

MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

455 HAYWARD AVENUE, OAKDALE, MINNESOTA 55082
Phone 651.330.8220 x22 fax 651.330.7747 www.mscwmo.org



Regular Meeting of the Middle St. Croix Watershed Management Organization HELD REMOTELY DUE TO COVID -19 PANDEMIC

Attend ONLINE VIA ZOOM by clicking this link: <https://us02web.zoom.us/j/82325742312>

OR

Attend by CONFERENCE CALL by dialing +1 312 626 6799 – Meeting ID 823 2574 2312

Thursday, May 13th, 2021

6:00PM

1. Call to Order – 6:00PM
 - a. Approval of Agenda
2. Approval of Minutes
 - a. Draft minutes – March 11th, 2021 **pg. 1-4**
3. Treasurer's Report
 - a. Report of savings account, assets for May 13th, 2021
 - b. Approve payment of bills for May 13th, 2021
4. Public Comment
5. Old Business
6. New Business
 - a. 3M PFAS Reimbursement Request **pg. 5-6**
 - b. 2021 WCD Water Monitoring Recommendation **pg. 7**
 - c. 2020 WCD Water Monitoring Report **pg. 8-45**
 - d. WCD-MSCWMO BMP Inspection Database Development **pg. 46-47**
 - e. Baytown Township Request **pg. 48**
7. Grant and Cost Share Applications
8. Plan Reviews/Submittals
 - a. Plan Review and Submittal Summary **pg. 49-56**
 - i. 1175 Quinlan Ave-**ACTION**
 - ii. 2159 River Rd S.-**ACTION**
 - iii. 2711 Itasca Ave S.-**ACTION**
 - iv. Lookout Trail-**INFORM**
 - v. Stensland Woods-**INFORM**
 - b. Erosion and Sediment Control Inspection Reports **pg. 57-85**
9. Staff Report **pg. 86-88**
10. 1W1P Updates
11. Other
12. Adjourn

Regular Meeting of the Middle St. Croix Watershed Management Organization
HELD REMOTELY DUE TO COVID -19 PANDEMIC

Thursday, March 11th, 2021

6:00PM

Present: Joe Paiement, City of Lakeland; John Fellego, Baytown Township; Mike Runk, Oak Park Heights; Tom McCarthy, Lake St. Croix Beach; Beth Olfelt-Nelson, St. Mary's Point; Brian Zeller, Lakeland Shores; Dan Kylo, West Lakeland Township; Ryan Collins, Stillwater; John Dahl, Bayport; Administrator Matt Downing; Cameron Blake, WCD; Amanda Herbrand, WCD; Angie Hong, WCD; Dawn Bulera, Lake St. Croix Beach alt.

Call to Order

Manager Zeller called the meeting to order at 6:00PM.

Approval of Agenda

Manager Fellego requested to add an item to the agenda under "Other" titled "Baytown Township request for assistance" and motioned to approve the agenda with this addition. Manager McCarthy seconded this and the motion passed on a roll call vote with all in favor.

Approval of Minutes

Manager Fellego motioned to approve the draft February 11th, 2021 board meeting minutes and Manager McCarthy seconded this motion.

Treasurer's Report

The treasurer's report was presented by Manager Kylo. The remaining checking account balance on March 11th for the month of February 2021 was \$352,447.03. First State Bank CDs were valued at \$38,549.15. The ending balance in the RBC savings account for January 2021 was \$76,857.10.

Bills to be approved this month are: Emmons & Oliver: \$692.75.75; Emmons & Oliver \$2,601.18; Washington Conservation District (Administration): \$4,290.90; Washington Conservation District (Technical Services): \$5,203.00; Total: \$12,787.83.

Manager Fellego asked Administrator Downing if he had sent out community contribution notices to the Baytown clerk and treasurer and this was confirmed with Manager Fellego cc'd sometime after the January MSCWMO Board meeting.

Manager Zeller motioned to approve the March 2021 Treasurer's Report and Manager Runk seconded the motion. The motion passed on a roll call vote. Manager Zeller motioned to pay the March 11th bills and Manager Olfelt-Nelson seconded this motion. The motion passed on a roll call vote.

Public Comment

There was no public comment.

Old Business

There was no old business.

EMWREP Annual Report

Angie Hong presented the East Metro Water Resources Education Program (EMWREP) 2020 Annual report. This organization provides water resources education to 25 local units of government in Washington County, including Watershed Management Organizations and cities and townships. The MSCWMO was one of the founding partners when this program was started in 2006.

Despite the unusual and difficult circumstances in 2020, EMWREP had a very successful year by adapting the planned education and outreach programs into online formats. In fact, increased participation was noted for these online workshops. Angie updated the group on the 2020 activities in the areas of: Adopt-a-Drain, Adopt-a-Raingarden, MN Water Stewards, the NEMO St. Croix Series for local community leaders, the MS4 Toolkit, and volunteer recruitment and support (especially with Sustainable Stillwater MN). There were some real world events that occurred before the shutdowns, and lots of virtual education and videos. More exciting news for the EMWREP program is its planned expansion this year with a new staff member with the ability to provide education to Chisago and Anoka Counties as part of work through the Lower St. Croix Watershed District's One Watershed One Plan.

Manager Fellegly thanked Angie for all her work.

2020 Annual Watershed Report

Administrator Downing presented the MSCWMO 2020 Annual Report. The education and outreach section reflected the different approaches used in 2020 to continue to engage the public. Manager Olfelt-Nelson informed Administrator Downing that her phone number listed in the report is incorrect. Manager Fellegly informed him that his address was listed incorrectly as well. Administrator Downing will finalize and submit the report upon board approval. Manager Zeller thanked Administrator Downing for his good work.

Manager Zeller motioned to approve the 2020 Annual report for submittal after its finalized and Manager Olfelt-Nelson seconded this motion. The motion passed on a roll call vote with all in favor.

Adopt a Drain Membership Request

Administrator Downing requested a motion from the board to approve the \$500 membership fee for the Adopt-a-Drain program. Manager McCarthy made this motion and Manager Collins seconded it. The motion passed on a roll call vote with all in favor.

Grant and Cost Share Applications

Administrator Downing updated the board that the workplan for the most recent LSC grant MSCWMO was awarded had been approved.

1175 Quinlan Ave

There is no action needed. Administrator Downing has not heard back from the applicant. Manager Zeller asked Manager Paiement to help follow up with this applicant. Manager Paiement agreed and said there was a meeting next week and this should be addressed then.

Erosion and Sediment Control Inspection Reports

There are no reports to share but due to the recent rain events the inspection season will be starting sooner than expected. Manager Zeller asked if the frost was gone yet, noting the heavy rain events in areas up to .5”-.75” of rain. Administrator Downing said there was still frost in most areas.

Staff Report

Manager Dahl arrived by this point in the meeting. Administrator Downing presented the staff report. The Lily Lake project is still in a state of change but he hopes to see final plans from the consultant this spring. He is engaging with City of Stillwater staff as well as staff from the apartment complex to hopefully develop a partnership with a formal agreement next month. To meet match requirements from the state he is hoping to enter a cost-share agreement with the apartment complex as this project will also help them resolve issues on their property. There was a PFAS meeting and Administrator Downing will forward the information to the board.

Administrator Downing also updated the board that Perro Creek has now been listed for TSS impairment as well as the existing E. Coli impairment.

1W1P Updates

The next Policy Committee meeting is coming up on March 29th. The group is working on getting the workplan finalized by BWSR.

Other

Manager Fellegy wished to discuss the Baytown Assistance Request. There was discussion at the last board meeting of the cross-boundary drainage issue involving the City of Oak Park Heights and a Baytown Township resident. Baytown Township is getting involved now as it affects more than one resident. Manager Fellegy explained that the city had compared aerial photographs from 1999, 2003, and 2011 of the properties in questions. They noticed a large holding pond that has since disappeared from the OPH property and are wondering if there is any documented agreement between OPH and Baytown Township regarding the stormwater management in this area. Manager Fellegy explained that Baytown Township would like assistance in identifying any of this any information that may exist.

Administrator Downing said that if Baytown Township can submit a formal request or memo that the MSCWMO managers can review, the managers could then have the ability to agree for the MSCWMO to assist as a third party reviewer. Manager Felley said the intention was not to cause any problems with OPH, just looking for information such as the existence of a stormwater agreement between the communities. Administrator Downing said these types of agreements do exist, for example there will be one between the MSCWMO and Stillwater as the MSCWMO will be using the Lily Lake project to store stormwater on Stillwater property. Manager Zeller asked Administrator Downing if the MSCWMO has any kind of file on these properties in which the information could be provided to the communities. Administrator Downing reiterated that he doesn't think the MSCWMO should get in the middle of this issue. Administrator Downing said he could look but he doesn't think the MSCWMO existed at the time of this property issue. Manager Runk concurred that this issue pre-dates the MSCWMO.

Administrator Downing said the MSCWMO could still look and get involved in an advisory capacity. Manager Zeller reiterated that he would like to see a formal request in writing. Manager Fellegly explained that he thought that was sent prior to the meeting. Administrator Downing said he could put this on next month's agenda. Manager Zeller reiterated that he sees the MSCWMO role in this as an advisory committee, not an organization to lead the charge but that we will help where we can help.

Adjourn

Manager Olfelt-Nelson asked Administrator Downing if John Perodi from SHE had gotten ahold of him regarding the street improvement projects upcoming in St. Mary's Point. He confirmed this and updated the board on the plans which involve the LSC beach front area with paths and areas for buffers and infiltration. These plans and sketches will go out to the three affected councils.

Manager Zeller asked the board if anyone had noticed the Pioneer Press article on February 23rd regarding a potential new designation for the St. Croix River region as a National Heritage Area. It would be an act of congress and involved the NPS, SCRA, and grant money. Manager Zeller said adding this new layer of designation was said to increase tourism. The group agreed that they wanted to know more about this and Administrator Downing will look into it.

Manager Zeller motioned to adjourn the meeting and Manager Perkins seconded this. The meeting was adjourned at 6:44pm.

MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

455 Hayward Avenue N. Oakdale, MN 55128
Phone 651.330.8220 x22 fax 651.330.7747 www.mscwmo.org



MEMORANDUM

TO: Middle St. Croix WMO Board of Managers
FROM: Matt Downing, Administrator
DATE: April 30th, 2021

RE: 6a.) 3M PFAS Contamination Groundwater Model Technical Services Reimbursement Request

Our consultant at EOR has been reviewing documents and providing technical input on the development of the water supply groundwater model as part of the 3M PFAS settlement. Staff is requesting reimbursement from MPCA totaling \$676.00 (EOR March).

Recommended Board Action- Approve Submittal of 3M PFAS Reimbursement Request Totaling \$676.00

Invoice

Emmons & Olivier Resources, Inc.
1919 University Ave. W, Ste 300
St. Paul, MN 55104-3455
Phone 651.770.8448
Fax 651.770.2552
www.eorinc.com



Invoice Total \$676.00

Matt Downing
Middle St. Croix WMO
C/O WCD
455 Hayward Avenue North
Oakdale, MN 55128

April 19, 2021
Invoice No: 00405-0011 - 15

Job 00405-0011 3M Groundwater Model Review

- Summary of Work Performed:
•Reviewed information sent out by 3M consultants.
•Attended subgroup one meeting on March 17, 2021.

Professional Services from March 1, 2021 to March 31, 2021

Professional Personnel

	Hours	Rate	Amount	
Professional 4				
Grubb, Stuart	4.00	169.00	676.00	
Totals	4.00		676.00	
Total Labor				676.00
				Total this Invoice \$676.00



MEMORANDUM

TO: Middle St. Croix Watershed Management Organization Board of Managers

FROM: Rebecca Oldenburg Giebel, Washington Conservation District

DATE: 04/29/2021

RE: **6b.) 2021 MSCWMO Water Monitoring Services Agreement**

The Washington Conservation District has an agreement with the MSCWMO to perform water monitoring services in 2021. Those services include monitoring work on Lily Lake to assess buffering capacity for an alum treatment and the conditions of benthic water. With the alum treatment on Lily Lake being delayed until 2022 it is recommended to wait to collect data for assessing conditions for an alum treatment until next year.

The portion of the monitoring budget from Lily Lake alum treatment assessment could be reallocated and be utilized for better characterizing the water on Perro Creek and the Greeley Street Inlet to Lily Lake. Perro Creek has been converted to a fully automated monitoring station that collects stage, velocity, and discharge in 15-minute intervals at the Perro Creek outfall to Lake St. Croix this year but currently is contracted for limited analysis of water quality. It is recommended to use the budget from the Lily Lake alum treatment monitoring to instead analyze additional water quality parameters on Perro Creek for 2021.

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DRAFT

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
John Dahl
John Fellegy
Brian Zeller, Chair
Joe Paiement, Vice Chair
Tom McCarthy, Secretary
Mike Runk
Beth Olfelt-Nelson
Ryan Collins
Dan Kyllö, Treasurer

Washington Conservation District

Matthew Downing, MSCWMO Administrator

Metropolitan Council

Brian Johnson
Sarah Voth
Steven Louwerse
Mallory Vanous
Mike Moger

Minnesota Department of Natural Resources (MN DNR)

Sandy Fecht

Source Molecular Corporation

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

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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
<i>E. coli</i>	<i>Escherichia coli</i>
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
NCHFE	North Central Hardwood Forest Ecoregion
OHW	Ordinary high water level
SOP	Standard operating procedure
TKN	Total Kjeldahl nitrogen
TMDL	Total maximum daily load
TP	Total phosphorus
TSI	Trophic State Index
TSMP	Trout Stream Mitigation Project
TSS	Total suspended solids
$\mu\text{g/L}$	micrograms per liter
$\mu\text{mhos/cm}$	micromhos per centimeter
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 2020 as well as previous years. In 2020 the Middle St. Croix Watershed Management Organization (MSCWMO) monitored both water quality and water surface elevation on McKusick Lake and Lily Lake, flow and water quality at the Greeley Street Inlet to Lily Lake, flow at Perro Creek at the Diversion Structure, and fecal bacteria source at Perro Creek at 9th Street, Perro Creek at 6th Street, Perro Creek at the Diversion Structure, and Perro Creek at 3rd Avenue (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.

Lake Monitoring

Lily Lake was classified as eutrophic and received a B grade in 2020 (APPENDIX A). One sample exceeded the Minnesota Pollution Control Agency's (MPCA) standard for total phosphorus (TP), four samples exceeded the MPCA standard for chlorophyll- α (chl- α) corrected for pheophytin, three Secchi disk transparency readings exceeded the MPCA standard (APPENDIX A).

In 2020 McKusick Lake was classified as eutrophic and received a grade of B- (APPENDIX A). Three samples exceeded the MPCA shallow lake standard for TP. No samples exceeded the MPCA standard for chl- α corrected for pheophytin and no Secchi disk transparency measurements exceeded the MPCA shallow lake standard (APPENDIX A).

Stream and Stormwater Monitoring

Monitoring continued at the Greeley Street inlet to Lily Lake in 2020 and the total recorded discharge was the second highest recorded at the site at 6,923,500 cubic feet. The average TP concentration during baseflow was the lowest since monitoring began in 2015 at 0.046 mg/L,

while the average total suspended solids (TSS) during baseflow was similar to past years at 2 mg/L. Only one storm sample was collected in 2020 and, as in previous years, sample results were higher than the base sample averages for TP and TSS, 0.199 mg/L and 38 mg/L, respectively.

Water monitoring activities were reduced on Perro Creek in 2020 and no traditional WQ samples were collected. Recorded discharge to the St. Croix River at the Perro Creek at the Diversion Structure site was 40,645,328 cubic feet, which included discharge through the overflow structure. Samples were collected on Perro Creek at the same four locations as in 2019 (9th Street, 6th Street, Diversion Structure, and 3rd Avenue) to determine if human fecal DNA was present in the stream. Of the five samples collected at each location in 2019 and 2020, human fecal DNA was detected in three samples at 3rd Ave. (8/1/19, 10/2/19, and 7/29/20), one sample at the Diversion Structure (7/29/20), and no samples at 6th Street and 9th Street.

Discharge at the Brown's Creek Diversion Structure site decreased significantly from 2019 to 2020 due to drier conditions, with a volume of 68,165,935 cubic feet exported to McKusick Lake. The total annual TP and TSS loads also decreased significantly to 760 lbs. and 246,238 lbs., respectively. There were fewer exceedances of MPCA metal standards compared to past years, with only one copper result and three lead results exceeding the chronic standards.

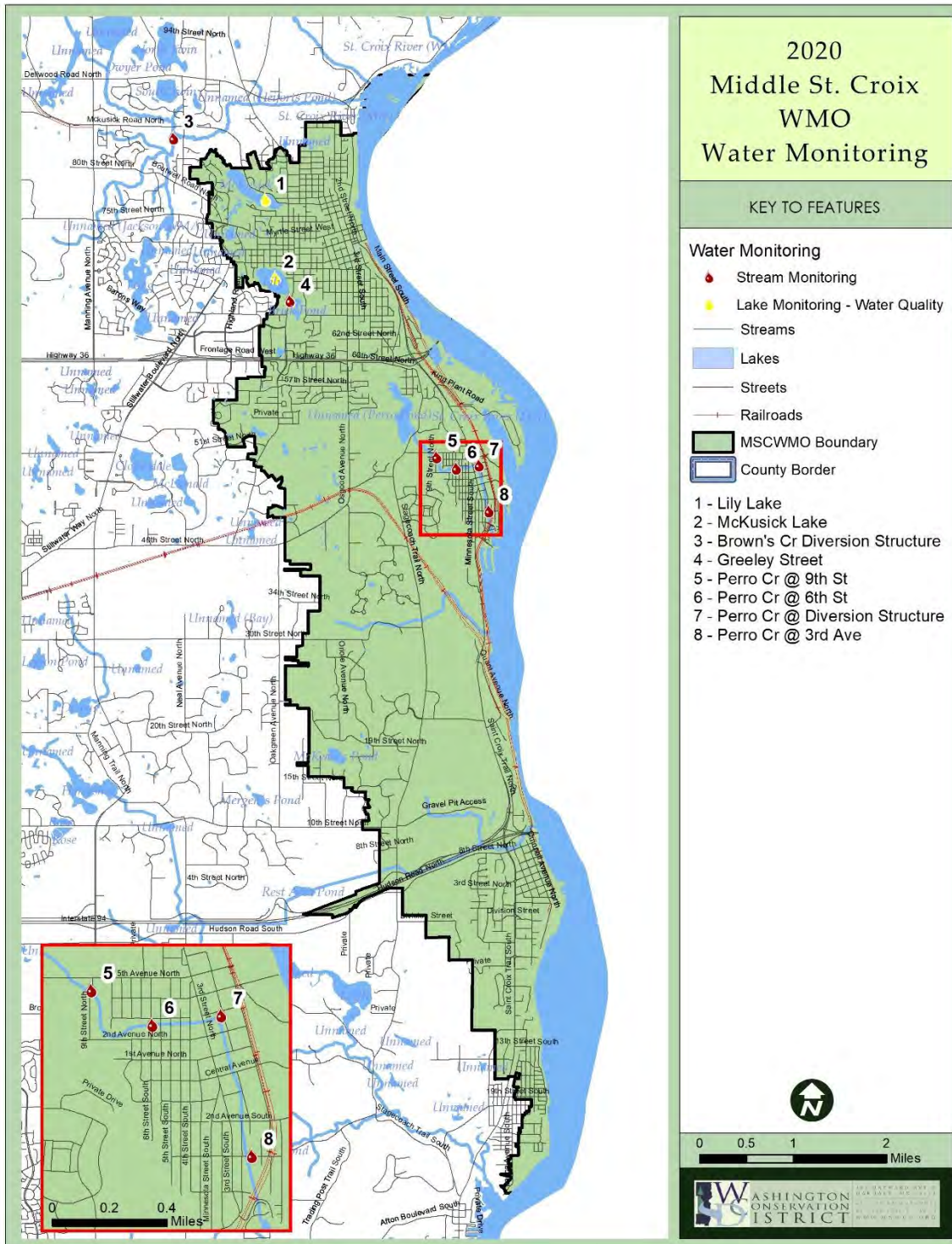


Figure 1. MSCWMO 2020 Water Monitoring Locations

LAKE MONITORING

A. METHODS, RESULTS AND DISCUSSION

In 2020 water quality data was collected biweekly on Lily Lake and McKusick Lake, over six consecutive months (May–October) by the Washington Conservation District (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 2020 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 $\mu\text{g/L}$ for deep lakes and 20 $\mu\text{g/L}$ for shallow lakes. The 2020 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 2020 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 2020 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 ($\mu\text{g/L}$)	Chl-α ($\mu\text{g/L}$)	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 2020. 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. Changes in lake water elevation are often attributed to the changes in precipitation. The highest recorded elevation in 2020 for Lily Lake occurred on 6/29/2020 at 846.77 ft. and on 7/6/2020 at 854.40 ft. for McKusick Lake. Complete lake elevation data for 2020 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>.

1. LILY LAKE

In 2020 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, a statistically significantly declining trend for chl- α and no trend was found for average Secchi disk transparency. Lily Lake had an average summertime TP concentration of 0.028 mg/L, which was lower than 2019 (Figure 2). One of the nine summertime results was greater than the MPCA lake nutrient impairment standard for TP. The 2020 average summertime concentration of chl- α was 15.4 $\mu\text{g/L}$, lower than the 21.5 $\mu\text{g/L}$ measured in 2019 (Figure 3). Four of the nine water quality results for chl- α impairment exceeded the MPCA lake standard (APPENDIX A). Lily Lake had an average summertime TKN concentration of 0.76 mg/L in 2020; lower than the average of 0.91 mg/L in 2019 (Figure 4). Secchi disk readings were measured in 2020 with a summertime average of 2.25 meters (Figure 5), with three of the nine water quality readings exceeding the MPCA lake standard for Secchi disk transparency (APPENDIX A). Lily Lake received a grade of B in 2020, an improvement from the B- it

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.

received in 2019. 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. Lily Lake was below the OHW for three elevation readings, falling to its lowest recorded level of the monitoring season on 10/12/2020 with an elevation of 844.57 ft. The elevation was above the OHW for most of the monitoring season, reaching its highest recorded level on 6/29/2020 with a level of 846.77 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 Secchi transparency, and no trend is present for chl- α . The McKusick Lake summertime average TP concentration in 2020 was 0.065 mg/L; higher than the 0.057 mg/L observed in 2019 (Figure 2), with three of the nine summertime water quality samples exceeding the MPCA TP impairment standard for shallow lakes (APPENDIX A). McKusick Lake had a summertime average chl- α concentration of 7.3 $\mu\text{g/L}$; lower than the chl- α average of 9.1 $\mu\text{g/L}$ from 2019 (Figure 3). None of the nine summertime samples collected in 2020 exceeded the MPCA shallow lake standard for chl- α . The average summertime TKN concentration in 2020 was 0.71 mg/L, the same as 2019 (Figure 4). The 2020 summertime average water transparency measured by Secchi disk was 1.86 meters (Figure 5). None of the nine summertime Secchi disk readings in 2020 were worse than the MPCA shallow lake impairment standard. McKusick Lake received a grade of a B- in 2020, the same as 2019. 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 7/6/2020 with a level of 854.40 ft. and the lowest recorded level of the season occurred on 9/28/2020 with an elevation of 853.74 ft. A summary of all lake results is presented in APPENDIX A.

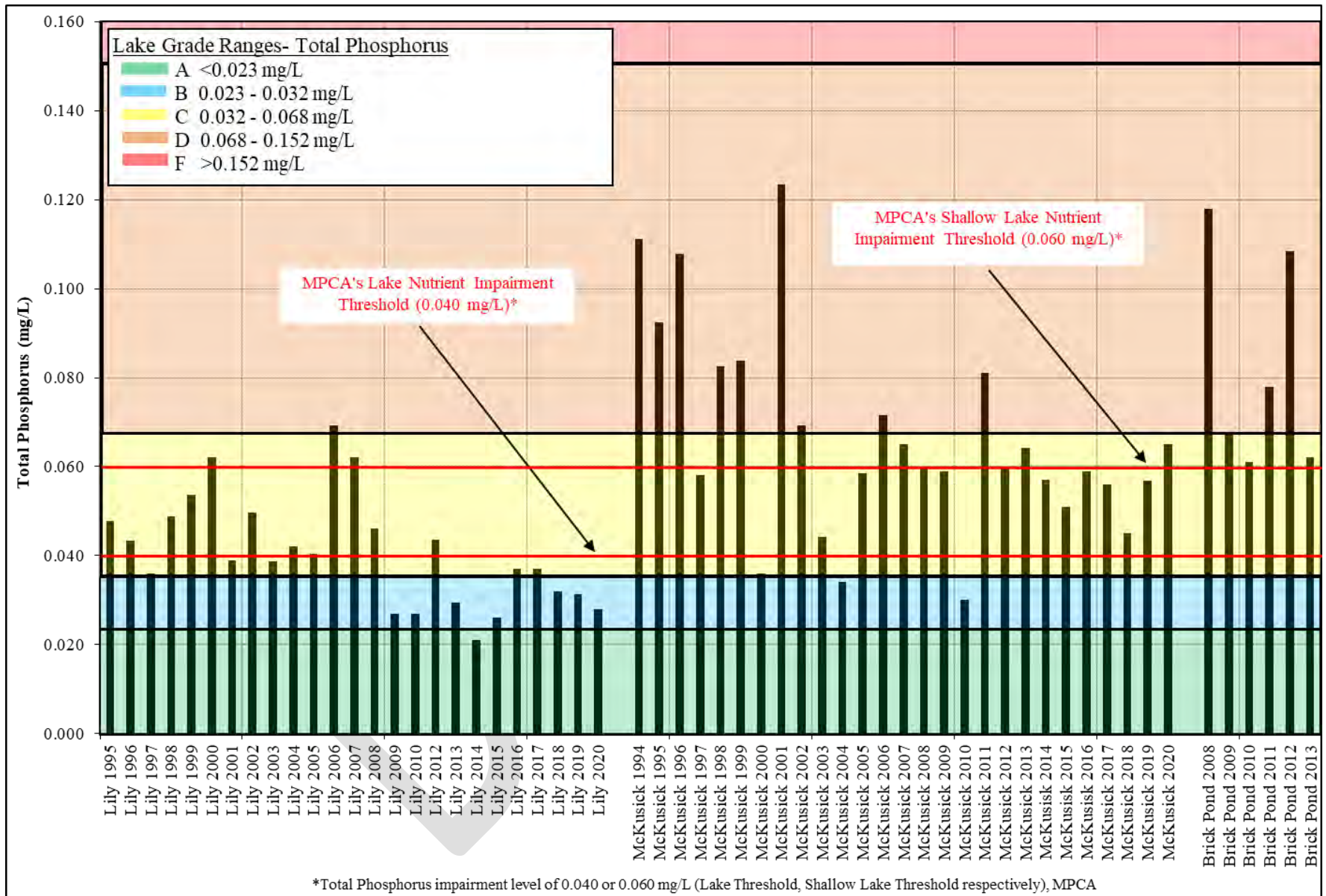


Figure 2. MSCWMO Historic Summer Average Total Phosphorus

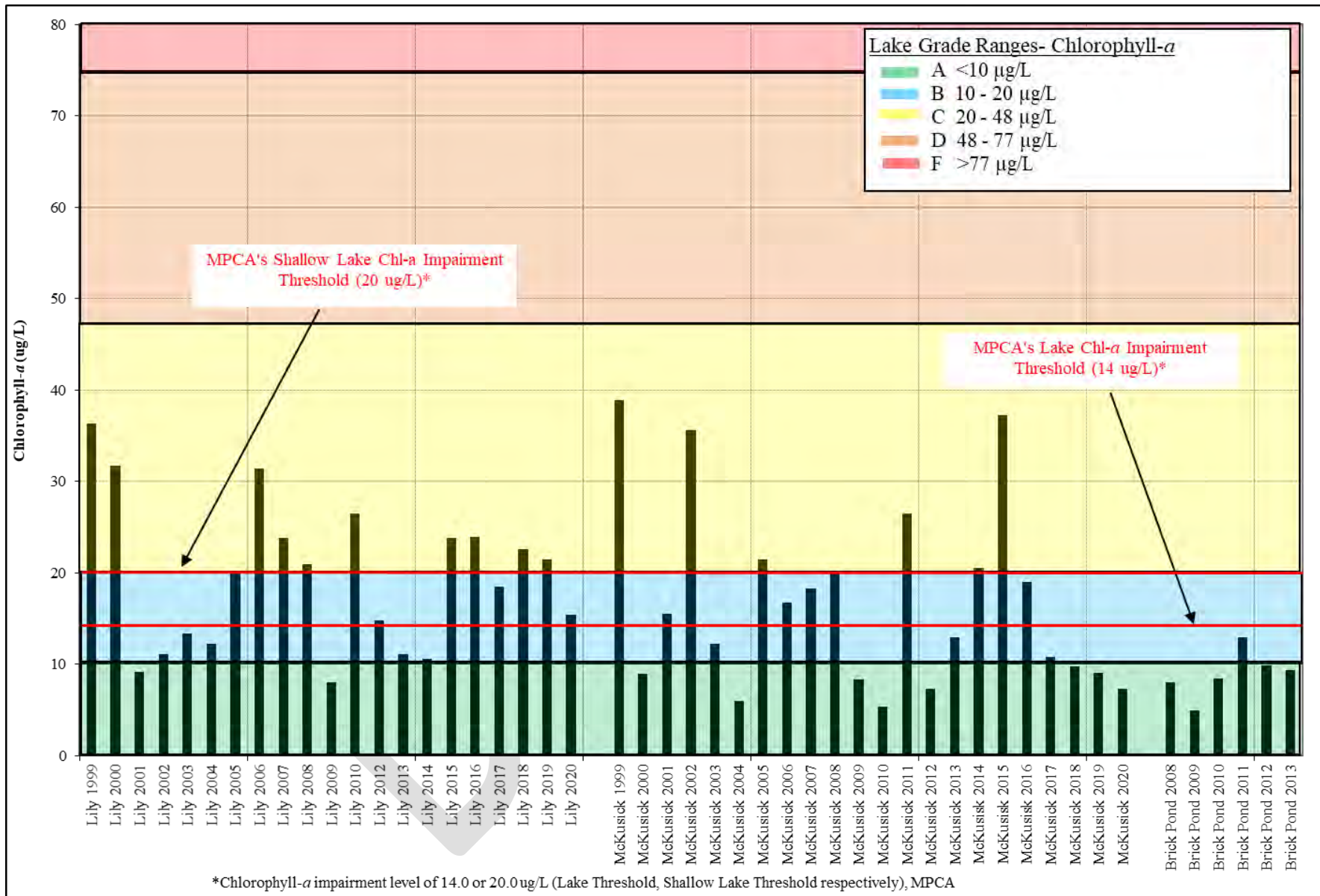


Figure 3. MSCWMO Historic Summer Average Chlorophyll-a

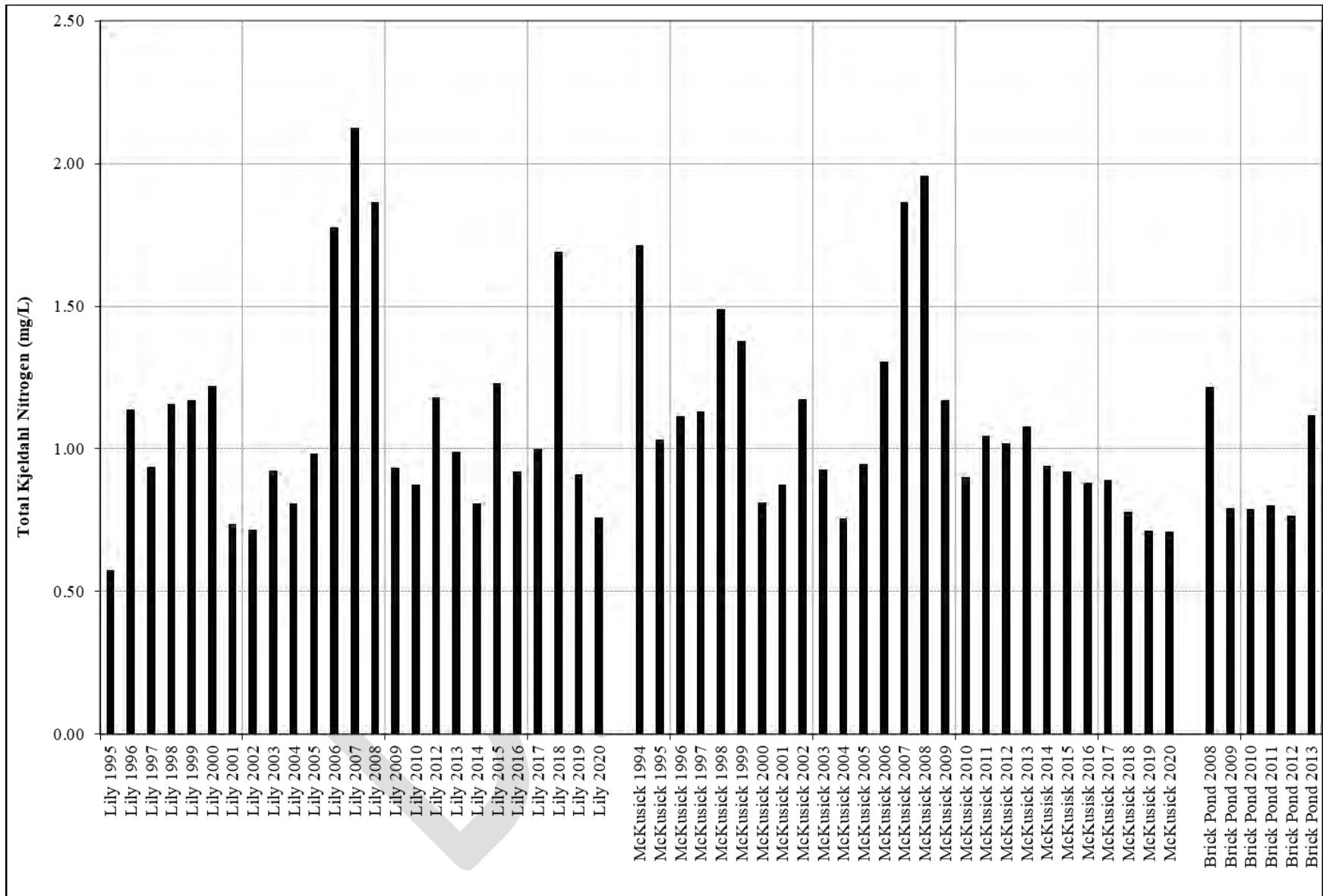


Figure 4. MSCWMO Historic Summer Average Total Kjeldahl Nitrogen

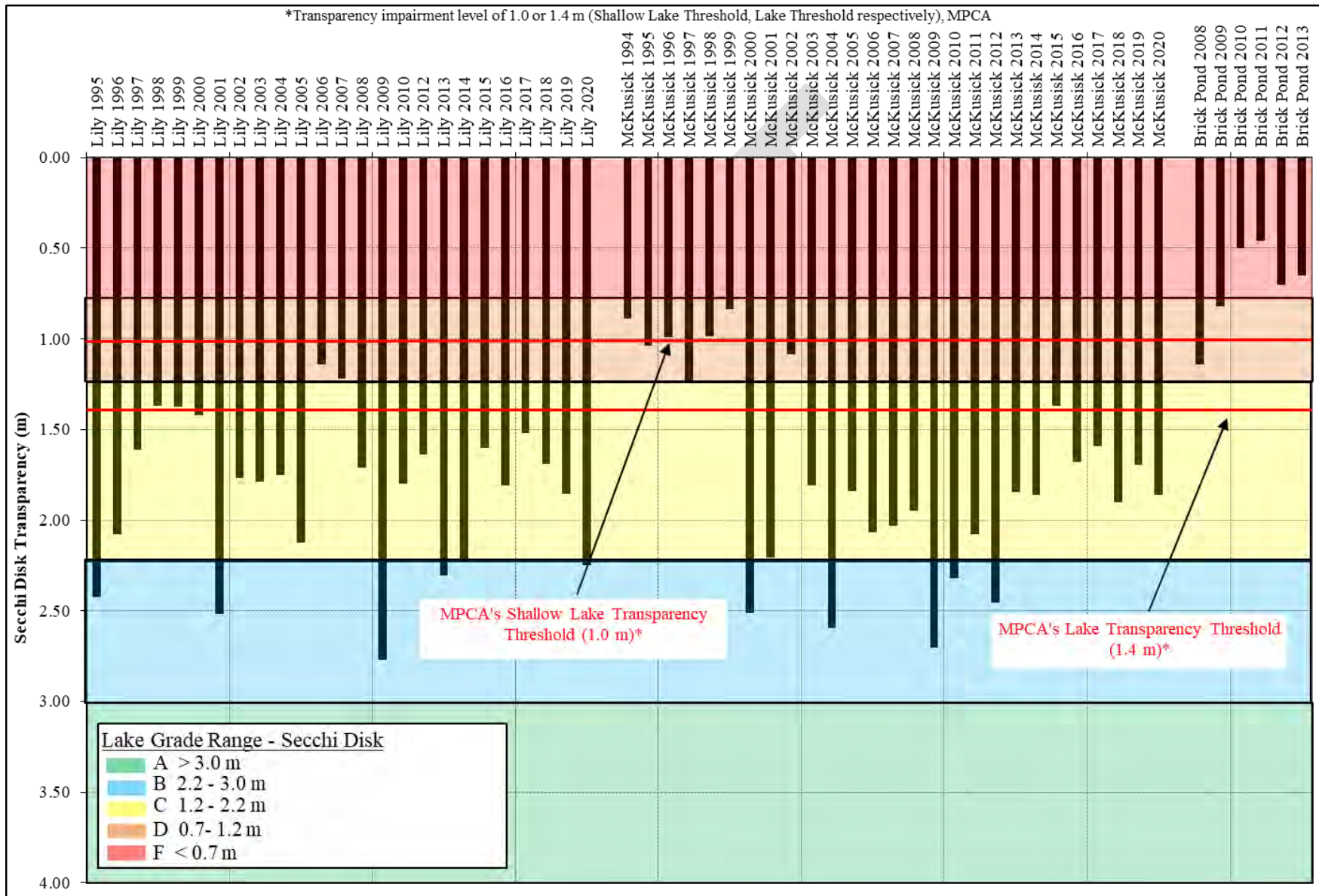


Figure 5. MSCWMO Historic Summer Average Secchi Disk Transparency

3. 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 2020, 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 could 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 decreased significantly from 2019 to 2020 due to drier conditions, with a volume of 68,165,935 cubic feet exported to McKusick Lake (Table 2 and Table 3). All stream flow and chemistry data from 2020 can be found in Table 2, Table 3, and Table 4.

The TP load to McKusick Lake was 760 pounds, or 0.197 pounds of phosphorus per acre of watershed land, and the TSS load was 246,238 pounds of sediment, or 63.87 pounds per acre (Table 2 and Table 3). Erosional head cuts on the tributary branches of the creek have been identified as a source of TP and TSS loads. BCWD repaired one large head cut in 2018 and is planning to do more work to repair and stabilize the head cut areas. The Iron Enhanced Sand Filter (IESF) upstream of the monitoring site also continues to operate to reduce TP loads in the drainage.

There were four exceedances of the MPCA metal standards in 2020. The calculation of 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. There was one copper result and three lead

results that exceeded the chronic standards for those parameters, and no results exceeded the maximum or FAV standards for any parameters. The occurrence of heavy metal exceedances exported to McKusick Lake and its wetland complex are particularly concerning due to the potential to kill aquatic life at high concentrations, as opposed to nutrient or sediment loading which typically degrades habitat and populations of aquatic life over time. One possible source of these elevated metals is the streambank and bed erosion occurring upstream of the site. Additional sources may be from unseen deposits of improperly disposed waste, such as batteries.

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Table 2. Brown's Creek Diversion Structure Drainage 2020 Total Suspended Solids (TSS) and Total Phosphorus (TP) Loading

Sample Type	Sample Collection Time		TSS (mg/L)		TP (mg/L)		Loading Interval		Interval Volume (cf)	Interval Volume (ac-ft)	Interval TSS (lb)	Interval TP (lb)
	Start	End			Start	End						
Base*			9	0.078	1/1/2020 0:00	3/28/2020 20:00			7,588,800	174.31	4,264	36.95
Storm*			442	0.798	3/28/2020 20:00	3/29/2020 13:00			520,200	11.95	14,354	25.91
Base*			9	0.078	3/29/2020 13:00	4/27/2020 16:00			3,145,500	72.25	1,767	15.32
Base			9	0.078	4/27/2020 16:00	4/28/2020 10:00			136,584	3.14	77	0.67
Storm			442	0.798	4/28/2020 10:00	4/29/2020 22:00			543,999	12.50	15,010	27.10
Base			9	0.078	4/29/2020 22:00	5/4/2020 19:00			908,120	20.86	510	4.42
Unknown Event			190	0.378	5/4/2020 19:00	5/5/2020 16:00			168,866	3.88	2,003	3.98
Base			9	0.078	5/5/2020 16:00	5/17/2020 2:00			1,568,810	36.03	881	7.64
Storm Composite	5/17/2020 4:46	5/17/2020 19:04	792	1.260	5/17/2020 2:00	5/17/2020 20:00			839,692	19.29	41,516	66.05
Base Grab	5/21/2020 12:20	5/21/2020 12:20	21	0.085	5/17/2020 20:00	5/22/2020 13:00			3,101,960	71.25	4,067	16.46
Base			9	0.078	5/22/2020 13:00	5/26/2020 18:00			1,045,590	24.02	587	5.09
Storm Composite	5/26/2020 18:54	5/27/2020 9:04	126	0.402	5/26/2020 18:00	5/28/2020 8:00			4,497,190	103.30	35,374	112.86
Base			9	0.078	5/28/2020 8:00	6/2/2020 17:00			4,885,930	112.22	2,745	23.79
Storm			442	0.798	6/2/2020 17:00	6/3/2020 0:00			151,429	3.48	4,178	7.54
Base			9	0.078	6/3/2020 0:00	6/9/2020 16:00			2,136,250	49.07	1,200	10.40
Storm			442	0.798	6/9/2020 16:00	6/10/2020 15:00			320,336	7.36	8,839	15.96
Base			9	0.078	6/10/2020 15:00	6/18/2020 19:00			1,641,580	37.71	922	7.99
Storm			442	0.798	6/18/2020 19:00	6/19/2020 7:00			190,280	4.37	5,250	9.48
Base Grab	6/24/2020 9:37	6/24/2020 9:37	11	0.080	6/19/2020 7:00	6/25/2020 10:00			1,126,300	25.87	773	5.62
Base			9	0.078	6/25/2020 10:00	6/28/2020 19:00			475,974	10.93	267	2.32
Storm Composite	6/28/2020 21:56	6/29/2020 16:31	89	0.346	6/28/2020 19:00	7/1/2020 0:00			6,727,930	154.53	37,380	145.32
Base			9	0.078	7/1/2020 0:00	7/18/2020 3:00			7,709,490	177.08	4,331	37.54
Storm			442	0.798	7/18/2020 3:00	7/18/2020 8:00			54,575	1.25	1,506	2.72
Base			9	0.078	7/18/2020 8:00	7/21/2020 8:00			542,349	12.46	305	2.64
Storm			442	0.798	7/21/2020 8:00	7/21/2020 13:00			47,498	1.09	1,311	2.37
Base			9	0.078	7/21/2020 13:00	7/25/2020 19:00			813,620	18.69	457	3.96
Storm Composite	7/25/2020 22:46	7/26/2020 11:26	312	0.804	7/25/2020 19:00	7/26/2020 14:00			664,714	15.27	12,947	33.36
Base Grab	7/30/2020 9:09	7/30/2020 9:09	10	0.060	7/26/2020 14:00	7/31/2020 9:00			3,226,630	74.11	2,014	12.09
Base			9	0.078	7/31/2020 9:00	8/14/2020 20:00			1,673,950	38.45	940	8.15
Storm			442	0.798	8/14/2020 20:00	8/15/2020 1:00			63,287	1.45	1,746	3.15
Base			9	0.078	8/15/2020 1:00	8/18/2020 9:00			374,651	8.61	210	1.82
Base Grab	8/19/2020 8:28	8/19/2020 8:28	3	0.085	8/18/2020 9:00	8/20/2020 9:00			146,737	3.37	27	0.78
Base			9	0.078	8/20/2020 9:00	8/28/2020 5:00			518,286	11.90	291	2.52
Storm			442	0.798	8/28/2020 5:00	8/28/2020 12:00			42,037	0.97	1,160	2.09
Base			9	0.078	8/28/2020 12:00	8/31/2020 3:00			226,202	5.20	127	1.10
Storm			442	0.798	8/31/2020 3:00	8/31/2020 17:00			110,004	2.53	3,035	5.48
Base			9	0.078	8/31/2020 17:00	9/14/2020 13:00			1,221,650	28.06	686	5.95
Base Grab	9/15/2020 13:15	9/15/2020 13:15	7	0.100	9/14/2020 13:00	9/16/2020 13:00			151,617	3.48	66	0.95
Base			9	0.078	9/16/2020 13:00	9/28/2020 8:00			779,212	17.90	438	3.79
Base Grab	9/29/2020 8:42	9/29/2020 8:42	6	0.083	9/28/2020 8:00	9/30/2020 15:00			169,932	3.90	64	0.88
Unknown Event			190	0.378	9/30/2020 15:00	10/1/2020 22:00			295,033	6.78	3,499	6.96
Base			9	0.078	10/1/2020 22:00	10/12/2020 1:00			717,293	16.48	403	3.49
Storm Composite	10/12/2020 2:32	10/12/2020 13:39	893	1.180	10/12/2020 1:00	10/12/2020 14:00			324,283	7.45	18,078	23.89
Base			9	0.078	10/12/2020 14:00	10/23/2020 15:00			1,235,990	28.39	694	6.02
Unknown Event			190	0.378	10/23/2020 15:00	10/24/2020 22:00			631,961	14.52	7,496	14.91
Base			9	0.078	10/24/2020 22:00	10/26/2020 14:00			199,261	4.58	112	0.97
Base Grab	10/27/2020 14:51	10/27/2020 14:51	4	0.056	10/26/2020 14:00	11/2/2020 12:00			648,753	14.90	162	2.27
Base*			9	0.078	11/2/2020 12:00	1/1/2021 0:00			3,855,600	88.56	2,166	18.77
Storm Average			442	0.798								
Base Average			9	0.078								
All Average			190	0.378								
Total									68,165,935	1,566	246,238	760
Brown's Creek Major Subwatershed Total Acres									3,855			
Total TSS/TP(lb/ac/yr)											63.87	0.197
Total TSS/TP (kg/ha/yr)											71.59	0.221

Italics indicate estimated concentrations based on average base and storm flow concentrations.

*Interval volumes were estimated using similar flow conditions.

Table 3. Brown's Creek Diversion Structure Drainage Historical Annual Discharge and Loading Amounts

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Brown's Creek Diversion Structure										
Discharge (cf)	52,981,553	21,810,789	46,435,271	53,519,017	46,276,327	70,780,581	39,625,672	45,453,990	112,468,888	68,165,935
Total pounds of Phosphorus exported	2,099	251	527	392	1,837	1,574	784	964	3,598	760
TP (lbs/ac/yr)	0.544	0.065	0.137	0.102	0.447	0.408	0.203	0.250	0.933	0.197
Total pounds of TSS exported	1,387,050	127,435	211,977	99,532	1,008,346	1,533,496	596,382	505,314	2,707,186	246,238
TSS (lbs/ac/yr)	359.81	33.06	54.99	25.82	261.57	397.79	154.70	131.08	702.25	63.87

Table 4. Brown's Creek Diversion Structure Drainage 2020 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	5/17/2020 4:46	5/17/2020 19:04	792	245	6.50	1.260	0.059	0.01290	0.01390	0.00940	0.05210	~0.000450	0.01310	39.2	<0.06	0.29	~0.03	139.17	
Storm Composite	5/26/2020 18:54	5/27/2020 9:04	126	37	2.60	0.402	0.085	0.00510	0.00460	0.00300	0.01660	~0.000120	0.00410	26.0	<0.06	0.23	~0.04	87.60	
Storm Composite	6/28/2020 21:56	6/29/2020 16:31	89	24	1.60	0.346	0.092	0.00290	0.00290	0.00160	0.00960	~0.000130	0.00240	34.0	<0.06	<0.20	<0.06	81.53	
Storm Composite (Duplicate)	6/28/2020 21:56	6/29/2020 16:31	84	24	1.30	0.241	0.081	0.00280	0.00280	0.00150	0.00920	~0.000140	0.00250	34.3	<0.06	<0.20	0.09	79.34	
Storm Grab (Emergency Overflow Structure)	6/30/2020 9:52	6/30/2020 9:52	7	~2	0.61	0.132	0.088	0.00110	0.00110	~0.00039	~0.00240	<0.000063	0.00069	37.7	<0.06	<0.20	<0.06	57.39	
Storm Composite	7/25/2020 22:46	7/26/2020 11:26	312	85	4.00	0.804	0.073	0.00610	0.00610	0.00420	0.02150	~0.000200	0.00570	37.0	<0.06	0.25	<0.06	127.65	
Storm Composite	10/12/2020 2:32	10/12/2020 13:39	893	248	5.30	1.180	0.082	0.01030	0.01080	0.00880	0.03630	<0.000500	0.01000	54.9	<0.06	0.27	<0.06	155.13	
Base Grab	5/21/2020 12:20	5/21/2020 12:20	21	7	0.74	0.085	<0.020	<0.00034	0.00082	~0.00037	~0.00170	<0.000063	0.00066	66.3	<0.06	<0.20	<0.02	85.80	
Base Grab	6/24/2020 9:37	6/24/2020 9:37	11	3	0.56	0.080	~0.039	<0.00034	0.00250	~0.00026	~0.00250	<0.000063	0.00250	61.6	<0.06	0.46	<0.06	198.30	
Base Grab	7/30/2020 9:09	7/30/2020 9:09	10	3	0.63	0.060	<0.020	~0.00055	0.00057	<0.00026	<0.00120	<0.000063	~0.00035	71.2	<0.06	<0.20	<0.06	76.87	
Base Grab	8/19/2020 8:28	8/19/2020 8:28	3	~1	0.39	0.085	~0.031	~0.00038	<0.000500	<0.00026	<0.00120	<0.000063	0.00062	52.3	<0.06	0.70	<0.06	254.43	
Base Grab	9/15/2020 13:15	9/15/2020 13:15	7	~2	0.47	0.100	~0.046	<0.00100	0.00700	<0.00100	<0.00500	<0.000500	<0.00050	51.8	<0.06	0.65	<0.06	252.14	
Base Grab	9/29/2020 8:42	9/29/2020 8:42	6	~2	0.38	0.083	~0.040	<0.00100	0.00081	<0.00100	<0.00500	<0.000500	<0.00050	54.8	<0.06	0.62	<0.06	257.61	
Base Grab	10/27/2020 14:51	10/27/2020 14:51	4	~2	0.42	0.056	<0.020	<0.00200	0.00160	<0.00200	<0.01000	<0.001000	<0.00100	59.0	<0.06	0.52	<0.06	189.08	
			Exceeds Water Quality Standard																
			No Exceedance Determinable																
			Exceeds Chronic Standard																
			Exceeds Max Standard																
			Exceeds Final Acute Standard																

STREAM AND STORMWATER MONITORING

A. LILY LAKE INLET TARGETED MONITORING

In 2015 the MSCWMO received grant funding to conduct targeted water quality monitoring on Lily Lake with the goal of identifying priority areas for nutrient load reduction to the lake. The MSCWMO worked closely with the WCD to develop and implement a monitoring plan to achieve this goal.

As in prior years, the monitoring in 2020 focused on the Greeley Street catchment. Continuous 15-minute stage and velocity data were collected from a sensor located at the catchment, which was installed 5/6/20 – 10/22/20. Discharge was calculated using an area/velocity relationship and the recorded discharge to Lily Lake in 2020 was 6,923,500 cubic feet, which was a decrease from 2019 (Table 5, Figure 6, and Figure 7). There were periods of low or no flow throughout the entire monitoring season, with an extended period in September and October. Six water quality grab samples were collected and analyzed for total phosphorus, total Kjeldahl nitrogen, and total suspended solids (Table 6). Similar to previous years, storm sampling in 2020 was limited by the nature of the site as storm events at the Greeley Street Inlet can be flashy. Urban storm runoff is transported quickly and this makes capturing a sample more difficult during these periods.

Four water quality samples were collected during monthly baseflow sampling (5/21, 6/25, 7/27, and 8/19), one sample was collected after a rain event when high flow was only coming from Brick Pond and was more representative of a base sample (6/29), and one sample was collected during a rain event that had low flow containing street runoff and was considered a storm sample (8/12). The Greeley Street catchment baseflow grab samples had low levels of TP and TSS, with the exception of the 8/19 sample which had very high TP and TKN results but low TSS. This sample was collected at the outlet of the pipe at Lily Lake during a very low discharge period, and it contained large amounts of duckweed flowing from Brick Pond. The sample was considered to be representative of the conditions at the time of sampling, but the TP results were excluded from the annual baseflow average because it was an outlier for the year. The 2020

average TP during baseflow was 0.046 mg/L, which was the lowest since monitoring began in 2015 (Table 7). The 2020 baseflow average TSS concentration was 2 mg/L, which was the same as in 2019 and 2016 (Table 5 and Table 7). The TP concentration for the one storm event sample collected in 2020 was 0.199 mg/L. This result was higher than the 2019 storm concentration of 0.110 mg/L and lower than the 2018 storm concentration (0.316 mg/L). The TSS storm concentration in 2020 was 38 mg/L which is higher than the 2019 result (8 mg/L), lower than the 2018 result (518 mg/L), and similar to the 2017 average storm concentration (35 mg/L). Storm sample comparisons between 2020 and previous years are difficult to make because of the small sample size. The TP load to Lily Lake from Greeley Street was 19.9 lbs., which was lower than the load of 41.1 lbs. in 2019 (Table 5 and Figure 6). The TSS load was 864 lbs., lower than the 978 lbs. in 2019 (Table 5 and Figure 7).

Table 5. Greeley Street 2020 Total Phosphorus (TP) and Total Suspended Solids (TSS) Loading

Site	Date range	Discharge (cf)	Discharge (ac-ft)	Average TP Concentration (mg/L)	TP Range (mg/L)	TP Load (lbs)	Average TSS Concentration (mg/L)	TSS Range (mg/L)	TSS Load (lbs)
Greeley St. Baseflow ¹	5/6/20 - 10/22/20	6,923,500	159.02	0.046	0.036 - 0.791	19.9	2	1 - 3	864

¹ 8/12 & 8/19 results excluded from TP/TSS averages

Table 6. Greeley Street 2020 Water Quality Results

Date	Greeley Street				
	Sample Type	TP (mg/L)	TSS (mg/L)	TKN (mg/L)	Discharge (cfs)
5/21/20 15:29	Base	~0.036	3	0.54	0.46
6/25/20 10:40	Base	0.054	~1	0.81	0.20
6/29/20 8:54	Base/Storm	0.054	~2	0.59	6.98
7/27/20 14:30	Base	~0.040	~2	0.64	1.81
8/12/20 12:25	Storm ¹	0.199	38	1.40	0.38
8/19/20 8:31	Base ^{1,2}	0.791	~2	3.00	0.06

¹ Results excluded from averages

² Sample was collected at pipe outlet at Lily lake and contained duckweed flowing from Brick Pond

Table 7. Greeley Street Historical TP and TSS Averages and Ranges

Greeley Street Sample Type	2015	2016	2017	2018 ^a	2019 ^a	2020 ^a
TP (mg/L) - Baseflow Avg	0.091	0.070	0.060	0.066	0.077	0.046
TP (mg/L) - Baseflow Range	0.028 - 0.210	0.029 - 0.122	0.045 - 0.083	0.040 - 0.126	0.046 - 0.134	0.036 - 0.791
TP (mg/L) - Stormflow Avg	0.219	0.437	0.104	0.316	0.110	0.199
TP (mg/L) - Stormflow Range	0.063 - 0.382	0.059 - 0.744	0.089 - 0.119	NA	NA	NA
TSS (mg/L) - Baseflow Avg	4	2	3	4	2	2
TSS (mg/L) - Baseflow Range	1 - 9	1 - 6	1 - 7	1 - 8	1 - 3	1 - 3
TSS (mg/L) - Stormflow Avg	48	233	35	518	8	38
TSS (mg/L) - Stormflow Range	2 - 132	10 - 616	28 - 41	NA	NA	NA

^a Only 1 storm sample was collected for the year

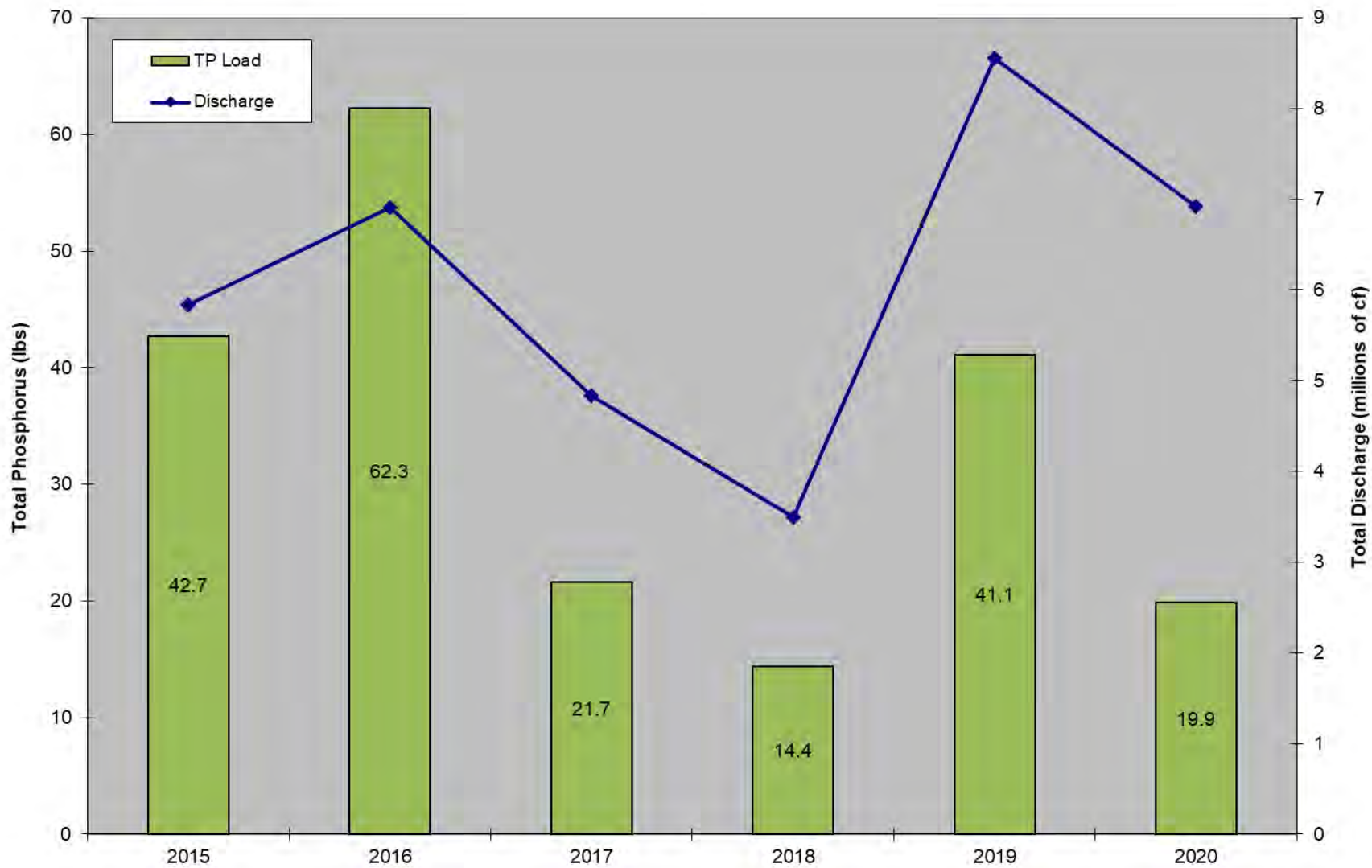


Figure 6. Greeley Street Annual Discharge and Total Phosphorus Load

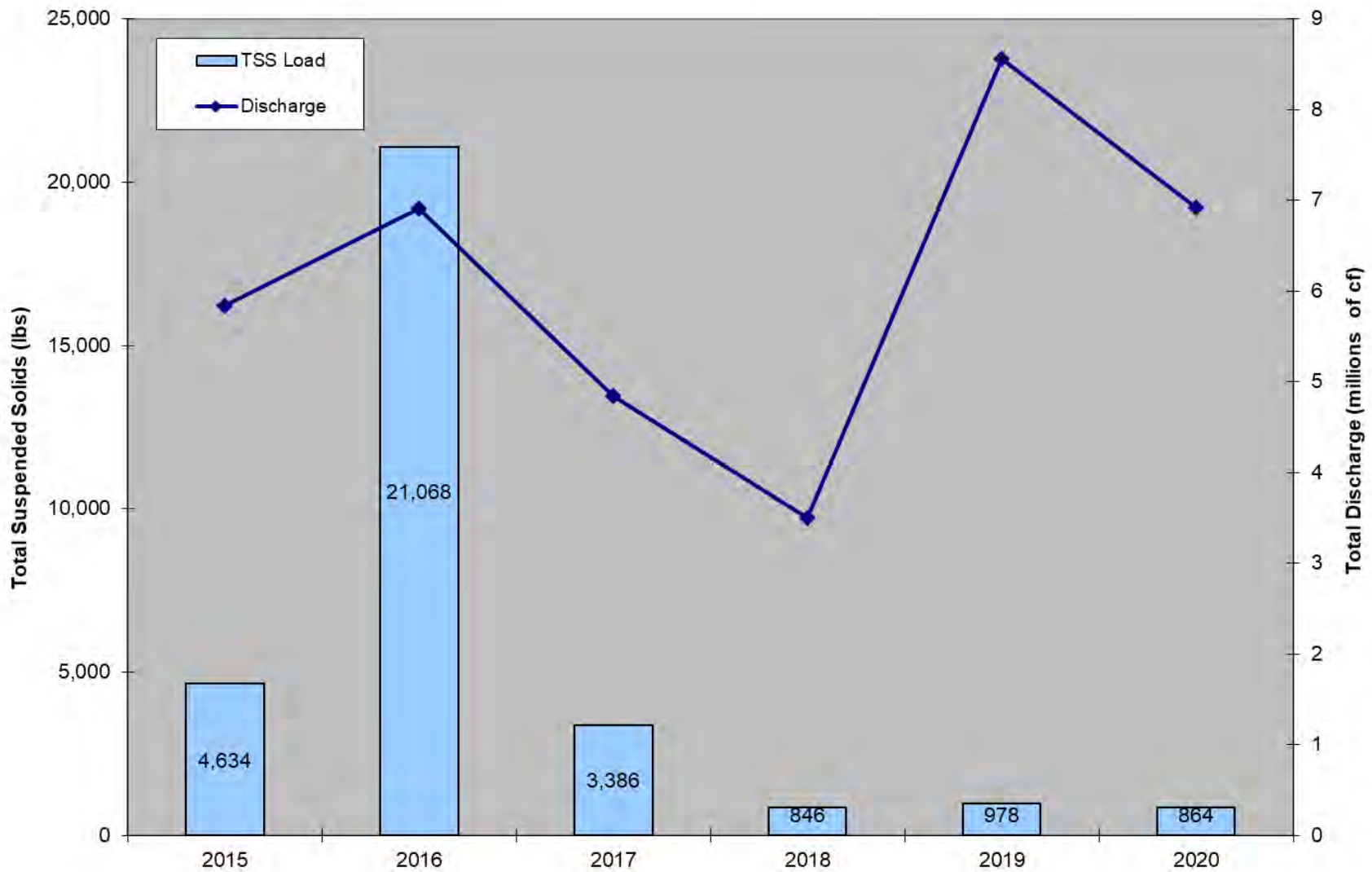


Figure 7. Greeley Street Annual Discharge and Total Suspended Solids Load

B. 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 Saint 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. Continuous 15-minute stage and velocity data were collected at the Perro Creek at the Diversion Structure site from 4/24/20 – 10/19/20. Discharge was calculated using an area/velocity relationship, and the recorded discharge in 2020 to the St. Croix River was 40,645,328 cubic feet (Table 8).

Perro Creek is listed as impaired for *E. coli* bacteria on the MPCA's 303(d) Impaired Waters List. This impairment is based on samples collected at the 6th Street monitoring location previous to 2011. *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. Samples were collected on Perro Creek in 2020 at the same four locations as in 2019 (9th Street, 6th Street, Diversion Structure, and 3rd Avenue) to determine if human fecal DNA was present in the stream. The samples were submitted to Source Molecular Corporation in Miami Lakes, Florida to be analyzed for the presence of human fecal gene biomarkers. Of the five samples collected at each location in 2019 and 2020, human fecal DNA was detected in three samples at 3rd Ave. (8/1/19, 10/2/19, and 7/29/20), one sample at the Diversion Structure (7/29/20), and no samples at 6th Street and 9th Street (Table 9). No fecal DNA samples are planned to be collected in 2021.

Table 8. Perro Creek 2020 Total Discharge

Site	Discharge (cf)	Discharge (ac-ft)	Percent of Total Discharge
Perro at Diversion Structure Base 4/24-10/19/20	34,911,074	801.87	86%
Perro at Diversion Structure Storm 4/24-10/19/20	443,856	10.19	1%
Perro at Diversion Overflow Base 4/24-9/10/20	4,775,533	109.69	12%
Perro at Diversion Overflow Storm 4/24-9/10/20	514,865	11.83	1%
Total Discharge to the St. Croix River	40,645,328	933.58	N/A

Table 9. Perro Creek 2019 and 2020 Human Fecal DNA Detection Results

Perro Creek Human Fecal DNA Analytical Results				
<i>Flow Direction -----></i>				
Date	9th Street	6th Street	Diversion Structure	3rd Avenue
8/1/2019	ND	ND	ND	Detected
8/28/2019	ND	ND	ND	ND
10/2/2019	ND	ND	ND	Detected
7/29/2020	ND	ND	Detected	Detected
9/9/2020	ND	ND	ND	ND

ND = Not Detected

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 listed both Lily and McKusick Lake on the 303(d) Impaired Waters list for nutrient/eutrophication impairment; however, McKusick Lake was delisted in 2012. If a water body is listed, it indicates that it does not currently meet water quality criteria. In order to meet those criteria, a total maximum daily load (TMDL) must be implemented. A TMDL outlines what pollutants are degrading the water quality and what will need to be done in order to meet current water quality standards. The MPCA had tentatively scheduled a three lake TMDL for Long Lake (Brown's Creek Watershed District), Lily Lake, and McKusick Lake in 2010, but because of improving water quality trends in those lakes over recent years the TMDL has been postponed. The MSCWMO, BCWD, and the City of Stillwater will utilize the City of Stillwater's existing Lake Management Plan, the completed Lily and McKusick Lake subwatershed assessments, and Lily Lake inlet monitoring data to further guide project implementation in an effort to continue to improve the water quality of the lakes. The MPCA will consider the need for a TMDL again in the future.

Summertime (June-September) TP, chlorophyll- α , and Secchi disk transparency averages have remained relatively consistent over the last twenty 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 2020 Lily Lake received a grade of a B, better than 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 2018-2020 the City of Stillwater and the Lily Lake Association did not request any large-scale herbicide and algaecide treatments but individual landowner treatment did occur. 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. The effects of these BMPs may have been seen from 2012 to 2020 monitoring seasons with the 2016-2020 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-

2020 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. TARGETED MONITORING

The targeted monitoring of Lily Lake had the goal of more accurately identifying the major sources of nutrients to the lake and to help steer targeting and design of stormwater management practices. Based on 2016 results, approximately 78% of phosphorus loading to Lily Lake occurs during storm events and the Greeley Street catchment was one of the highest contributing stormwater catchments during those events. The remaining 22% of the phosphorus load was from Brick Pond discharging to Lily Lake during baseflow conditions. Baseflow from Brick Pond accounted for 65% of the total discharge to the lake in 2016 but the average TP concentrations during those periods were lower than during storm events.

The results in 2020 support previous years' conclusions that TP and TSS concentrations from samples collected during baseflow are on average lower than concentrations during storm events. The baseflow average TP concentration was 0.046 mg/L and TSS was 2 mg/L, while the only storm event sample collected had a TP result of 0.199 mg/L and TSS result of 38 mg/L. An exception was the 8/19/20 sample, which was collected during very low baseflow (0.06 cfs) and had a low TSS concentration (~2 mg/L) but a very high TP concentration (0.791 mg/L). This sample was collected downstream of the Greeley Street catchment at the pipe outlet at Lily Lake and contained duckweed flowing from Brick Pond. The sample is an outlier but may indicate that the pond was contributing higher concentrations of TP during this period, possibly if the pond had experienced anoxic conditions. Because this was during a very low flow period, the phosphorus load was small compared to storm events. Baseflow samples should continue to be collected during all flow periods to help evaluate possible changes in nutrient loading to Lily Lake. More storm samples should also be collected to calculate more accurate TP and TSS loadings and to better characterize storm events. Continued monitoring will also help assess the impact of potential BMPs installed in the Greeley Street catchment.

C. STREAMS

Stream monitoring on Perro Creek was reduced in 2020 compared to past years but still included the collection of continuous 15-minute stage, velocity, and discharge data at Perro Creek at the Diversion Structure and in the Diversion Structure Overflow. In 2020, total monitored discharge to the St. Croix River through this location was 40,645,328 cf, with approximately 2% of that discharge occurring during storm events. Water quality samples were not collected on Perro Creek in 2020 but will be again at the Diversion Structure in 2021, including automated storm samples. Samples will be analyzed for TP, TSS, and TKN, and will be used to calculate loadings to the St. Croix River during storm and baseflow periods.

Human fecal DNA was detected in samples collected on 7/29/20 at Perro Creek at the Diversion Structure and Perro Creek at 3rd Ave., which are the two furthest downstream sampling locations on the stream. Of the five samples collected in 2019 and 2020 at the 3rd Ave. location, three samples had a positive detection result for human fecal DNA. The 7/29/20 sample was the only positive detection from any of the five samples collected at the Diversion Structure. No human fecal DNA was detected in any of the samples collected at the 9th Street and 6th Street locations in 2019 and 2020. The *E. coli* impairment on the MPCA's 303(d) Impaired Waters List is based on samples collected at the 6th Street location and there were no positive detections of human fecal DNA found at that site or upstream in 2019 or 2020. Therefore, the sample results do not indicate that human sources are the cause of the impairment. No fecal DNA samples are planned to be collected in 2021 but it's recommended that samples be collected in future years and analyzed for other possible sources. Additionally, it's recommended that MSCWMO consider investigating potential sources of possible human fecal contamination downstream of the Diversion Structure.

DRAFT

**APPENDIX A
WATER QUALITY DATA – LILY LAKE AND MCKUSICK LAKE**

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DRAFT

LILY LAKE

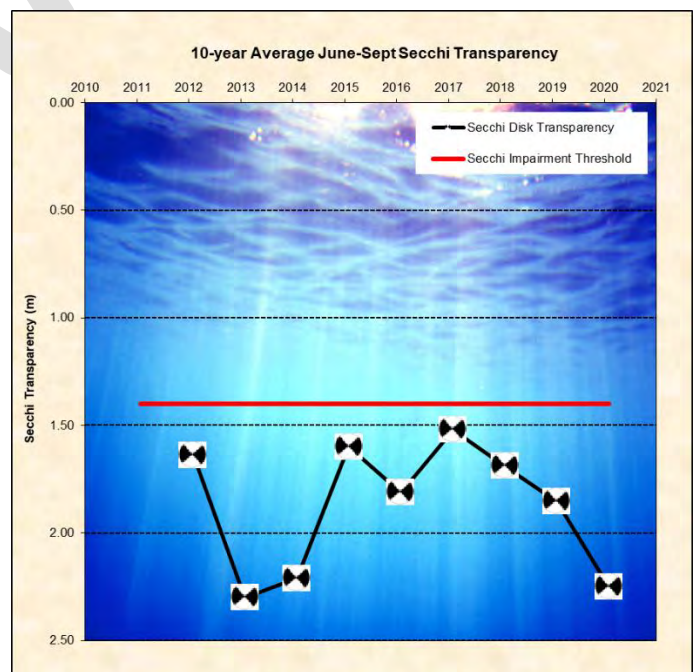
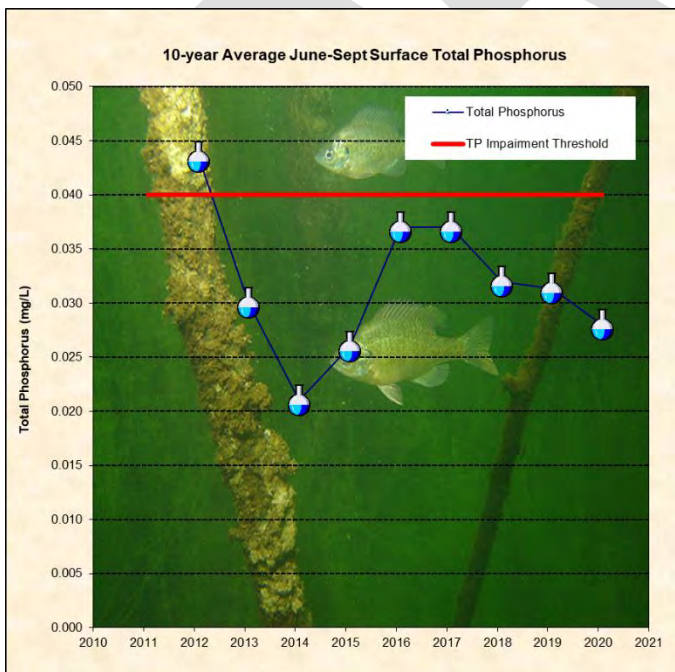
2020 Lake Grade: B

- DNR ID #: 820023
- Municipality: City of Stillwater
- Location: NE ¼ Section 32, T30N-R20W
- Lake Size: 35.90 Acres
- Maximum Depth (2020): 45.5 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 eutrophic in 2020, 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, a statistically significant **declining** trend for average chlorophyll- α , and no trend is present for average Secchi transparency.
- The major land use is urban/residential.
- The lake stratified in 2020 with the thermocline between 4-5 meters deep.
- Lily Lake is listed as impaired for nutrients on the Minnesota Pollution Control Agency's Impaired Waters List.

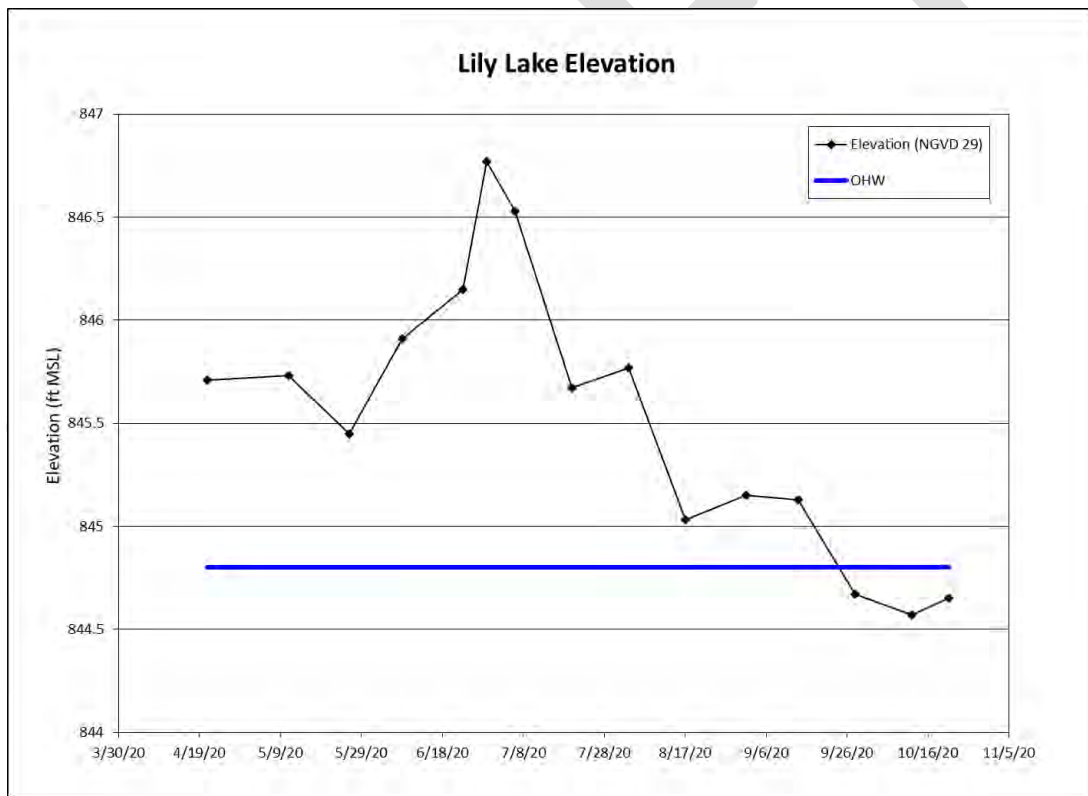


Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
5/11/2020 8:27	0.019	2.0	1.6	0.57	5.94	12.8	9.58
5/26/2020 8:27	0.015	2.3	1.8	0.48	4.42	20.8	8.44
6/8/2020 8:12	0.017	2.8	2.3	0.59	4.11	23.4	7.88
6/23/2020 8:04	0.021	5.7	5.8	0.59	3.05	22.8	7.26
7/6/2020 7:56	0.010	3.6	3.1	0.43	3.05	28.9	6.41
7/20/2020 8:55	0.026	30.0	30.0	0.95	1.07	26.3	7.14
8/3/2020 8:15	0.034	38.0	39.0	1.10	0.76	24.4	5.72
8/17/2020 8:20	0.040	25.0	23.0	1.00	1.22	24.7	7.51
9/1/2020 9:36	0.047	19.0	18.0	0.74	1.68	23.7	5.77
9/14/2020 8:36	0.026	9.5	8.7	0.81	2.44	19.5	6.90
9/28/2020 11:42	0.032	9.3	9.1	0.67	2.90	17.7	9.43
10/12/2020 13:06	0.023	11.0	10.0	0.64	2.59	14.6	9.76
2020 Average	0.026	13.2	12.7	0.71	2.77	21.6	7.65
2020 Summer Average	0.028	15.9	15.4	0.76	2.25	23.5	7.11

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
2020 Elevation (ft)	846.77	6/29/2020	844.57	10/12/2020	845.53

*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)									
	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total Phosphorus (mg/L)	B	B	B	C	C	B	A	B	C	NA
Chlorophyll-a (ug/L)	B	B	B	B	C	C	B	B	B	NA
Secchi depth (ft)	B	C	C	C	B	C	B	B	C	NA
Overall	B	B-	B-	C+	C+	C+	B+	B	C+	NA

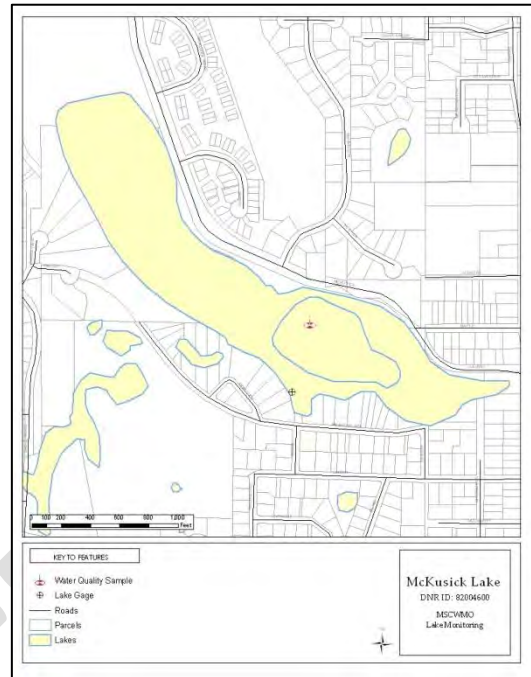
MCKUSICK LAKE

2020 Lake Grade: B-

DNR ID #: 820020

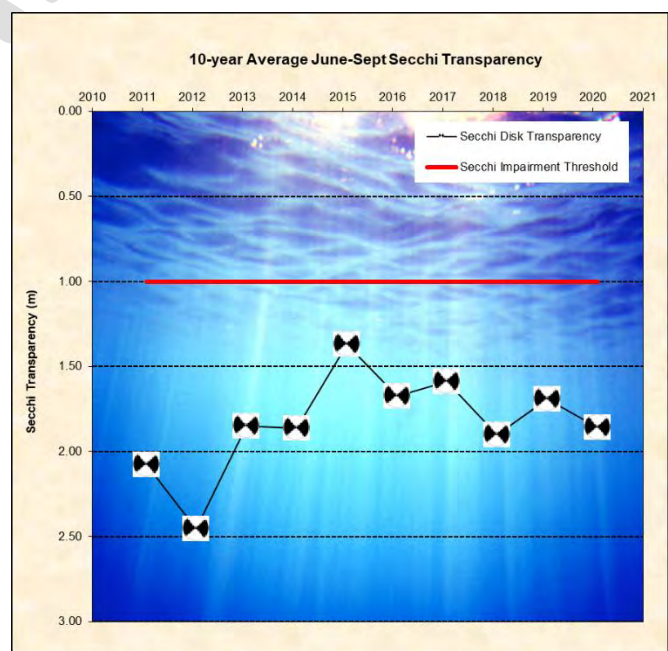
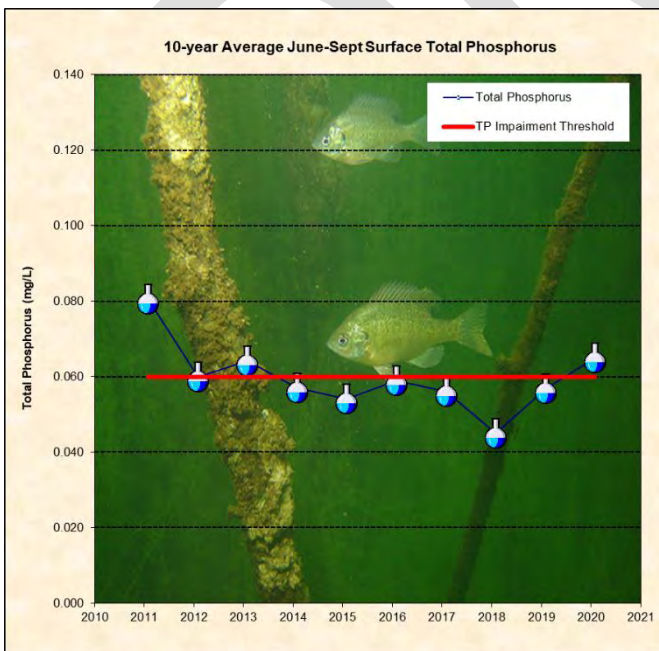
- Municipality: City of Stillwater
- Location: NE ¼ Section 29, T30N-R20W
- Lake Size: 46 Acres
- Maximum Depth (2020): 15 ft
- Ordinary High Water Mark: 851.7 ft
- 100% Littoral

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 2020, 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 and average total phosphorus, and no trend for average chlorophyll- α .
- The major land use is urban/residential.
- Temperature and dissolved oxygen profiles were not collected in 2020 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.



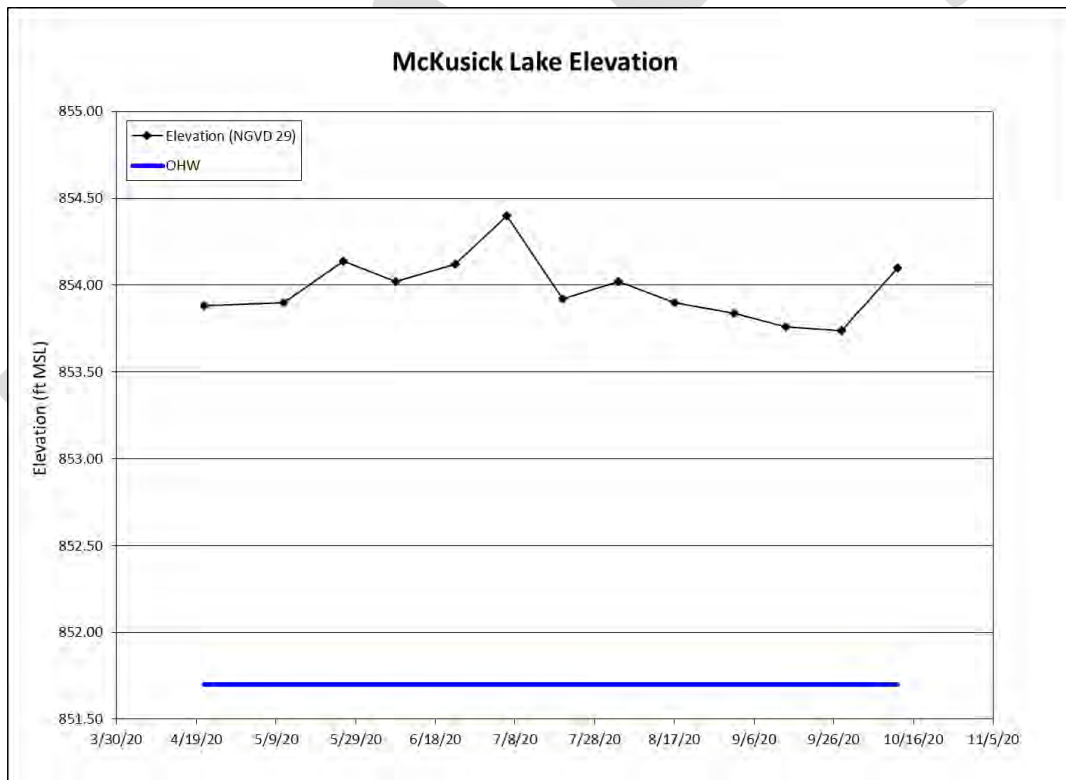
Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
5/11/2020 8:59	0.040	7.0	5.5	0.62	1.98	12.3	8.25
5/26/2020 8:55	0.038	12.0	11.0	0.57	1.83	21.8	8.60
6/8/2020 8:40	0.046	2.5	2.2	0.76	2.59	24.1	8.28
6/23/2020 8:32	0.042	4.4	3.8	0.61	2.90	22.4	7.50
7/6/2020 8:24	0.129	10.0	8.2	0.82	1.68	27.8	7.09
7/20/2020 9:25	0.156	25.0	20.0	1.10	1.22	24.7	2.25
8/3/2020 8:41	0.045	7.0	6.3	0.66	1.22	22.7	8.31
8/17/2020 8:49	0.055	13.0	10.0	0.73	2.13	23.4	4.91
9/1/2020 9:58	0.065	7.7	6.5	0.57	1.52	22.5	2.14
9/14/2020 9:17	0.026	6.9	6.3	0.61	1.83	18.0	6.35
9/28/2020 10:16	0.021	3.6	2.1	0.50	1.68	17.2	6.80
10/12/2020 13:34	0.013	4.4	2.5	0.57	2.29	14.4	9.83
2020 Average	0.056	8.6	7.0	0.68	1.91	20.9	6.69
2020 Summer Average	0.065	8.9	7.3	0.71	1.86	22.5	5.96

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
2020 Elevation (ft)	854.40	7/6/2020	853.74	9/28/2020	853.98

*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)									
	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total Phosphorus (mg/L)	C	C	C	C	C	C	C	C	C	D
Chlorophyll-a (ug/L)	A	A	B	B	B	C	C	B	A	C
Secchi depth (ft)	C	C	C	C	C	C	C	C	B	C
Overall	B-	B-	C+	C+	C+	C	C	C+	B	C-



MEMORANDUM

TO: Middle St. Croix Watershed Management Organization Board of Managers

FROM: Aaron DeRusha- WCD

DATE: 4/27/2021

RE: **6d. ESRI ArcGIS Online Database Development for BMP Activity, Erosion Control Inspection, and Permit Tracking**

Beginning in December of 2020, the WCD and partner organizations began coordinating a search for a database and inspection software to replace Mapfeeder due to the need for increased functionality, more control over inspection forms, and to improve efficiency across several service areas including BMP implementation and maintenance, erosion control inspection, and permit tracking. The criteria for the database are listed below:

- Map based
- Centralized storage for activities listed below that can be broken out for each watershed or partner
- Tracks BMP implementation, cost share, grant, TMDL reductions, maintenance, and education and outreach activities
- Stores BMP and erosion control inspections and photos and can be used offline
- Allows user to create customized inspection forms for various practices
- Has interface for construction permit applicants to apply for permits, track permit status, and submit application documents and plans
- Automatically generates inspection documents for distribution

Four products were investigated from vendors including NPDESPro, 2nd Nature, MS4Front, and ESRI ArcGIS. After thorough review by several staff from Brown's Creek Watershed District, Carnelian Marine St. Croix Watershed District, and WCD, utilizing ESRI's ArcGIS Online suite of software was determined to be the most effective, affordable, and controllable solution by creating databases internally for participating watershed partners. A secondary benefit to addressing the criteria above is WCD will need to upgrade its current ArcGIS software in the near future which will include access to ArcGIS Online.

Under this approach much of the up-front software license cost is assumed by WCD as a part of its basic organizational infrastructure needs. However, each participating watershed would need to purchase a basic set of license subscriptions to access the databases and inspection forms for staff who are not co-located with WCD.

It is recommended BCWD purchase one ArcGIS Online Creator and one Field Worker license to allow data submittal from two users, and would allow the watershed to control their version of the database and forms if desired. It is recommended MSCWMO and CMSCWD purchase one Field Worker license each. A summary table of these costs is below.

Table 1. Proposed ArcGIS license purchases for each organization.

	Cost Per License	WCD		BCWD		CMSCWD		MSCWMO	
		Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
ArcGIS Pro Basic (Perpetual)	\$1,249 plus \$400/yr*	2	\$2,498 plus \$800/yr*	0	\$0	0	\$0	0	\$0
ArcGIS Spatial Analyst Extension (Perpetual)	\$2,500	1	\$2,500	0	\$0	0	\$0	0	\$0
ArcGIS Online Creator	\$500/yr	1	\$500/yr	1	\$500/yr	0	\$0	0	\$0
ArcGIS Online Field Worker	\$350/yr	1	\$350/yr	1	\$350/yr	1	\$350/yr	1	\$350/yr
Total			\$5,848 plus \$1,650/yr*		\$850/yr		\$350/yr		\$350/yr

*Per year cost is for license maintenance and the ArcGIS Online subscription fee.

Under this arrangement WCD staff would take responsibility for initial set up of the databases, inspection forms, dashboards, and permit applicant portals for each watershed. An estimated time budget for these tasks is listed in the table below, and is recommended to be split equally among the four organizations at a cost of \$1,220 per organization.

Table 2. Total labor budget estimate for development of database and forms to be split among four partners.

Task Description	Hours	Rate	Budget
Coordination meeting with field staff (1 hr meeting, 4 staff members)	4	\$66-87	\$291
Administer ArcGIS Online (configure organization content sharing and user groups/members)	4	\$66-87	\$306
Develop ArcGIS Dashboard for tracking BMPs, education/outreach activities and TMDL load reductions	8	\$66-87	\$612
Create a Survey123 form for BMP Inspections	8	\$66-87	\$612
Create a feature report for BMP Inspections	2	\$66-87	\$153
Create a Survey123 form for ESC Inspections	8	\$66-87	\$612
Create a feature report for ESC Inspections	2	\$66-87	\$153
Configure a webhook for automated email notification following ESC inspection	8	\$66-87	\$612
Create a Survey123 form for Permit/Project Review Applications	8	\$66-87	\$612
Create a ArcGIS Dashboard to monitor Permit/Project Review status (internal and external interfaces)	12	\$66-87	\$918
Total	64		\$4,881

The total cost and recurring cost to each organization for the license upgrades and database development is listed in the table below. For reference, the current total annual cost to use Mapfeeder is approximately \$7,200, and is split amongst the watersheds according to the modules used by each organization. BCWD, CMSCWD, and MSCWMO are charged approximately \$1,242 each.

Table 3. Estimated cost for ArcGIS upgrades and database development for each organization.

	WCD	BCWD	CMSCWD	MSCWMO
First Year Cost	\$7,068	\$3,615	\$1,570	\$1,570
Recurring Cost Per Year	\$1,650	\$850	\$350	\$350

Requested MSCWMO Board Action: Approve purchase or development of

- **One ESRI ArcGIS Online Field Worker License- \$350/yr**
- **Database and forms by WCD as described above- \$1,220 one time**

Total estimated cost to be approved- \$1,570 for the first year, and \$350/yr recurring



Baytown Township

4020 McDonald Drive North, Stillwater, MN 55082

Website: baytownmn.org

Township Clerk: 651-430-4992 or clerk@baytownmn.org

May 5, 2021

Middle St. Croix Watershed Management Organization
455 Hayward Ave.
Oakdale, MN 55128

**Subject: Drainage onto property of Lucas and Nisha Anderson at
5440 Oakgreen Ave N, Baytown Township (subject's property)**

Baytown Township is investigating the history of all actions taken over approximately the last forty (40) years that would have impacted the flow of water from the City of Oak Park Heights into Baytown Township for the drainage that runs into the subject property. This letter serves as a formal request for all MSCWMO permits issued and/or applications requested by either the City of Oak Park Heights or any developer/development located in the city-limits of Oak Park Heights that could have possibly altered or affected the drainage onto the subject property. We also request details of any existing Drainage Easements and Drainage Easement changes over the same timeframe.

It is our contention that the drainage from the City of Oak Park Heights into Baytown Township at the subject property has experienced a significant change over the recent past. It would have been the MSCWMO's responsibility to review and permit all changes to the water flow inside the localized watershed the subject property lies in, and so we expect that the analysis of this requested data will help us all understand what change (if any) explains the conditions we see today (which are atypical of our historical observations).

We are happy to accept your findings in electronic form, or to arrange a time to review the materials at your offices. We can make explicit arrangements once you have acquired the related artifacts.

I appreciate your assistance in this matter,

Rick Weyrauch
Baytown Township, Chair

CC: John Felleg, Baytown Supervisor
Jim Studenski, Baytown Engineer

MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

455 Hayward Avenue N. Oakdale, MN 55128
Phone 651.330.8220 x22 fax 651.330.7747 www.mscwmo.org

MEMORANDUM



TO: Matt Downing, Administrator
FROM: Rebecca Nestingen, PE
DATE: May 10, 2021

RE: 8a) 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):

- **1175 Quinlan Ave.** Required submittal items were received April 7th, 2021 for a proposed riprap shoreline stabilization project at 1175 Quinlan Ave South in Lakeland (Hubbard Property). *Staff recommends approval with three conditions.*
- **2159 River Rd S.** Required submittal items were received on April 22nd for the proposed Riley residence reconstruction located at 2159 River Rd S, St. Mary's Point. *Staff recommends approval with one condition.*
- **2711 Itasca Ave S.** Required submittal items were received on April 21st for the proposed Morris residence reconstruction located at 2711 Itasca Ave S, St Mary's Point. *Staff recommends board have further discussion regarding underground treatment/storage and fraction of impervious routed to BMP facility.*
- **Lookout Trail.** Submittal items were received on April 22nd for the proposed reconstruction of Lookout Trail in Oak Park Heights. Staff have requested additional documentation to support the utilization of offsite MnDOT stormwater basins to provide treatment required to meet MSCWMO standards.
- **Stensland Woods.** The 2nd lot in a 3 lot development in West Lakeland township at 15047 8th st Cir. N is preparing to develop. Each of the 3 lots was initially approved by the MSCWMO and had meet volume and rate control standards for 3,000 square feet of impervious surface on each lot. The developer is proposing to construct up to 6,000 square feet of impervious surface on Lot 2 which will require Lot 1 to provide on-site stormwater management for the impervious surface when it eventually develops.

MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

455 HAYWARD AVENUE, OAKDALE, MINNESOTA 55128
Phone 651.330.8220 x22 fax 651.330.7747 www.mscwmo.org



Friday, April 23, 2021

Michelle Elsner
690 Quinnell Ave. N
Lakeland, MN 55043-0643

RE: Hubbard Riprap Stabilization

Dear Ms. Elsner:

The Middle St. Croix Watershed Management Organization (MSCWMO) received the required submittal items on April 7th, 2021 for the riprap bank stabilization, located at 1175 Quinlan Ave S. within MSCWMO boundaries and in the City of Lakeland. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP).

The project, as submitted, contains sufficient information to determine conformance with the Policies and Performance Standards contained within Section 7.0 of the MSCWMO Watershed Management Plan

The MSCWMO recommends approval of the project with the following three conditions:

1. Provide location of all bluff lines on plans
2. Provide notes or practices on plans to minimize sediment track out from the site.
3. Provide notes for pollution prevention measures.

This recommended approval is based on the technical review of the MSCWMO performance standards and does not constitute approval by the City of Lakeland. The enclosed checklist contains detailed information on project review qualifications and the policies and performance standards of the WMP. MSCWMO review process information can be downloaded from www.mscwmo.org. Please contact me at 651-330-8220 x22 or m Downing@mnwcd.org if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Matt Downing', written over a white background.

Matt Downing
MSCWMO Administrator
m Downing@mnwcd.org



MSCWMO PROJECT REVIEW- SINGLE LOT RESIDENTIAL SUBMITTALS

This document is for guidance. Applicants should consult the MSCWMO Watershed Management Plan for specific requirements. MSCWMO may request other items during the review process in addition to those listed.

MSCWMO Project Review ID: 21-002

Project Name: 1175 Quinlan Ave S, Lakeland, MN

Applicant: Jennifer Cates Peterson | Cates Fine Homes

Purpose: Bank Stabilization

Location: 1175 Quinlan Ave S, Lakeland, MN

Review date: 04/22/2021

Recommendation: The project does not add any impervious surface and therefore does not trigger any permanent stormwater management standards. The project meets most standards for erosion and sediment control plans. MSCWMO staff recommend approval with 3 conditions to meet the remaining submittal item requirements:

1. Provide location of all bluff lines on plans
2. Provide notes or practices on plans to minimize sediment track out from the site.
3. Provide notes for pollution prevention measures.

Applicability:

- Any project undertaking grading, filling, or other land alteration activities that 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 reconstructs 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
- Any project with grading within public waters

- Any project with grading within buffers
- Any project with grading 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 adds five hundred (500) square feet or more 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.

ALL SUBMITTALS MUST CONTAIN THE FOLLOWING ITEMS:

- 1. Review Fee: Single lot residential \$350 fee.
- 2. Grading plan showing grading limits, existing and proposed contours related to NAVD 1988 datum (preferred) or NGVD 1929.
- 3. Location of existing and proposed permanent structures.
- 4. Ordinary High Water (OHW) elevations and location of all existing water bodies.
- 5. Location of all bluff lines.
- NA 6. Lowest floor elevations of structures built adjacent to stormwater management features and other water bodies must be a minimum of two feet above the 100-year flood elevation.
- 7. Delineation of existing wetland, shoreland, ordinary high water levels, drain tiling, and floodplain areas.
- NA 8. Details of proposed buffer upslope of water resources including size and vegetation characteristics (when applicable).
- 9. Erosion/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 downgradient 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.

NA 10. 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)
<i>Property line</i>	10
<i>Building foundation*</i>	10
<i>Private well</i>	50
<i>Public water supply well</i>	50
<i>Septic system tank/leach field</i>	35
<i>*Minimum with slopes directed away from the building</i>	

- 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.)
XXXX sf * 1.1" = xx.xx cf xx.xx cf total required	BMP #1 Volume = BMP #2 Volume = Total =

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 [http://stormwater.pca.state.mn.us/index.php/Bioretention plan and section drawings](http://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 Avenue, Oakdale, MN 55128
Phone 651.330.8220 x22 fax 651.330.7747 www.mscwmo.org



Friday, April 23, 2021

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

RE: Riley Residence Reconstruction, St. Mary's Point

Dear Ms. Reiter:

The Middle St. Croix Watershed Management Organization (MSCWMO) received required submittal items on April 22nd, 2021 for the proposed Riley Residence Reconstruction, located at 2159 River Rd S, within MSCWMO boundaries and in the City of St. Mary's Point. The proposed project qualifies for full review under the MSCWMO 2015-2025 Watershed Management Plan (WMP).

The MSCWMO staff recommend approval of the project with the following condition:

1. Retain volume of rain garden 3 but modify shape or slightly shift grading to the west to avoid grading impacts on the bluff.

This approval does not constitute approval by the City of St. Mary's Point. The enclosed checklist contains detailed information on project review and the policies and performance standards of the WMP. Please contact me at 651-330-8220 x22 or mdowning@mnwcd.org if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Matt Downing".

Matt Downing
Administrator
Middle St. Croix Watershed Management Organization

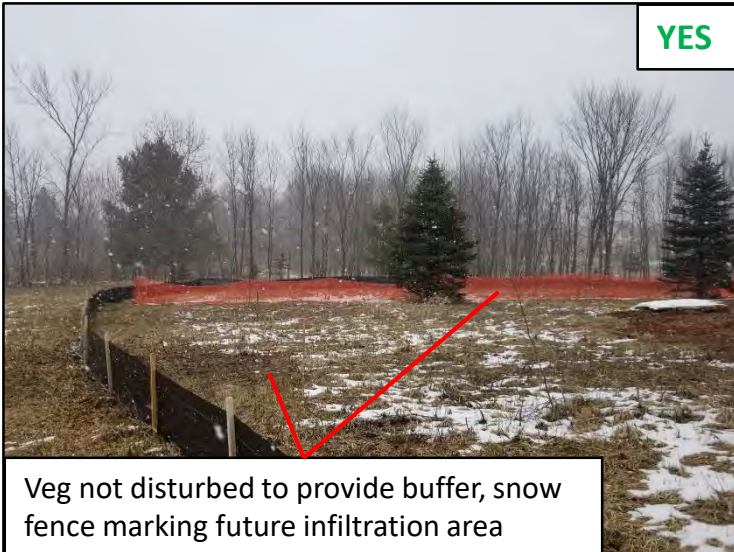
Erosion Control Spring Reminders

All collapsed/missing perimeter control (**silt fence, bio rolls, etc.**) must be replaced **immediately**. Unworked open soils and stockpiles must be covered **within 14 days (or 7 days if you are within 1 mile of the St. Croix River)**, and any exposed ditches must be blanketed within **24 hours of construction**.

Spring is mud season! Sediments tracked onto paved roadways must be **swept daily!**

Methods for Temporary Cover

Limit Soil Disturbance- leave vegetation and mark areas not to be disturbed (rain gardens, wetlands, etc) with orange snow fence. **Avoid opening steep slopes and redirect runoff away from slopes.**



Straw/Fiber Blanket- may be seeded underneath with temporary crop i.e. oats or winter wheat. Straw blankets are suitable for low grades, fiber or coconut blankets can be used in ditches or on steeper slopes. Coverage required- 100%



Hydromulch- applied via spraying from backpack, turret gun, etc. Can be combined with final or temporary seed. Coverage required- 100%



Poly Sheeting- easy cover for stockpiles or areas that will be worked infrequently. Secure poly with sandbags or biologs. Coverage required- 100%



Temporary Seeding- cheap! Oats or winter wheat can be hand-cast, no special equipment. Coverage required- 70%

Straw Mulch- must be anchored to the soil by disking, crimping, tracking, etc. Coverage required- 90%



Site Wide Open

Sediment Control- Sediment and dirty water **MUST NOT** leave your site. Check perimeter for damage and repair collapsed fences. Sweep streets and repair rock entrances.



Fence **tight, trenched in**, secondary piece of lath used for reinforcement.



Mud and sediment tracked out into roadway. Sediments tracked out must be **swept daily**.

Redundant Controls- use two layers of silt fence, silt fence and biologs, or other doubled practices when working next to **lakes, streams, bluffs, and wetlands**.



Double layer of silt fence with grass buffer next to Big Marine Lake.



Don't let this happen on your site! Be mindful if working near the bluff! Even appropriate measures can fail in extreme rain or snowmelt. Always try to direct water away from bluffs and slopes, and avoid concentration of flow.

Questions? Call or email:

Aaron DeRusha- MSCWMO Inspector
612-816-7995 or aderusha@mnwcd.org

Matt Downing- MSCWMO Administrator
651-330-8220 x22 or mdowning@mnwcd.org

Thank you for your work to help protect our water resources from excess sediment and nutrients!

Erosion Control Suppliers/Contractors- Twin Cities Area

This list of erosion control supply vendors is intended to provide information only, for a range of project sizes, and should not be viewed as a recommendation for one vendor over another or over vendors not listed. Many vendors offer delivery and/or installation services for erosion control supplies.

All Phase Contracting
9652 152nd Ave NE
Forest Lake, MN 55025
651-288-4927
www.apcwbe.com

Brock White- large scale erosion control and construction supplies
2575 Kasota Ave
St Paul, Minnesota 55108
651-647-0950
<https://www.brockwhite.com/catalog/materials-and-accessories/geosynthetics/erosion-control>

Dionne Construction Inc.
1769 Lexington Ave N
Roseville, MN 55113
612-412-6902

Erosion Products LLC.
4350 Main St
St. Bonifacius, MN 55375
<http://www.erosionproductsllc.com/home>

Erosion Works- erosion control supplies
18140 Zane St NW, Suite 250,
Elk River, MN 55330
763-262-SILT (7458)
<http://www.erosionworks.net/>

Home Depot- search “erosion control”

Houle’s- seed supplies	
55 2nd Street Southwest	10010 60th Street North Stillwater, MN, 55082
Forest Lake, MN, 55025	Stillwater, MN, 55082
651-464-3326	651-777-7229
https://www.spikesfeed.com/store-hours	

Hugo Feed Mill- seed supplies
5582 146th St. N.
Hugo, MN 55038
651-429-3361
<https://www.hugofeedmill.com/>

JL Theis Inc.
860 Quaker Ave #102
Jordan, MN 55352
952-492-3888
www.jltheis.com

Lowe's- search "erosion control"

Menards- search "erosion control", "straw blanket"

MYP Landscape Supply
9591 60th Street North
Lake Elmo, MN 55042
651-706-0695
<https://www.mylandscapesupply.com/>

Quad E Companies Inc.
23130 Woodland Ridge
Lakeville, MN 55044
612-462-0629
www.quadecompanies.com

Ramy Turf- erosion control supplies and seed
731 N Prior Ave.
Saint Paul, MN 55104
651-917-0939
<https://www.ramyturf.com/>

SiteOne Landscape Supply- erosion control supplies and seed
1261 Highway 36 E
Maplewood, MN 55109-2058
651-484-5166
search "erosion control" or "seed" <https://www.siteone.com/store/530>

Standard Contracting, Inc.
23870 Conrad Ave
Hampton, MN 55031
651-463-2510
www.stanconinc.com

The Landscape Store- seed and erosion control supplies
12255 120th St. So. Suite 100
Hastings, MN 55033
651-437-5150
<http://www.thelandscapestoremn.com/Products.html>

Twin City Seed- erosion control supplies and seed
7265 Washington Ave South
Edina, Minnesota 55439
952-944-7105
<https://www.twincityseed.com/erosion-control.html>

Yard & Quarry Direct
7087 20th Ave S #2
Centerville, MN 55038
651-604-2600

Winnick Supply
92 11th Ave. SW
Forest Lake, MN 55025
651-464-3920
<https://winnicksupply.com/>



MIDDLE ST. CROIX WATERSHED WMO
CONSTRUCTION SITE INSPECTION PROGRAM

**EROSION & SEDIMENT CONTROL
INSPECTION REPORT**

Middle St. Croix Watershed WMO c/o
Washington Conservation District
455 Hayward Ave N
Oakdale, MN 55128
Phone: (651) 330-8220 x22
www.mscwmo.org

Tom Scanlan
125 Lakeland Shores Rd
Lakeland Shores MN

May 6, 2021
MSCWMO Review #: 17-013
Electronic-Mailed (x)

Project: Scanlan 125 Lakeland Shores Rd

Dear **Tom Scanlan**:

The Middle St. Croix Watershed (MSCWMO) conducted an inspection for stormwater, erosion, and sedimentation control issues at the site noted above on **2021-05-06**. The following report summarizes the field inspection findings and describes areas of compliance/noncompliance with the MSCWMO Watershed Management Plan and approved construction plans.

Inspection information

Is this inspection routine or in response to a storm event: ✓ Routine Rainfall

Rainfall amount inches (if applicable):

Is site within one aerial mile of special or impaired water that can potentially receive discharge from the site? ✓ Yes No

Note: If **NA** is selected at any time, specify why in the comment area for that section.

Erosion prevention requirements

	Yes	No	NA
1. Are soils stabilized where no construction activity has occurred for 14 days (including stockpiles)? (7 days where applicable, or 24 hours during Minnesota Department of Natural Resources [DNR] Fish Spawning restrictions)		✓	
2. Has the need to disturb steep slopes been minimized?			✓
3. If steep slopes are disturbed, are stabilization practices designed for steep slopes used?			✓
4. Are ditches/swales stabilized 200' back from point of discharge or property edge within 24 hours? (Mulch, hydromulch, tackifier, or similar best management practices [BMPs] are not acceptable in ditches/swales if the slope is greater than 2%)			✓
5. Do pipe outlets have energy dissipation (within 24 hours of connection)?			✓
6. Is construction phasing being followed in accordance with the approved construction plans?			✓
7. Are areas not to be disturbed marked off (flags, signs, etc.)?	✓		

Comments:

Sediment control requirements

	Yes	No	NA
1. Are perimeter sediment controls installed properly on all down gradient perimeters?		✓	
2. Are appropriate BMPs installed protecting inlets, catch basins, and culvert inlets?			✓
3. Do all erodible stockpiles have perimeter control in place?			✓
4. Is there a temporary sediment basin on site, and is it built as shown in the approved stormwater management plan?			✓
5. Is soil compaction being minimized where not designed for compaction?			✓

Comments:

Biologs should be placed at the top of the slope south of the house until the yard is fully vegetated.

Maintenance and Inspections

	Yes	No	NA
1. Are all previously stabilized areas maintaining ground cover?			✓
2. Are perimeter controls maintained and functioning properly, sediment removed when one-half full?			✓
3. Are inlet protection devices maintained and adequately protecting inlets?			✓
4. Are the temporary sediment basins being maintained and functioning properly?			✓
5. Are vehicle tracking BMPs at site exits in place and maintained and functioning properly?	✓		
6. Is all tracked sediment being removed within 24 hours?	✓		
7. Have all surface waters, ditches, conveyances, and discharge points been inspected?	✓		
8. Were any discharges seen during this inspection (i.e., sediment, turbid water, or otherwise)?		✓	

If yes, record the location of all points of discharge. Photograph and describe the discharge (size, color, odor, foam, oil sheen, time, etc.). Describe how the discharge will be addressed:

Comments:

Street being actively swept at time of inspection.

Other

	Yes	No	NA
1. Are pollution prevention management measures for solid waste, hazardous material, concrete, and truck washing in place?			✓
2. Is any dewatering occurring on site?			✓
If yes, what BMPs are being used to ensure that clean water is leaving the site and the discharge is not causing erosion or scour?			
3. Will a permanent stormwater management system be created for this project if required and in accordance with MSCWMO Performance Standards Section 7.2	✓		
If yes, describe: Rain garden has been constructed.			
4. If infiltration/filtration systems are being constructed, are they marked and protected from compaction and sedimentation?			
5. Is MSCWMO required buffer preserved around all streams, lakes, and wetlands during construction?			✓
Has buffer monumentation been installed?			✓

6. Description of areas of non-compliance noted during the inspection, required corrective actions, and recommended date of completion of corrective actions:

Biologs should be re-installed at the top of the slope south of the house until the entire yard is fully vegetated.

7. Potential areas of future concern:

Comments:

Grade of yard is low and risk of erosion is low.

Maintenance and Compliance Summary

Overall Site Grade:

B - Good

A status described above as noncompliant must be addressed in accordance with the MSCWMO Standards. Follow-up inspections will be conducted on a regular basis.

Please contact me at the number below, or Matt Downing (mdowning@mnwcd.org) at (651) 330-8220 (ext. 22) if you have any questions.

Respectfully,

Aaron DeRusha (Cell: 612-816-7995)
MSCWMO Inspector
Cc: Matt Downing, MSCWMO

GRADE DESCRIPTIONS

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. Contact the District for a followup inspection as soon as correction measures have been taken.

E 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.



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Ahren and Dee Locke
1868 Redwing Ave
Lake St. Croix Beach MN

May 6, 2021
MSCWMO Review #: 1868 Redwing
Electronic-Mailed (x)

Project: Locke Home

Dear **Ahren and Dee Locke:**

The Middle St. Croix Watershed (MSCWMO) conducted an inspection for stormwater, erosion, and sedimentation control issues at the site noted above on **2021-05-06**. The following report summarizes the field inspection findings and describes areas of compliance/noncompliance with the MSCWMO Watershed Management Plan and approved construction plans.

Inspection information

Is this inspection routine or in response to a storm event: ✓ Routine Rainfall

Rainfall amount inches (if applicable):

Is site within one aerial mile of special or impaired water that can potentially receive discharge from the site? Yes ✓ No

Note: If **NA** is selected at any time, specify why in the comment area for that section.

Erosion prevention requirements

	Yes	No	NA
1. Are soils stabilized where no construction activity has occurred for 14 days (including stockpiles)? (7 days where applicable, or 24 hours during Minnesota Department of Natural Resources [DNR] Fish Spawning restrictions)	✓		
2. Has the need to disturb steep slopes been minimized?			✓
3. If steep slopes are disturbed, are stabilization practices designed for steep slopes used?			✓
4. Are ditches/swales stabilized 200' back from point of discharge or property edge within 24 hours? (Mulch, hydromulch, tackifier, or similar best management practices [BMPs] are not acceptable in ditches/swales if the slope is greater than 2%)			✓
5. Do pipe outlets have energy dissipation (within 24 hours of connection)?			✓
6. Is construction phasing being followed in accordance with the approved construction plans?			✓
7. Are areas not to be disturbed marked off (flags, signs, etc.)?	✓		

Comments:

Blanket being used on non-work areas. Future rain gardens flagged and protected. Stockpiles covered with plastic sheeting.

Sediment control requirements

	Yes	No	NA
1. Are perimeter sediment controls installed properly on all down gradient perimeters?	✓		
2. Are appropriate BMPs installed protecting inlets, catch basins, and culvert inlets?			✓
3. Do all erodible stockpiles have perimeter control in place?	✓		
4. Is there a temporary sediment basin on site, and is it built as shown in the approved stormwater management plan?			✓
5. Is soil compaction being minimized where not designed for compaction?	✓		

Comments:

Silt fence and biologs are well maintained.

Maintenance and Inspections

	Yes	No	NA
1. Are all previously stabilized areas maintaining ground cover?	✓		
2. Are perimeter controls maintained and functioning properly, sediment removed when one-half full?	✓		
3. Are inlet protection devices maintained and adequately protecting inlets?			✓
4. Are the temporary sediment basins being maintained and functioning properly?			✓
5. Are vehicle tracking BMPs at site exits in place and maintained and functioning properly?	✓		
6. Is all tracked sediment being removed within 24 hours?	✓		
7. Have all surface waters, ditches, conveyances, and discharge points been inspected?	✓		
8. Were any discharges seen during this inspection (i.e., sediment, turbid water, or otherwise)?		✓	

If yes, record the location of all points of discharge. Photograph and describe the discharge (size, color, odor, foam, oil sheen, time, etc.). Describe how the discharge will be addressed:

Comments:

All features well maintained.

Other

	Yes	No	NA
1. Are pollution prevention management measures for solid waste, hazardous material, concrete, and truck washing in place?			✓
2. Is any dewatering occurring on site?			✓
If yes, what BMPs are being used to ensure that clean water is leaving the site and the discharge is not causing erosion or scour?			
3. Will a permanent stormwater management system be created for this project if required and in accordance with MSCWMO Performance Standards Section 7.2	✓		
If yes, describe: 2 rain gardens			
4. If infiltration/filtration systems are being constructed, are they marked and protected from compaction and sedimentation?	✓		
5. Is MSCWMO required buffer preserved around all streams, lakes, and wetlands during construction?			✓
Has buffer monumentation been installed?			✓

6. Description of areas of non-compliance noted during the inspection, required corrective actions, and recommended date of completion of corrective actions:

None

7. Potential areas of future concern:

Comments:

Excellent work maintaining your erosion control, thank you!

Maintenance and Compliance Summary

Overall Site Grade:

A - Excellent

A status described above as noncompliant must be addressed in accordance with the MSCWMO Standards. Follow-up inspections will be conducted on a regular basis.

Please contact me at the number below, or Matt Downing (mdowning@mnwcd.org) at (651) 330-8220 (ext. 22) if you have any questions.

Respectfully,

Aaron DeRusha (Cell: 612-816-7995)
MSCWMO Inspector
Cc: Matt Downing, MSCWMO

GRADE DESCRIPTIONS

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. Contact the District for a followup inspection as soon as correction measures have been taken.

E 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.



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Oakdale, MN 55128
Phone: (651) 330-8220 x22
www.mscwmo.org

Lakeland

May 6, 2021
MSCWMO Review #: 19-001
Electronic-Mailed (x)

Project: 2019 Lakeland Street Improvements

Dear **Lakeland**:

The Middle St. Croix Watershed (MSCWMO) conducted an inspection for stormwater, erosion, and sedimentation control issues at the site noted above on **2021-05-06**. The following report summarizes the field inspection findings and describes areas of compliance/noncompliance with the MSCWMO Watershed Management Plan and approved construction plans.

Inspection information

Is this inspection routine or in response to a storm event: ✓ Routine Rainfall

Rainfall amount inches (if applicable):

Is site within one aerial mile of special or impaired water that can potentially receive discharge from the site? Yes ✓ No

Note: If **NA** is selected at any time, specify why in the comment area for that section.

Erosion prevention requirements

	Yes	No	NA
1. Are soils stabilized where no construction activity has occurred for 14 days (including stockpiles)? (7 days where applicable, or 24 hours during Minnesota Department of Natural Resources [DNR] Fish Spawning restrictions)		✓	
2. Has the need to disturb steep slopes been minimized?			✓
3. If steep slopes are disturbed, are stabilization practices designed for steep slopes used?			✓
4. Are ditches/swales stabilized 200' back from point of discharge or property edge within 24 hours? (Mulch, hydromulch, tackifier, or similar best management practices [BMPs] are not acceptable in ditches/swales if the slope is greater than 2%)			✓
5. Do pipe outlets have energy dissipation (within 24 hours of connection)?			✓
6. Is construction phasing being followed in accordance with the approved construction plans?	✓		
7. Are areas not to be disturbed marked off (flags, signs, etc.)?	✓		

Comments:

Outlot A infiltration basin under construction, soils being worked.

Sediment control requirements

	Yes	No	NA
1. Are perimeter sediment controls installed properly on all down gradient perimeters?		✓	
2. Are appropriate BMPs installed protecting inlets, catch basins, and culvert inlets?			✓
3. Do all erodible stockpiles have perimeter control in place?			✓
4. Is there a temporary sediment basin on site, and is it built as shown in the approved stormwater management plan?			✓
5. Is soil compaction being minimized where not designed for compaction?	✓		

Comments:

No perimeter control in place, but drainage appears contained by site topography.

Maintenance and Inspections

	Yes	No	NA
1. Are all previously stabilized areas maintaining ground cover?			✓
2. Are perimeter controls maintained and functioning properly, sediment removed when one-half full?			✓
3. Are inlet protection devices maintained and adequately protecting inlets?			✓
4. Are the temporary sediment basins being maintained and functioning properly?			✓
5. Are vehicle tracking BMPs at site exits in place and maintained and functioning properly?	✓		
6. Is all tracked sediment being removed within 24 hours?	✓		
7. Have all surface waters, ditches, conveyances, and discharge points been inspected?	✓		
8. Were any discharges seen during this inspection (i.e., sediment, turbid water, or otherwise)?		✓	

If yes, record the location of all points of discharge. Photograph and describe the discharge (size, color, odor, foam, oil sheen, time, etc.). Describe how the discharge will be addressed:

Comments:

Other

	Yes	No	NA
1. Are pollution prevention management measures for solid waste, hazardous material, concrete, and truck washing in place?			✓
2. Is any dewatering occurring on site?			✓
If yes, what BMPs are being used to ensure that clean water is leaving the site and the discharge is not causing erosion or scour?			
3. Will a permanent stormwater management system be created for this project if required and in accordance with MSCWMO Performance Standards Section 7.2	✓		
If yes, describe: Construction is for large infiltration area collecting from Quality Ave			
4. If infiltration/filtration systems are being constructed, are they marked and protected from compaction and sedimentation?	✓		
5. Is MSCWMO required buffer preserved around all streams, lakes, and wetlands during construction?			✓
Has buffer monumentation been installed?			✓

6. Description of areas of non-compliance noted during the inspection, required corrective actions, and recommended date of completion of corrective actions:

Perimeter controls should be in place, but drainage appears to be contained on site.

7. Potential areas of future concern:

Comments:

Maintenance and Compliance Summary

Overall Site Grade:

B - Good

A status described above as noncompliant must be addressed in accordance with the MSCWMO Standards. Follow-up inspections will be conducted on a regular basis.

Please contact me at the number below, or Matt Downing (mdowning@mnwcd.org) at (651) 330-8220 (ext. 22) if you have any questions.

Respectfully,

Aaron DeRusha (Cell: 612-816-7995)
MSCWMO Inspector
Cc: Matt Downing, MSCWMO

GRADE DESCRIPTIONS

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. Contact the District for a followup inspection as soon as correction measures have been taken.

E 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.



**MIDDLE ST. CROIX WATERSHED WMO
CONSTRUCTION SITE INSPECTION PROGRAM**

**EROSION & SEDIMENT CONTROL
INSPECTION REPORT**

Middle St. Croix Watershed WMO c/o
Washington Conservation District
455 Hayward Ave N
Oakdale, MN 55128
Phone: (651) 330-8220 x22
www.mscwmo.org

Middle St. Croix WMO
455 Hayward Ave N
Oakdale MN 55128

May 6, 2021
MSCWMO Review #: LSCB Bluff
Electronic-Mailed (x)

Project: Lake St Croix Beach Bluff Stabilization

Dear **Middle St. Croix WMO** :

The Middle St. Croix Watershed (MSCWMO) conducted an inspection for stormwater, erosion, and sedimentation control issues at the site noted above on **2021-05-06**. The following report summarizes the field inspection findings and describes areas of compliance/noncompliance with the MSCWMO Watershed Management Plan and approved construction plans.

Inspection information

Is this inspection routine or in response to a storm event: ✓ Routine Rainfall

Rainfall amount inches (if applicable):

Is site within one aerial mile of special or impaired water that can potentially receive discharge from the site? ✓ Yes No

Note: If **NA** is selected at any time, specify why in the comment area for that section.

Erosion prevention requirements

	Yes	No	NA
1. Are soils stabilized where no construction activity has occurred for 14 days (including stockpiles)? (7 days where applicable, or 24 hours during Minnesota Department of Natural Resources [DNR] Fish Spawning restrictions)		✓	
2. Has the need to disturb steep slopes been minimized?			✓
3. If steep slopes are disturbed, are stabilization practices designed for steep slopes used?			✓
4. Are ditches/swales stabilized 200' back from point of discharge or property edge within 24 hours? (Mulch, hydromulch, tackifier, or similar best management practices [BMPs] are not acceptable in ditches/swales if the slope is greater than 2%)			✓
5. Do pipe outlets have energy dissipation (within 24 hours of connection)?			✓
6. Is construction phasing being followed in accordance with the approved construction plans?			✓
7. Are areas not to be disturbed marked off (flags, signs, etc.)?			✓

Comments:

Erosion occurring where blanket was installed last fall, blanket has failed.

Sediment control requirements

	Yes	No	NA
1. Are perimeter sediment controls installed properly on all down gradient perimeters?			✓
2. Are appropriate BMPs installed protecting inlets, catch basins, and culvert inlets?			✓
3. Do all erodible stockpiles have perimeter control in place?			✓
4. Is there a temporary sediment basin on site, and is it built as shown in the approved stormwater management plan?			✓
5. Is soil compaction being minimized where not designed for compaction?			✓

Comments:

Perimeter control removed due to inactivity and area prone to spring flooding.

Maintenance and Inspections

	Yes	No	NA
1. Are all previously stabilized areas maintaining ground cover?		✓	
2. Are perimeter controls maintained and functioning properly, sediment removed when one-half full?			✓
3. Are inlet protection devices maintained and adequately protecting inlets?			✓
4. Are the temporary sediment basins being maintained and functioning properly?			✓
5. Are vehicle tracking BMPs at site exits in place and maintained and functioning properly?			✓
6. Is all tracked sediment being removed within 24 hours?			✓
7. Have all surface waters, ditches, conveyances, and discharge points been inspected?	✓		
8. Were any discharges seen during this inspection (i.e., sediment, turbid water, or otherwise)?		✓	

If yes, record the location of all points of discharge. Photograph and describe the discharge (size, color, odor, foam, oil sheen, time, etc.). Describe how the discharge will be addressed:

Comments:

Blanket has failed due to poor soil contact.

Other

	Yes	No	NA
1. Are pollution prevention management measures for solid waste, hazardous material, concrete, and truck washing in place?			✓
2. Is any dewatering occurring on site?			✓
If yes, what BMPs are being used to ensure that clean water is leaving the site and the discharge is not causing erosion or scour?			
3. Will a permanent stormwater management system be created for this project if required and in accordance with MSCWMO Performance Standards Section 7.2			✓
If yes, describe:			
4. If infiltration/filtration systems are being constructed, are they marked and protected from compaction and sedimentation?			✓
5. Is MSCWMO required buffer preserved around all streams, lakes, and wetlands during construction?			✓
Has buffer monumentation been installed?			✓

6. Description of areas of non-compliance noted during the inspection, required corrective actions, and recommended date of completion of corrective actions:

Erosion control blanket has failed due to poor soil contact, but impacts are likely no worse than pre-project conditions. Project is intended to reduce existing erosion of the bluff.

7. Potential areas of future concern:

Comments:

Maintenance and Compliance Summary

Overall Site Grade:

B - Good

A status described above as noncompliant must be addressed in accordance with the MSCWMO Standards. Follow-up inspections will be conducted on a regular basis.

Please contact me at the number below, or Matt Downing (mdowning@mnwcd.org) at (651) 330-8220 (ext. 22) if you have any questions.

Respectfully,

Aaron DeRusha (Cell: 612-816-7995)
MSCWMO Inspector
Cc: Matt Downing, MSCWMO

GRADE DESCRIPTIONS

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. Contact the District for a followup inspection as soon as correction measures have been taken.

E 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.



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www.mscwmo.org

Bob Lind
16560 2nd St N
Lakeland Shores MN

May 6, 2021
MSCWMO Review #: 18-010
Electronic-Mailed (x)

Project: MN Party Bus

Dear **Bob Lind**:

The Middle St. Croix Watershed (MSCWMO) conducted an inspection for stormwater, erosion, and sedimentation control issues at the site noted above on **2021-05-06**. The following report summarizes the field inspection findings and describes areas of compliance/noncompliance with the MSCWMO Watershed Management Plan and approved construction plans.

Inspection information

Is this inspection routine or in response to a storm event: ✓ Routine Rainfall

Rainfall amount inches (if applicable):

Is site within one aerial mile of special or impaired water that can potentially receive discharge from the site? Yes ✓ No

Note: If **NA** is selected at any time, specify why in the comment area for that section.

Erosion prevention requirements

	Yes	No	NA
1. Are soils stabilized where no construction activity has occurred for 14 days (including stockpiles)? (7 days where applicable, or 24 hours during Minnesota Department of Natural Resources [DNR] Fish Spawning restrictions)		✓	
2. Has the need to disturb steep slopes been minimized?			✓
3. If steep slopes are disturbed, are stabilization practices designed for steep slopes used?			✓
4. Are ditches/swales stabilized 200' back from point of discharge or property edge within 24 hours? (Mulch, hydromulch, tackifier, or similar best management practices [BMPs] are not acceptable in ditches/swales if the slope is greater than 2%)			✓
5. Do pipe outlets have energy dissipation (within 24 hours of connection)?			✓
6. Is construction phasing being followed in accordance with the approved construction plans?			✓
7. Are areas not to be disturbed marked off (flags, signs, etc.)?		✓	

Comments:

Soils open but actively worked.

Sediment control requirements

	Yes	No	NA
1. Are perimeter sediment controls installed properly on all down gradient perimeters?		✓	
2. Are appropriate BMPs installed protecting inlets, catch basins, and culvert inlets?			✓
3. Do all erodible stockpiles have perimeter control in place?			✓
4. Is there a temporary sediment basin on site, and is it built as shown in the approved stormwater management plan?			✓
5. Is soil compaction being minimized where not designed for compaction?			✓

Comments:

Silt fence on west side of lot in need of repair or supplement.

Maintenance and Inspections

	Yes	No	NA
1. Are all previously stabilized areas maintaining ground cover?			✓
2. Are perimeter controls maintained and functioning properly, sediment removed when one-half full?		✓	
3. Are inlet protection devices maintained and adequately protecting inlets?			✓
4. Are the temporary sediment basins being maintained and functioning properly?			✓
5. Are vehicle tracking BMPs at site exits in place and maintained and functioning properly?	✓		
6. Is all tracked sediment being removed within 24 hours?	✓		
7. Have all surface waters, ditches, conveyances, and discharge points been inspected?	✓		
8. Were any discharges seen during this inspection (i.e., sediment, turbid water, or otherwise)?		✓	

If yes, record the location of all points of discharge. Photograph and describe the discharge (size, color, odor, foam, oil sheen, time, etc.). Describe how the discharge will be addressed:

Comments:

Silt fence repairs required.

Other

	Yes	No	NA
1. Are pollution prevention management measures for solid waste, hazardous material, concrete, and truck washing in place?			✓
2. Is any dewatering occurring on site?			✓
If yes, what BMPs are being used to ensure that clean water is leaving the site and the discharge is not causing erosion or scour?			
3. Will a permanent stormwater management system be created for this project if required and in accordance with MSCWMO Performance Standards Section 7.2	✓		
If yes, describe: Rain garden of 1,017 square feet.			
4. If infiltration/filtration systems are being constructed, are they marked and protected from compaction and sedimentation?		✓	
5. Is MSCWMO required buffer preserved around all streams, lakes, and wetlands during construction?			✓
Has buffer monumentation been installed?			✓

6. Description of areas of non-compliance noted during the inspection, required corrective actions, and recommended date of completion of corrective actions:

Silt fence needs to be trenched in or sealed to ground on west side of lot to be functional.

7. Potential areas of future concern:

Comments:

Maintenance and Compliance Summary

Overall Site Grade:

C - Fair

A status described above as noncompliant must be addressed in accordance with the MSCWMO Standards. Follow-up inspections will be conducted on a regular basis.

Please contact me at the number below, or Matt Downing (mdowning@mnwcd.org) at (651) 330-8220 (ext. 22) if you have any questions.

Respectfully,

Aaron DeRusha (Cell: 612-816-7995)
MSCWMO Inspector
Cc: Matt Downing, MSCWMO

GRADE DESCRIPTIONS

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. Contact the District for a followup inspection as soon as correction measures have been taken.

E 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.



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www.mscwmo.org

Matt and Shannon Stordahl
16884 Island Terrace
Lakeland MN 55044

May 6, 2021
MSCWMO Review #: 19-006
Electronic-Mailed (x)

Project: Stordahl Home Reconstruction

Dear **Matt and Shannon Stordahl**:

The Middle St. Croix Watershed (MSCWMO) conducted an inspection for stormwater, erosion, and sedimentation control issues at the site noted above on **2021-05-06**. The following report summarizes the field inspection findings and describes areas of compliance/noncompliance with the MSCWMO Watershed Management Plan and approved construction plans.

Inspection information

Is this inspection routine or in response to a storm event: ✓ Routine Rainfall

Rainfall amount inches (if applicable):

Is site within one aerial mile of special or impaired water that can potentially receive discharge from the site? ✓ Yes No

Note: If **NA** is selected at any time, specify why in the comment area for that section.

Erosion prevention requirements

	Yes	No	NA
1. Are soils stabilized where no construction activity has occurred for 14 days (including stockpiles)? (7 days where applicable, or 24 hours during Minnesota Department of Natural Resources [DNR] Fish Spawning restrictions)	✓		
2. Has the need to disturb steep slopes been minimized?		✓	
3. If steep slopes are disturbed, are stabilization practices designed for steep slopes used?	✓		
4. Are ditches/swales stabilized 200' back from point of discharge or property edge within 24 hours? (Mulch, hydromulch, tackifier, or similar best management practices [BMPs] are not acceptable in ditches/swales if the slope is greater than 2%)			✓
5. Do pipe outlets have energy dissipation (within 24 hours of connection)?			✓
6. Is construction phasing being followed in accordance with the approved construction plans?			✓
7. Are areas not to be disturbed marked off (flags, signs, etc.)?			✓

Comments:

Repaired bluff is covered, but soils are compacted and not growing well.

Sediment control requirements

	Yes	No	NA
1. Are perimeter sediment controls installed properly on all down gradient perimeters?	✓		
2. Are appropriate BMPs installed protecting inlets, catch basins, and culvert inlets?			✓
3. Do all erodible stockpiles have perimeter control in place?			✓
4. Is there a temporary sediment basin on site, and is it built as shown in the approved stormwater management plan?			✓
5. Is soil compaction being minimized where not designed for compaction?			✓

Comments:

Multiple biolog checks are being used to control water above and on bluff.

Maintenance and Inspections

	Yes	No	NA
1. Are all previously stabilized areas maintaining ground cover?	✓		
2. Are perimeter controls maintained and functioning properly, sediment removed when one-half full?			✓
3. Are inlet protection devices maintained and adequately protecting inlets?			✓
4. Are the temporary sediment basins being maintained and functioning properly?			✓
5. Are vehicle tracking BMPs at site exits in place and maintained and functioning properly?			✓
6. Is all tracked sediment being removed within 24 hours?			✓
7. Have all surface waters, ditches, conveyances, and discharge points been inspected?	✓		
8. Were any discharges seen during this inspection (i.e., sediment, turbid water, or otherwise)?		✓	

If yes, record the location of all points of discharge. Photograph and describe the discharge (size, color, odor, foam, oil sheen, time, etc.). Describe how the discharge will be addressed:

Comments:

Other

	Yes	No	NA
1. Are pollution prevention management measures for solid waste, hazardous material, concrete, and truck washing in place?			✓
2. Is any dewatering occurring on site?			✓
If yes, what BMPs are being used to ensure that clean water is leaving the site and the discharge is not causing erosion or scour?			
3. Will a permanent stormwater management system be created for this project if required and in accordance with MSCWMO Performance Standards Section 7.2	✓		
If yes, describe: Underground rock trench infiltration structure has been constructed.			
4. If infiltration/filtration systems are being constructed, are they marked and protected from compaction and sedimentation?	✓		
5. Is MSCWMO required buffer preserved around all streams, lakes, and wetlands during construction?			✓
Has buffer monumentation been installed?			✓

6. Description of areas of non-compliance noted during the inspection, required corrective actions, and recommended date of completion of corrective actions:

Vegetation is not taking on the bluff stabilization. Soils are extremely hard and will need to be softened for roots to take.

7. Potential areas of future concern:

Compaction of bluff soils and revegetation.

Comments:

Maintenance and Compliance Summary

Overall Site Grade:

C - Fair

A status described above as noncompliant must be addressed in accordance with the MSCWMO Standards. Follow-up inspections will be conducted on a regular basis.

Please contact me at the number below, or Matt Downing (mdowning@mnwcd.org) at (651) 330-8220 (ext. 22) if you have any questions.

Respectfully,

Aaron DeRusha (Cell: 612-816-7995)
MSCWMO Inspector
Cc: Matt Downing, MSCWMO

GRADE DESCRIPTIONS

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. Contact the District for a followup inspection as soon as correction measures have been taken.

E 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.

MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

455 HAYWARD AVENUE, OAKDALE, MINNESOTA 55082
Phone 651.330.8220 x22 fax 651.330.7747 www.mscwmo.org



Staff Report- March, April 2021

Administration

- Prepared May meeting materials
- Coordination of Grant and Permit Program
- Continued work on the audit process

Project Reviews

- 1175 Quinlan Ave-**ACTION**
- 2159 River Rd S.-**ACTION**
- 2711 Itasca Ave S.-**ACTION**
- Lookout Trail-**INFORM**
- Stensland Woods-**INFORM**

Lily Lake Phosphorus Reductions for Delisting – CWF Grant C20-6055

Description: Awarded \$513,500 for in-lake alum treatment and filtration basin to remove 120lbs of phosphorus from Lily Lake.

Activities This Month: Emmons, Olivier Resources (EOR) has completed designs and the project is out to bid. Bid opening is scheduled for Friday, May 14th at 9am via Zoom with EOR as the host. Adjacent apartment owner has tentatively agreed to cooperation for construction and access on their property and is in the process of reviewing the Right of Access agreement. Staff/EOR will bring bid award recommendations to June MSCWMO Board meeting.

Staff: Bryan Pynn-WCD; Matt Downing-MSCWMO

Watershed Based Funding- Lily Lake Raingardens/LSCB Bluff

Description: \$39,636 CWF Watershed Based Funding was reallocated to Lake St Croix Small Communities Phosphorus Reduction CWF grant in 2020.

Activities This Month: See LSCSCPR Grant Phase I description below for activities.

Staff: Bryan Pynn - WCD

Lake St. Croix Small Communities Phosphorus Reduction Grant – PHASE I

Description: \$200,000 grant for stormwater quality improvement south of Bayport (2019-2021). Partnership with City of Lake St. Croix Beach to stabilize the bluff on the north side of town.

Activities This Month: Contractor has installed 293 LF of the project in October of 2020. Contractor recently stated that river water will be low enough in the coming weeks to resume construction and hope to complete the install within the next month or so.

Staff: Bryan Pynn - WCD; Matt Downing – MSCWMO

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Lake St. Croix Small Communities Phosphorus Reduction Grant – PHASE II

Description: \$158,000 grant for stormwater quality improvement south of Bayport (2021-2023). Implement practices in the LSCD South SWA area to achieve a load reduction of up to 7lbs of TP/yr.

Activities This Month: Awarded grant in January 2021. Workplan was approved. Will pursue preliminary analysis for potential sites in May. Outreach will begin in June and July.

Staff: Bryan Pynn - WCD; Matt Downing - MSCWMO

3M PFAS Settlement MPCA Staff Reimbursement Grant

Description: Up to \$40,000 reimbursement of staff time for both the Administrator and consultant (Stu Grub with EOR) to participate in the development of the groundwater model for the PFAS contamination in the southern portion of the watershed.

Activities This Month: Reviewed information sent out by 3M consultants. Attended subgroup one meeting on March 17, 2021.

Staff: Matt Downing, MSCWMO; Stu Grub, EOR

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: Lake sampling has begun with two samples collected so far, on both Lily Lake and McKusick Lake. Water monitoring equipment has been installed at all three sites. The 2020 MSCWMO Water Monitoring Summary is complete and will be presented.

Staff: Rebecca Oldenburg Giebel, WCD; Erik Anderson, 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.

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Activities This Month: A Spring Reminders flyer was developed and emailed to all known active sites and city staff reminding contractors to repair and maintain their erosion control measures. A list of erosion control device and seed suppliers in the Twin Cities area was also compiled and sent as a resource to contractors. Communications and clarifications regarding erosion control measures and stormwater treatment feature designs occurred. Inspections occurred at the 1635 Rivercrest, Lakeland 2019 Street Improvements, Lake St. Croix Beach Bluff Stabilization, 1868 Redwing, 2nd Street Commercial, and 125 Lakeland Shores Rd projects.

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.

April Activities: Inlet cleanout for OPH Area D raingardens, 2019 raingardens, and SCC. We are starting the spring senesced vegetation cleanout this week.

Staff: Cameron Blake, WCD

Meetings

- Andersen Windows - Scoping meeting – April 23rd
- LSCB Coordination Meeting-April 6th
- 2711 Itasca Pre-App – April 21st
- LSC Steering Team– April 28th
- LSC Steering Team – March 8th
- St. Mary's Point Permit Review Coordination – March 8th
- LSCB & SMP Project Coordination – March 9th
- LSC Grants Compliance – March 31st