails projects within the MSCWMO boundaries and the City of Stillwater. The 2nd Street Lot and a small trail section on Martha Street are within the MSCWMO boundary and other areas of the project are within BCWD. New/reconstructed impervious portions of the project are within the BCWD and the project is going through the BCWD permitting process. The MSCWMO portions of the project were only reviewed for conformance with the MSCWMO ESC performance standards since the trail impervious is under 6000 square feet and does not trigger permanent stormwater management. The MSCWMO Board recommends the project for approval.

MSCWMO review process information can be downloaded from www.mscwmo.org. Please contact me at 651-796-2227 or moldenburg-downing@mnwcd.org if you have any questions or comments regarding this correspondence.

Sincerely,

Matt Oldenburg-Downing | Administrator
Middle St. Croix Watershed Management Organization

MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

PROJECT REVIEW CHECKLIST

MSCWMO Review ID: 25-008

Review Date: 3/28/2025

Project Name: 2nd Street Parking Lot Reconstruction

Location: 102 Olive St E, Stillwater

Applicant: Reabar Abdullah

Purpose: Parking lot pavement reclamation

Recommendation: Approval

Applicability:

☒ Any project undertaking grading, filling, or other land alteration activities which involve movement of 100 cubic yards of earth or removal of vegetation on greater than 10,000 square feet of land.

☐ Any project that creates or fully reconstruct 6,000 square feet or more of impervious surface.

☐ All major subdivisions or minor subdivisions that are part of a common plan of development. Major subdivisions are defined as subdivisions with 4 or more lots.

☐ Any project with wetland impacts, grading within public waters, grading within buffers or within 40-feet of the bluff line.

☐ Development projects that impact 2 or more of the member communities.

☐ New or redevelopment projects within the St. Croix Riverway that require a building permit that add 500 square feet of additional impervious surface.

☐ Any project requiring a variance from the current local impervious surface zoning requirements for the property.

☐ Any land development activity, regardless of size, that the City determines is likely to cause an adverse impact to an environmentally sensitive area or other property, or may violate any other erosion and sediment control standard set by the member community.

Submittal Items:

☒ A completed and signed project review application form and review fee.

☒ Grading Plan/Mapping Exhibits:

- ☒ Property lines and delineation of lands under ownership of the applicant.
- NA Delineation of existing on-site wetlands, shoreland and/or floodplain areas (including any buffers).
- NA Ordinary High Water (OHW) elevations and datum, as determined by the MDNR (if applicable).
- ☒ Existing and proposed site contour elevations related to NAVD 1988 datum (preferred) or NGVD, 1929. Datum must be noted on exhibits.

NA Drainage easements covering land adjacent to ponding areas, wetlands, and waterways up to their 100-year flood levels and covering all ditches and storm sewers. Access easements to these drainage easements and to other stormwater management facilities shall also be shown. (Not required for sites within public right-of-way)

NA Minimum building elevation for each lot.

☒ Identification of downstream water body.

NA Delineation of the subwatersheds contributing runoff from off-site, proposed and existing on-site subwatersheds, and flow directions/patterns.

☒ Location, alignment, and elevation of proposed and existing stormwater facilities.

NA Existing and proposed normal water elevations and the critical (the highest) water level produced from the 100-year 24-hour storms.

NA Location of the 100-year flood elevation, natural overflow elevation, and lowest floor elevations.

☒ A Stormwater Pollution Prevention Plan in compliance with the requirements of the NPDES SDS Construction Stormwater Permit.

☒ Permanent Stormwater Management System in compliance with the requirements of the NPDES SDS Construction Stormwater Permit and MSCWMO Performance Standards.

☒ Impervious areas (Pre- and Post-Construction).

☒ Construction plans and specifications for all proposed stormwater management facilities.

NA Location(s) of past, current or future onsite well and septic systems (if applicable).

☒ Other exhibits required to show conformance to these Performance Standards.

NA Hydrologic/Hydraulic Design Exhibits:

NA All hydrologic and hydraulic computations completed to design the proposed stormwater management facilities shall be submitted. Model summaries must be submitted. The summaries shall include a map that corresponds to the drainage areas in the model and all other information used to develop the model.

NA A table (or tables) must be submitted showing the following:

NA A listing of all points where runoff leaves the site and the existing and proposed stormwater runoff rates and volumes.

NA A listing of the normal water levels under existing and proposed conditions and the water levels produced from the storm and runoff events listed above for all on-site wetlands, ponds, depressions, lakes, streams, and creeks.

NA A proposed maintenance agreement, which may be in the format of Appendix I, or other form approved by the city.

☒ This site drains to, and is within one mile of special or impaired water and complies NPDES CSW additional requirements.

STORMWATER MANAGEMENT PERFORMANCE STANDARDS

NA Water quality treatment is provided prior to direct discharge of stormwater to wetlands and all other water bodies.

Rate and Flood Control Standards

NA The peak rate of stormwater runoff from a newly developed or redeveloped site shall not exceed the 2-, 10-, and 100-year 24-hour storms with respective 2.8, 4.2, and 7.3-inch rainfall depths with MSCWMO approved time distribution based on Atlas 14 for existing and proposed conditions. The runoff curve number for existing agriculture areas shall be less than or equal to the developed condition curve number. The newly developed or redeveloped peak rate shall not exceed the existing peak rate of runoff for all critical duration events, up to and including the 100-year return frequency storm event for all points where discharges leave a site during all phases of development.

NA Predevelopment conditions assume "good hydrologic conditions" for appropriate land covers as identified in TR−55 or an equivalent methodology. Runoff curve numbers have been increased where predevelopment land cover is cropland:

Hydrologic Soil Group A	Runoff Curve Number 56
Hydrologic Soil Group B	Runoff Curve Number 70
Hydrologic Soil Group C	Runoff Curve Number 79
Hydrologic Soil Group D	Runoff Curve Number 83

NA Computer modeling analyses includes secondary overflows for events exceeding the storm sewer systems level-of-service up through the critical 100-year event.

NA In sub-areas of a landlocked watershed, the proposed project does not increase the predevelopment volume or rate of discharge from the sub-area for the 10-year return period event.

NA Flowage easements up to the 100-yr flood level have been secured for stormwater management facilities (such as ditches and storm sewers).

NA Lowest floor elevations of structures built adjacent to stormwater management features and other water bodies are a minimum of two feet above the 100-year flood elevation and a minimum of two feet above the natural overflow of landlocked basins.

Volume Control Standards

NA Calculations/computer model results indicate stormwater volume is controlled for new development and redevelopment requirements per the MSCWMO Design Standards.

Volume Retention Required (cu. ft.)	Volume Retention Provided (cu. ft.)
$XX,XXX\ sq.ft. \times \frac{1.1\ in}{12\ {}^{in}/_{ft}} = X,XXX\ cu.ft.$ $XX,XXX\ sq.ft. \times \frac{0.55\ in}{12\ {}^{in}/_{ft}} = X,XXX\ cu.ft.$ **Total Required Volume Retention = X,XXX cu. ft.**	**BMP** **Volume** BMP #1 X,XXX cu. ft. BMP #2 X,XXX cu. ft. **Total Provided Volume Retention = X,XXX cu. ft.**

Flexible Treatment Options (when applicable)

NA Applicant demonstrated qualifying restrictions as defined in Section 7.2.2 (4) of the 2015 MSCWMO Watershed Management Plan that prohibits the infiltration of the entire required volume.

NA FTO #1: MIDS calculator submission removes 75% of the annual total phosphorous.

NA FTO #2: MIDS calculator submission removes 60% of the annual total phosphorous.

NA FTO #3: Offsite mitigation equivalent to the volume reduction standard is provided.

Infiltration/Filtration Design Standards

NA Proposed stormwater management features meet or exceed NPDES General Construction Permit requirements are designed in conformance with the most recent edition of the State of Minnesota Stormwater Manual.

NA None of the following conditions exist that prohibit infiltration of stormwater on the site

a. Areas where vehicle fueling and maintenance occur.
b. Areas where contaminants in soil or groundwater will be mobilized by infiltrating stormwater.
c. Areas where soil infiltration rates are field measured at more than 8.3 inches per hour unless amended to slow the infiltration rate below 8.3 inches per hour.
d. Areas with less than three (3) feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally saturated soils or the top of bedrock.
e. Areas of Hydrologic Soil Group D (clay) soils
f. Areas within DSWMAs and ERAs unless infiltration is deemed appropriate based on Minnesota Stormwater Manual Guidance
g. Areas within 1,000 feet up-gradient, or 100 feet down-gradient of active karst features unless allowed by a local unit of government with a current MS4 permit.
h. Areas that receive runoff from industrial facilities not authorized to infiltration stormwater under the NPDES stormwater permit for industrial activites.

NA Minimum setbacks from the Minnesota Department of Health for infiltration practices are met

Setback	Minimum Distance (ft.)
Property line	10
Building foundation*	10
Private well	35
Public water supply well	50
Septic system tank/leach field	35

*Minimum with slopes directed away from the building

NA Pretreatment devices(s) remove at least 50% of sediment loads. If downstream from a potential hot spot, a skimmer is in place to facilitate cleanup.

NA Water quality volume will be discharged through infiltration or filtration media in 48 hours or less.

☐ For bioretention (biofiltration and bioinfiltration) volume control management facilities above ground with vegetation the period of inundation shall be calculated using the maximum water depth below the surface discharge elevation and the soil infiltration rate.

NA For infiltration basin volume control management facilities the period of inundation shall be calculated using the maximum water depth below the surface discharge elevation and the soil infiltration rate.

NA Appropriate soil borings have been conducted that meet the minimum standards.

a. A minimum of one boring was conducted at the location of the infiltration facility for facilities up to 1,000 ft²; between 1,000 and 5,000 ft², two borings; between 5,000 and 10,000 ft², three borings; and greater than 10,000 ft², 4 borings plus an additional boring for every 2,500 ft² beyond 12,500 ft².
b. Soil borings extend a minimum of five feet below the bottom of the infiltration practice. If fractured bedrock is suspected, the soil boring goes to a depth of at least ten feet below the proposed bottom of the volume control facility.
c. A minimum of three feet of separation to the seasonal water table and/or bedrock.
d. Identify unified soil classification.

NA The least permeable soils horizon identified in the soil boring dictated the infiltration rate.

NA Additional flows are bypassed and are routed through stabilized discharge points.

NA Filtration basin demonstrates a basin draw down between 24 hours and 48 hours.

NA Filtration system Iron Enhanced Sand Filter is sized to bind soluble phosphorous removal for 30 year functional life of the system using the published value of 17lbs.phosphorous removal per 20 yards of 5% by weight iron filings to 95% sand.

NA Identify as build survey and method to demonstrate infiltration or filtration basin is functioning.

NA Construction plans provide adequate construction guidance to prevent clogging or compaction and demonstrate performance.
a. Excavation within 2.0 feet of final grade for infiltration/filtration systems is prohibited until contributing drainage areas are constructed and fully stabilized.
b. Rigorous sediment and erosion controls planned to divert runoff away from the system.
c. Installation of volume control facilities must occur in dry soil conditions. Excavation, soil placement and rapid stabilization of perimeter slopes must be accomplished prior to the next precipitation event.
d. Excavation shall be performed by an excavator with a toothed bucket. Use excavator bucket to place materials. Construction equipment shall not be allowed into the basin.
e. Prior to the release of any remaining fee or security, the permit holder must provide documentation that constructed volume control facilities perform as designed.

NA There is a way to visually verify the system is operating as designed.

NA A minimum 8.0' maintenance access is provided to all stormwater facilities.

Erosion and Sediment Control Performance Standards

☒ A Stormwater Pollution Prevention Plan (SWPPP) that meets the National Pollutant Discharge Elimination System (NPDES) requirements.

Narrative

☒ Identify the person knowledgeable and experienced who will oversee the implementation of the SWPPP; the installation, inspection, and maintenance of the BMPs.
a. Identifies the person who will oversee the BMP inspection and maintenance.
b. Identify the training requirements are satisfied.
c. Inspections performed once every 7 days.
d. Inspections performed within 24 hours of a rain event greater than 0.5 in/24 hours.
e. Inspection and Maintenance records include:

i. Date and time of inspection.
ii. Name of person(s) conducting inspections.
iii. Finding of inspections, including the specific location where corrective actions are needed.
iv. Corrective actions taken (including dates, times, and party completing maintenance activities).
v. Date and amount of rainfall events greater than 0.5 in/24 hours.
vi. Rainfall amounts must be obtained by a properly maintained rain gauge installed onsite, or by a weather station that is within one mile or by a weather reporting system.
vii. Requirements to observe, describe, and photograph any discharge that may be occurring during the inspection.
viii. All discovered nonfunctional BMPs must be repaired, replaced, or supplemented with functional BMPs within 24 hours after discovery, or as soon as field conditions allow.

☒ Describes procedures to amend the SWPPP and establish additional temporary ESC BMPs as necessary for site conditions.

☒ Describes the installation timing for all Erosion Sediment Control (ESC) Best Management Practices (BMPs).

☒ Describes final stabilization methods for all exposed areas.

☒ Methods used to minimize soil compaction and preserve topsoil must be described.

NA Describes dewatering technique to prevent nuisance conditions, erosion, or inundation of wetlands.

NA Identifies any specific chemicals and the chemical treatment systems that may be used for enhancing the sedimentation process on the site, and how compliance will be achieved with the permit requirements.

☒ Describes the following pollution prevention management measures:
a. Storage, handling, and disposal of construction products, materials, and wastes.
b. Fueling and maintenance of equipment or vehicles; spill prevention and response.
c. Vehicle and equipment washing.
d. No engine degreasing allowed on site.
e. Containment of Concrete and other washout waste.
f. Portable toilets are positioned so that they are secure.

Plan Sheets

NA Temporary Sediment Basins required (10 acres draining to common location or 5 acres App. A) and design meets the following criteria:
a. Adequately sized – 2-year, 24-hour storm, minimum 1,800 feet/acre; or no calculative minimum 3,600ft3/acre.
b. Designed to prevent short circuiting.
c. Outlets designed to remove floating debris.
d. Outlets designed to allow complete drawdown.
e. Outlets designed to withdraw water from the surface
f. Outlets have energy dissipation.
g. Have a stabilized emergency spillway.
h. Situated outside of surface waters and any natural buffers.

☒ Locations and types of all temporary and permanent Erosion Control BMPs.
a. Exposed soils have erosion protection/cover initiated immediately and finished within 7 days.

b. Wetted perimeters of ditches stabilized within 200 feet of surface water within 24 hours.
c. Pipe outlets have energy dissipation within 24 hours of connecting.

☒ Locations and types of all temporary and permanent Sediment Control BMPs.
a. Sediment control practices established on down gradient perimeters and upgradient of any buffer zones.
b. All inlets are protected.
c. Stockpiles have sediment control and placed in areas away from surface waters or natural buffers.
d. Construction site entrances minimize street tracking?
e. Plans minimize soil compaction and, unless infeasible to preserve topsoil.
f. Fifty foot natural buffers preserved or (if not feasible) provide redundant sediment controls when a surface water is located within 50 feet of the project's earth disturbances and drains to the surface water.

☒ Tabulated quantities of all erosion prevention and sediment control BMPs.

☒ Stormwater flow directions and surface water divides for all pre- and post-construction drainage areas.

NA Locations of areas not to be disturbed (buffer zones).

NA Location of areas where construction will be phased to minimize duration of exposed soil areas.

NA Blufflines are protected from construction activities in urban (40 foot buffer) areas and rural areas (100-foot buffer).

Wetland Performance Standards

NA Direct discharge of stormwater to wetlands and all other water bodies without water quality treatment is prohibited.

NA Any potential changes to the hydrology of the wetland (i.e. changes to the outlet elevation or contributing drainage area) must be reviewed to evaluate the impact of both the existing and proposed wetland conditions and approved by the MSCWMO.

NA Land-altering activities shall not increase the bounce in water level or duration of inundation from a 2.0-inch 24-hour storm for any downstream wetland beyond the limit specified in Table 7.2 for the individual wetland susceptibility class.

Lake, Stream and Wetland Buffer Performance Standards

NA A buffer zone of unmowed natural vegetation is maintained or created upslope of all water bodies (wetlands, streams, lakes).

NA A 50 foot natural buffer or (if a buffer is infeasible) provide redundant sediment controls when a surface water is located within 50 feet of the project's earth disturbances and stormwater flows to the surface water.

NA If adjacent to a Special or Impaired Water an undisturbed buffer zone of not less than 100 linear feet from the special water is maintained both during construction and as a permanent feature post construction.

MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION
455 Hayward Avenue, Oakdale, MN 55128
Phone 651.330.8220 x22 fax 651.330.7747
www.mscwmo.org

Erosion & Sediment Control Compliance Summary & Corrective Action Notice

Inspector Name: Aaron DeRusha **Inspection Date:** 03/18/2025

Project Name: Lakeland Shores Properties, LLC. **Project Address:** 16530 ? 1st St S

Site is within one mile of and discharges to an impaired or special water?

☐ Yes ☑ No

Inspection Type: ☑ Pre-construction ☐ Routine ☐ Rainfall ☐ Post-construction

Overall Site Grade:

☐ A	The site is **in full compliance**. All practices are in place and the site is well maintained.
☐ B	The site is **in compliance**, but normal maintenance activities are required.
☑ C	The site is **not in compliance**. Maintenance or supplemental practices are required.
☐ D	The site is **not in compliance**. Erosion and sediment control practices are in poor condition and controllable water resources or off-site impacts are likely.
☐ F	The site is in **severe non-compliance**. Controllable water quality or off-site impacts have occurred. Enforcement proceedings will be initiated unless immediate corrective actions are taken.

Corrective Action(s) Required:

1. Install perimeter controls at edge of disturbed soils
2. Install four inlet protection devices on St. Croix trail per plan.

General Comments or Potential Areas of Future Concern:

Met Bob Lind on site to discuss project and erosion control needs. Soil is disturbed and silt fence and inlet protections should be installed per plan. Bob will begin work on this today. Discussed adding rock entrance with geotextile underlay to prevent trackout. Discussed retaining wood chips on site to be used for filter berms and temporary stabilization. Reminded infiltration basin should be constructed last and cannot be excavated to within 2 feet of final grade until drainage area is stabilized. May use area as temprorary sediment trap, but cannot excavate below 726. Site disturbs more than one acre of soil- discussed need for state NPDES

permit and weekly and rainfall inspections by a trained individual. Bob will begin training as soon as possible or find consultant for inspections.

Were any discharges observed during this inpection? ☑ No ☐ Yes

Erosion & Sediment Control Compliance Summary & Corrective Action Notice

	Compliant	Non-compliant	Under Review	Not Inspected
Erosion Prevention Requirements:				
Soils are stabilized where no construction activity has occurred for 14 days (including stockpiles)	☐	☐	☑	☐
Disturbance of steep slopes has been minimized or stabilization practices designed for steep slopes are used	☐	☐		☑
Ditches/swales are stabilized 200’ back from point of discharge	☐	☐	☐	☑
Pipe outlets have energy dissipation (within 24 hours of connection)	☐	☐	☐	☑
Construction phasing in accordance with the approved plan is being followed	☐	☐	☑	☐
Areas not to be disturbed are marked off (flags, signs, ect.)	☐	☐		☑
Sediment Control Requirements:				
Perimeter sediment controls are installed properly on all down gradient perimeters	☐	☑		☐
Appropriate BMPs are installed protecting inlets, catch basins, and culvert inlets	☐	☐		☑
Erodible stockpiles have perimeter control in place	☐	☐		☑
Temporary sediment basin is built as shown on approved construction plans	☐	☐		☑
Soil compaction is minimized where applicable	☑	☐		☐
Maintenance and Inspection Requirements:				
Previously stabilized areas are maintaining ground cover	☐	☐		☑
Perimeter controls are maintained and functioning properly	☐	☐		☑
Inlet protection devices are maintained and adequately protecting inlets	☐	☑		☐
Temporary sediment basins are being maintained and properly functioning	☐	☐		☑
Vehicle tracking BMPs are in place at site exits and are maintained/functioning properly	☑	☐		☐
Tracked sediment is being removed within 24 hours	☑	☐	☐	☐
Surface waters, ditches, conveyances, and discharge points have been inspected	☑	☐		☐
Other Requirements:				

Erosion & Sediment Control Compliance Summary & Corrective Action Notice

Pollution prevention management measures for solid waste, hazardous materials, concrete and truck washing are in place	☐	☐		☑
If dewatering is occurring, BMPs are being used to ensure clean water is leaving the site and discharge is not causing erosion	☐	☐		☑
If being utilized, infiltration/filtration systems are marked and protected from compaction and sediment	☐	☐		☑
If required buffers are preserved around all streams, rivers, lakes, and wetlands during construction	☐	☐		☑
If required, buffer monumentation has been installed	☐	☐		☑

Erosion & Sediment Control Compliance Summary & Corrective Action Notice

Images of non-compliant items, concerns, or general conditions:

MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION
455 Hayward Avenue, Oakdale, MN 55128
Phone 651.330.8220 x22 fax 651.330.7747
www.mscwmo.org

Erosion & Sediment Control Compliance Summary & Corrective Action Notice

Inspector Name: Aaron DeRusha **Inspection Date:** 03/17/2025

Project Name: Cheep Storage Lakeland Expansion(CSLXP) **Project Address:** 228 Saint Croix Trl N

Site is within one mile of and discharges to an impaired or special water?

☑ Yes ☐ No

Inspection Type: ☑ Pre-construction ☐ Routine ☐ Rainfall ☐ Post-construction

Overall Site Grade:

☑ A	The site is **in full compliance**. All practices are in place and the site is well maintained.
☐ B	The site is **in compliance**, but normal maintenance activities are required.
☐ C	The site is **not in compliance**. Maintenance or supplemental practices are required.
☐ D	The site is **not in compliance**. Erosion and sediment control practices are in poor condition and controllable water resources or off-site impacts are likely.
☐ F	The site is in **severe non-compliance**. Controllable water quality or off-site impacts have occurred. Enforcement proceedings will be initiated unless immediate corrective actions are taken.

Corrective Action(s) Required:

General Comments or Potential Areas of Future Concern:

Precon meeting with Dion Hanson. Discussed perimeter control install before disturbing soil and requirements and training for state permit coverage. Discussed not excavating the future infiltration area to within 2 feet of final grade until all upgradient areas are stabilized.

Were any discharges observed during this inpection? ☑ No ☐ Yes

Erosion & Sediment Control Compliance Summary & Corrective Action Notice

	Compliant	Non-compliant	Under Review	Not Inspected
Erosion Prevention Requirements:				
Soils are stabilized where no construction activity has occurred for 14 days (including stockpiles)	☐	☐	☐	☑
Disturbance of steep slopes has been minimized or stabilization practices designed for steep slopes are used	☐	☐		☑
Ditches/swales are stabilized 200’ back from point of discharge	☐	☐	☐	☑
Pipe outlets have energy dissipation (within 24 hours of connection)	☐	☐	☐	☑
Construction phasing in accordance with the approved plan is being followed	☑	☐	☐	☐
Areas not to be disturbed are marked off (flags, signs, ect.)	☐	☐		☑
Sediment Control Requirements:				
Perimeter sediment controls are installed properly on all down gradient perimeters	☐	☐		☑
Appropriate BMPs are installed protecting inlets, catch basins, and culvert inlets	☐	☐		☑
Erodible stockpiles have perimeter control in place	☐	☐		☑
Temporary sediment basin is built as shown on approved construction plans	☐	☐		☑
Soil compaction is minimized where applicable	☐	☐		☑
Maintenance and Inspection Requirements:				
Previously stabilized areas are maintaining ground cover	☐	☐		☑
Perimeter controls are maintained and functioning properly	☐	☐		☑
Inlet protection devices are maintained and adequately protecting inlets	☐	☐		☑
Temporary sediment basins are being maintained and properly functioning	☐	☐		☑
Vehicle tracking BMPs are in place at site exits and are maintained/functioning properly	☐	☐		☑
Tracked sediment is being removed within 24 hours	☐	☐	☐	☑
Surface waters, ditches, conveyances, and discharge points have been inspected	☐	☐		☑
Other Requirements:				

Erosion & Sediment Control Compliance Summary & Corrective Action Notice

Pollution prevention management measures for solid waste, hazardous materials, concrete and truck washing are in place	☐	☐		☑
If dewatering is occurring, BMPs are being used to ensure clean water is leaving the site and discharge is not causing erosion	☐	☐		☑
If being utilized, infiltration/filtration systems are marked and protected from compaction and sediment	☐	☐		☑
If required buffers are preserved around all streams, rivers, lakes, and wetlands during construction	☐	☐		☑
If required, buffer monumentation has been installed	☐	☐		☑

Erosion & Sediment Control Compliance Summary & Corrective Action Notice

Images of non-compliant items, concerns, or general conditions:

MIDDLE ST. CROIX
WATERSHED MANAGEMENT ORGANIZATION

455 Hayward Ave N
Oakdale, MN 55128
651-796-2227
www.mscwmo.org

Staff Report- February/March 2025

Administration

- Prepared April meeting materials
- Participated in Lower St. Croix Partnership meetings
- Prepared 2025 Insurance Renewal Documents
- 2024 Audit preparation
- Permit review coordination with communities

Project Reviews

- 10 Point Road – **ACTION**
- West Lakeland Road Improvements – **ACTION**
- 16757 25th Street S – **ACTION**
- 1045 Quentin Ave S – **ACTION**
- 2025 Stillwater Streets – **ACTION**
- 115 Lakeland Shores Rd – **ACTION**
- Stillwater 2nd Street Parking Lot – **ACTION**

10-Year Management Plan Update

Description: The Board of Water and Soil Resources (BWSR) requires watersheds to have a management plan and MSCWMO's current management plan expires in 2025, as such a management plan update is underway. This plan will meet BWSR's various requirements and is on track to be completed by the end of 2025.

Activities This Month: Task 1 - stakeholder engagement portion of the plan is complete. Task – 2 Implementation, Prioritization, and Actions is complete. An inventory and assessment of existing BMPs and mapping of MSCWMO's features has been completed and the report is an appendix of the plan. A detailed inspection protocol has been developed. Updates to the cost share program and performance standards have been made and reviewed by the Board. Task 3 – Plan Composition is draft is complete and was sent out to review agencies on February 28, 2025.

Staff: Rebecca Oldenburg-Downing, WCD

Water Monitoring Program

Description: The MSCWMO water monitoring program includes the monitoring of flow at three sites. These sites have that equipment serves to collect data on the total volume of water flowing into Lily Lake at the Greeley Street Inlet, through Perro Creek at the Diversion Structure, as well as, the Perro Creek Diversion Structure Overflow. Water quality is also collected at the Greeley Street Inlet and the Perro Creek Diversion Structure on a monthly basis, as well as during storm events.

Additionally, the MSCWMO monitors two lakes, Lily and McKusick for several parameters from April-October. Data is collected on both lakes on a biweekly basis and includes: water level, clarity, pH, temperature and dissolved oxygen profiles, an aesthetics and user profile, and field conditions. Additionally, water quality samples are collected from the surface of the lakes and analyzed for total phosphorus, total Kjeldahl nitrogen, and chlorophyll.

Activities This Month: Equipment has been removed for the winter at the Perro Diversion and Perro Diversion Overflow sites. Seven base grab, one storm grab, and four storm composite samples were collected at Perro Creek Diversion Structure. Lake monitoring is complete with the twelve samples having been collected on Lily and McKusick Lakes. Lake elevation gages readings have concluded on Lily and McKusick Lakes, and Brick Pond. The macrophyte surveys on Lily and McKusick are complete and the reports are ready for Board review. The annual Water Monitoring Summary draft is ready for Board review.

Lake elevation gages have been re-installed for the year on Lily Lake, McKusick Lake, and Brick Pond. A citizen volunteer will be collecting elevations on Brick Pond.

Staff: Rebecca Oldenburg-Downing, WCD; Aaron DeRusha, WCD

Erosion and Sediment Control Inspections

Description: The MSCWMO has contracted with the WCD to conduct erosion and sediment control inspections for construction projects that have been reviewed and recommended for permit approval by partner communities. The WCD also maintains an ArcGIS Online based database for project plan review tracking, erosion control inspection, and BMP implementation and maintenance activities.

Activities This Month: Spring erosion control reminder emails and flyers were distributed to all active sites on March 12. Pre-construction erosion control inspection meetings were conducted at the Cheep Storage project in Lakeland and Lakeland Shores Properties, LLC project in Lakeland Shores on March 17 and 18, respectively. Discussion of perimeter control installation, protection of proposed infiltration basin areas, and vehicle trackout pads were discussed at both projects. Both sites were found to require state construction stormwater permit coverage as they are disturbing more than one acre of soil, and are required to have individuals trained in erosion control conducting site inspections and installing erosion control best management practices. Neither site had state permit coverage or the required training. Resources were provided to both sites to comply with state regulations. The Lakeland Shores Properties, LLC project was found to have begun disturbing soil without the required perimeter controls and storm sewer inlet protection devices in place, and the site manager was reminded these must be installed immediately. A drive-by inspection the following week confirmed these practices were installed.

Staff: Aaron DeRusha, WCD

BMP Maintenance

Description: The MSCWMO has a maintenance obligation for its Capital Improvement Projects and projects funded by Clean Water Fund grants. The MSCWMO partners with the Washington Conservation District to fulfill this maintenance requirement.

Activities this month: None.

Staff: Cameron Blake, WCD

Small Scale Habitat & Water Quality Enhancement Projects

Description: In 2024 the WCD received Conservation Corps crew time on behalf of the WMO under FY24 Clean Water Funding to continue small-scale habitat and water quality enhancement projects in throughout the District. Identified projects included a vegetative buffer enhancement along Perro Creek in Bayport, support for a 215-foot buffer expansion between Riviera Avenue S and the St. Croix River in Lake St. Croix Beach under the WCD FY23 Habitat Enhancement Landscape Program (HELP) Grant, and continued support for private shoreline enhancement.

Activities This Month: None.

Staff: Brett Stolpestad, WCD

Meetings:

- Stillwater Streets Reconstruction Pre-app – February 11th
- 10 Point Road Check in – February 18th
- Quixote Ave Remediation – February 20th
- Insurance Policy review – February 24th
- LSCB Levee/Bluff Planning – February 26nth
- LSC Steering Team – February 26th
- 16670 7th St S Pre-App – March 10th
- 16757 25th St S Pre-App – March 13th
- CSAH 5 Gutter Bin Plan – March 13th
- EMWREP Coordination – March 17th
- LSC Steering Team – March 26th
- Bayport Staff Meeting – March 30th