



BROWN'S CREEK WATERSHED DISTRICT

Preserving the integrity of the watershed for future generations

www.bcwd.org | 455 Hayward Ave N, Oakdale, MN 55128 | 651-330-8220

REGULAR MEETING OF THE BOARD OF MANAGERS

Wednesday, March 11, 2026

Regular Meeting at 6:30 PM

MEETING LOCATION

Stillwater Township Hall

13636 90th Street North, Stillwater, MN 55082

- 1) Call Regular Meeting to order
- 2) Oath of Office – Luke Mattson
- 3) Approve Agenda -**Board Action**
- 4) Public Comments
- 5) Consent Agenda – **Board Action** *(all items listed under the consent agenda are considered to be routine by the Board of Managers and will be enacted by one motion. There will be no separate discussion on these items unless a Manager removes an item from the consent agenda for discussion or there is a request to remove the item from the consent agenda, in which event the board will consider whether to remove the item from the consent agenda and consider it separately.)*
 - a) Approve minutes of the February 11, 2026 regular meeting
 - b) Accept Permit Fee Statement
 - c) Accept Authorized Funds Spreadsheet
 - d) Authorize the payment of bills as presented
 - e) Accept Washington Conservation District baseline monitoring report for 2025
 - f) Authorize the administrator to expend not to exceed \$7,000 on educational items as presented from 910-0000
 - g) Authorize staff registration and attendance at the Minnesota Stormwater Pond Research and Practice Symposium March 31 and April 1, 2026
 - h) Authorize purchase of water monitoring equipment from Tech Sales Co. for not to exceed \$3,000 from account 300-4640.
 - i) Authorize Emmons and Olivier scope for iron enhanced sand filter operation and maintenance not to exceed \$43,585 from account 948-0000
 - j) Authorize administrator to amend on advice of counsel the agreement for engineering service to update the rates as presented beginning March 2026
 - k) Authorize Emmons and Olivier to complete the weather station scope of work as presented not to exceed \$4,180 from account 957-0000
 - l) Authorize administrator to execute on advice of counsel a 2026-2028 stormwater facility maintenance agreement with Rock Leaf
- 6) Permitting
 - a) BCWD Permit 25-29 City of Stillwater Sunrise Park Trail: Engineer Report – **Board Action**

- 7) Projects
 - a) Brown's Creek Restoration Phase 2: Brown's Creek Cove
 - i) Public Hearing
 - ii) Lower St Croix Partnership grant agreement – **Board Action**
 - iii) Resolution 26-03 Order Brown's Creek Cove Project – **Board Action**
 - b) Brown's Creek Streambank Maintenance at Oak Glen Golf Course – **Board Action**
 - c) Washington Conservation District maintenance – **Board Action**

- 8) Planning
 - a) Minnesota Department of Health Groundwater Protection Initiative Grant - Discussion

- 9) Discussion Agenda - No Action Required
 - a) Updates
 - i) Administrator
 - ii) Legal
 - iii) Engineer
 - iv) Managers
 - b) April 2026 Regular Meeting BCWD Board Agenda

- 10) Adjournment

Managers:



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1 **DRAFT Minutes of the regular meeting of the Brown's Creek Watershed District Board of**
 2 **Managers, Wednesday February 11, 2026**

3 **Roll call**

Managers Present:	Others Present:
Klayton Eckles, President	Karen Kill, BCWD administrator
Chuck LeRoux, Vice President	Hannah Peterson, BCWD communications and project assistant
Celia Wirth, Treasurer	Michael Welch, Smith Partners, BCWD counsel
Griffin Brod, Manager*	Camilla Correll, EOR, BCWD engineer
	Paul Nation, EOR, BCWD engineer
Managers Absent:	Julia Lau, EOR, BCWD engineer
Debra Sahulka, Secretary	Victoria Bradford Styrbicki, A House Unbuilt
	Tom Styrbicki, A House Unbuilt
	Michael Givens, Mikden
	Lara Gavin, HR Green
	Jason Palmby, Magellan Land Development
	Dan Sjoblom, Alliant Engineering, Inc.
	Wendy Ward, resident
	Luke Mattson, resident

4 **Attended virtually*

5 **1) Call to order**

6 President Klayton Eckles called the regular meeting to order at 6:32 p.m. Manager Griffin Brod
 7 noted that he was attending virtually because he is under the weather.

8 **2) Approve agenda**

9 **Manager Wirth moved, seconded by Manager LeRoux, to approve the agenda as presented.**

	Yea	Nay	Abstain	Absent
Manager Eckles	X			
Manager LeRoux	X			
Manager Wirth	X			
Manager Sahulka				X
Manager Brod	X			

10 **Motion carried on a roll call vote 4/0.**

11 **3) Public comments**

12 There were no public comments.

13 **4) Consent agenda**

14 Manager Celia Wirth requested removing item 4e, appoint Mari Frederickson to the Community
 15 Advisory Committee, from the consent agenda for discussion.

16 **a) Approve minutes of the January 13, 2026, regular meeting as presented**

17 **b) Accept Permit Fee Statement as presented**

- 1 c) **Accept Authorized Funds Spreadsheet as presented**
- 2 d) **Authorize the payment of bills as presented, totaling \$171,305.43**
- 3 f) **Authorize Emmons and Olivier Resources scope of work for 2026 macroinvertebrate sampling**
- 4 **not to exceed \$4,160, including \$1,700 to RMB Labs for macroinvertebrate identification, from**
- 5 **account 947-0018**
- 6 g) **Authorize Emmons and Olivier Resources scope of work to conduct infiltration monitoring at**
- 7 **the trout habitat preservation project if the basin is inundated in 2026 not to exceed \$6,932**
- 8 **from account 903-0001**
- 9 h) **Authorize administrator to enter into a contract with A House Unbuilt for Long Lake education**
- 10 **and art collaboration not to exceed \$3,800 from account 910-0000**
- 11 i) **Authorize Emmons and Olivier Resources scope of work for South School Section Lake curly-**
- 12 **leaf pondweed treatment not to exceed \$4,168 from account 950-0001**

13 **Manager Wirth moved, seconded by Manager LeRoux, to approve the consent agenda as**
 14 **amended.**

	Yea	Nay	Abstain	Absent
Manager Eckles	X			
Manager LeRoux	X			
Manager Wirth	X			
Manager Sahulka				X
Manager Brod	X			

15 **Motion carried on a roll call vote 4/0.**

- 16 e) **Appoint Mari Frederickson to the Community Advisory Committee**
- 17 Manager Wirth asked about Ms. Frederickson’s desire to be appointed because, at the February
- 18 9, 2026, Community Advisory Committee meeting, Ms. Frederickson shared her interest in
- 19 learning more about the group but did not mention applying to be a member. Hannah Peterson
- 20 said that she had received an application from Ms. Frederickson. Michael Welch noted that Ms.
- 21 Frederickson lives just outside the watershed, but since BCWD has the statutorily required
- 22 representation on the CAC, the managers could appoint other interested persons.

23 **Manager Wirth moved, seconded by Manager LeRoux, to appoint Mari Frederickson to the**
 24 **Community Advisory Committee.**

	Yea	Nay	Abstain	Absent
Manager Eckles	X			
Manager LeRoux	X			
Manager Wirth	X			
Manager Sahulka				X
Manager Brod	X			

25 **Motion carried on a roll call vote 4/0.**

26 **5) Permitting**

- 27 a) **BCWD Permit 25-28 Chick-fil-A**
- 28 Paul Nation presented the engineer’s report for a new Chick-fil-A in Stillwater. The managers
- 29 discussed how the modeling of the stormwater-management plan submitted on behalf of the
- 30 applicant, Mikden, for the project relies on evapotranspiration provided by mature trees for
- 31 volume control, but the trees included in the proposed plan will not be mature for several years.
- 32 Michael Welch said that maintenance of the tree canopy as included in the proposed plans
- 33 would have to be included in the maintenance declaration recorded as a condition of approval.

The managers discussed how the southwest corner of the lot could have pooling water and the fact that compliance with BCWD stormwater requirements will be required for the impervious surface of the contiguous parcels owned by Mikden as they redevelop. Manager Eckles asked the permit applicants if they would have been interested in a regional system to meet water quality and volume requirements and if the engineer could do a quick analysis to determine the cost of the stormwater system such as could be contributed to such a system. Ms. Gavin was supportive based on the water quality benefit and consolidated maintenance. Michael Givens of Mikden said it was an interesting thought and that BCWD could better support maintenance of such a facility than he could.

Manager Wirth moved, seconded by Manager LeRoux, to approve the request for a variance from rule 2.4.1(b)(ii) and the application for permit 25-28 with the conditions and stipulations recommended in the engineer’s report, and with the agreement that the applicant will calculate and provide to BCWD an estimate of the cost of constructing and operating the proposed stormwater management practice on the project site such as could have been paid toward a regional stormwater treatment system.

	Yea	Nay	Abstain	Absent
Manager Eckles	X			
Manager LeRoux	X			
Manager Wirth	X			
Manager Sahulka				X
Manager Brod	X			

Motion carried on a roll call vote 4/0.

b) BCWD Permit 25-30 80th and Manning (Brixton) Townhomes

Julia Lau presented the engineer’s report for the townhome development in Stillwater. Jason Palmby, the applicant, and Dan Sjoblom, the project engineer, described the project plans, including tree swales between townhome units, leaving a buffer area between the development and adjacent roadways, and planting native vegetation along the southern edge of the property. Resident Wendy Ward shared concerns regarding removing trees, notably heritage silver maples, and requested that preserving existing trees be considered due to their retention capabilities. President Eckles shared a concern with an old oak tree on the property but noted that BCWD does not have tree ordinance authority. The managers discussed the tree removal plan and found the trees to be in the middle of the development where Mr. Palmby said would be infeasible to leave them. They also discussed that the City of Stillwater has not yet approved the plans, but there would not likely be redesign beyond adding amenities like park benches.

Manager Eckles moved, seconded by Manager Wirth, to approve the application for permit 25-30 with the conditions and stipulations recommended in the engineer’s report with a request to the applicant to preserve trees within the project site and to establish and include in the maintenance declaration buffer and vegetation along the southern border of the site to the greatest extent feasible.

	Yea	Nay	Abstain	Absent
Manager Eckles	X			
Manager LeRoux	X			
Manager Wirth	X			
Manager Sahulka				X
Manager Brod	X			

Motion carried on a roll call vote 4/0.

1 **6) Planning**

2 **a) Resolution 26-01 adopt amendments to bylaws and policies**

3 Mr. Welch said that no further changes were made since the January 13, 2026, meeting. He
 4 confirmed with the managers that they wanted to provide an additional per diem for meeting
 5 preparation and to increase the per diem to the statutory amount of \$125. He also
 6 recommended removing the prohibition of holding multiple offices. The managers agreed with
 7 the changes.

8 **Manager LeRoux moved, seconded by Manager Wirth, to adopt resolution 26-01, adopting the**
 9 **amended bylaws and policies.**

	Yea	Nay	Abstain	Absent
Manager Eckles	X			
Manager LeRoux	X			
Manager Wirth	X			
Manager Sahulka				X
Manager Brod	X			

10 **Motion carried on a roll call vote 4/0.**

11 **b) Appoint *Secretary pro tem***

12 Karen Kill noted that a secretary is needed to certify the resolutions and the bylaws adopted this
 13 evening, and Manager Debra Sahulka is absent.

14 **Manager Eckles moved, seconded by Manager Wirth, to appoint Manager Brod as secretary**
 15 **pro tem.**

	Yea	Nay	Abstain	Absent
Manager Eckles	X			
Manager LeRoux	X			
Manager Wirth	X			
Manager Sahulka				X
Manager Brod			X	

16 **Motion carried on a roll call vote 3/0.**

17 **c) Resolution 26-02 Authorize administrator to pay invoices due in event of no quorum**

18 **Manager Wirth moved, seconded by Manager LeRoux, to adopt resolution 26-02 authorizing**
 19 **the administrator to pay invoices due in the event of no quorum.**

	Yea	Nay	Abstain	Absent
Manager Eckles	X			
Manager LeRoux	X			
Manager Wirth	X			
Manager Sahulka				X
Manager Brod	X			

20 **Motion carried on a roll call vote 4/0.**

21 **d) Watershed management plan update – Initiate 60-day review period**

22 Camilla Correll shared the changes made to the draft of the 2027-2036 watershed management
 23 plan. President Eckles shared his concerns with groundwater monitoring and the expenses being
 24 high when BCWD is not the primary regulator of groundwater management. Ms. Correll said
 25 that there are significant groundwater-dependent resources in the watershed as well as golf
 26 course wells that are impacted by groundwater trends. The managers agreed to keep the water

1 utility roadmap in the plan with a reduced budget of \$20,000 and combine other groundwater
 2 activities in a lower priority action of groundwater monitoring and research with different
 3 options and a total budget of \$125,000.

4 **Manager Brod moved, seconded by Manager Wirth, to authorize the administrator to submit**
 5 **the draft watershed management plan, with such nonsubstantive changes as deemed**
 6 **necessary by the administrator to effect the board’s purposes and intent, for 60-day review,**
 7 **and to schedule and notice a public hearing for the May or June regular meeting in accordance**
 8 **with Minnesota Statutes section 103B.231, subdivision 7(a).**

	Yea	Nay	Abstain	Absent
Manager Eckles	X			
Manager LeRoux	X			
Manager Wirth	X			
Manager Sahulka				X
Manager Brod	X			

9 **Motion carried on a roll call vote 4/0.**

10 **7) Discussion agenda**

11 **a) Updates**

12 **(1) Administrator**

13 Ms. Kill introduced Luke Mattson and said he was likely to be sworn in as a new manager
 14 replacing Manager Sahulka at the March meeting. Luke shared that he has lived in the Lake
 15 Elmo Sanctuary development since June 2025 and is excited to learn more and get involved
 16 with BCWD. Ms. Kill shared that there were education reports in the packet from
 17 partnerships BCWD is a part of. She shared the best-management practices cost-share
 18 program update, that Washington County covers site visits through the Washington
 19 Conservation District, and that staff are working on targeted outreach for BMP projects. Ms.
 20 Peterson shared that the focus of the 2026 newsletter would be lake health. Ms. Kill said
 21 that she had talked to Valley Branch Watershed District about meeting to discuss
 22 opportunities for collaboration.

23 Ms. Kill also said that she would be scheduling the public hearing to order phase two of the
 24 Brown’s Creek Restoration Project at Brown’s Creek Cove for the March regular meeting.

25 **(2) Legal**

26 Mr. Welch said that BCWD has an atypical levy split and recommended adding to the plan to
 27 consider simplifying it. He noted a recent white paper released by the Sensible Land Use
 28 Coalition that proposes, among other things, removing watershed organizations’ regulatory
 29 authority.

30 **(3) Engineer**

31 There were no updates.

32 **(4) Managers**

33 Manager Wirth said that she signed up for the Minnesota Watersheds legislative briefing
 34 and expressed interest in meeting with legislators with Ms. Kill and John Hanson,
 35 administrator for the Valley Branch Watershed District. Manager Eckles said that he gave a
 36 presentation about the watershed district to Coldwell Banker. Ms. Kill also said that
 37 Manager Eckles did an interview on chloride use history for the Lower St. Croix Watershed
 38 Partnership and that she would share the article.

1 **8) Adjournment**

2 **Manager Wirth moved, seconded by Manager Brod, to adjourn the regular meeting at 9:34 p.m.**

	Yea	Nay	Abstain	Absent
Manager Eckles	X			
Manager LeRoux	X			
Manager Wirth	X			
Manager Sahulka				X
Manager Brod	X			

3 **Motion carried on a roll call vote 4/0.**

4 Respectfully submitted by

5 Hannah Peterson, BCWD staff and Griffin Brod, Secretary *pro tem*



BROWN'S CREEK WATERSHED DISTRICT

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Permit Fee Statement

Financial Summary

Balance Due to BCWD	\$166,361.30
Balance Due to Permit Applicants	-\$139,663.13
Total Exempted	\$155,897.06

Balance By Permit													
Permit Number	Project Name	Permit Status	Permit Status Date	Rule 2.0	Rule 3.0	Rule 4.0	Rule 5.0	Rule 6.0	Rule 7.0	Rule 10.0	Project Type	Balance Exempt	Balance Due
05-12	Bergmann Development/Sanctuary	Permitted	10/14/05	✓	✓	✓			✓		RES DEV		\$0.00
13-26	Stillwater Medical Center Parking	Permitted	10/30/13	✓	✓	✓			✓		COM		\$3,039.10
15-07	Brown's Creek Cove	Permitted	05/05/16	✓	✓	✓			✓	✓	RES DEV		\$8,238.52
16-03	The Ponds at Heifort Hills	Permitted	09/27/16	✓	✓	✓	✓		✓	✓	RES DEV		\$1,327.34
17-01	Farms of Grant/White Oaks Savannah	Permitted	10/08/18	✓	✓	✓			✓	✓	RES DEV		\$25,770.98
17-04	The Lakes at Stillwater	Permitted	11/22/17	✓	✓	✓			✓		COM		\$4,843.95
17-17	West Ridge	Permitted	08/17/18	✓	✓	✓			✓		RES DEV		\$2,189.16
18-04A	Boutwell Farms	Permitted	09/28/18	✓	✓	✓			✓		RES DEV		\$785.69
18-05	Hazel Place/Heritage Ridge	Permitted	11/14/18	✓	✓	✓			✓		RES DEV		-\$1,769.87
18-06	Nottingham Village	Permitted	03/05/26	✓	✓	✓			✓		RES DEV		\$1,328.90
18-14	St Croix Valley Recreation Center Expansion	Permitted			✓				✓		GOV	\$7,406.28	
19-05	Central Commons	Permitted	09/24/25	✓	✓	✓			✓		COM		-\$2,644.52
20-05	Neal Ave Road Reconstruction	Permitted	06/01/20	✓	✓						GOV	\$19,088.31	
20-08	CSAH 15-36 Interchange	Permitted	03/24/21		✓			✓	✓		GOV	\$23,854.45	
20-12	White Pine Ridge	Permitted	06/07/21		✓						RES DEV		\$2,904.47
21-13	Marylane Gateway Addition	Permitted	09/29/21	✓	✓				✓		RES DEV		-\$611.00
21-15	Schwartz Residence	Permitted	09/07/21	✓	✓						SF RES		-\$319.38
21-34	Fahey Residence	Permitted	11/04/21		✓						SF RES		-\$743.78
21-45	Norell Ave N Improvements	Permitted	06/15/22	✓	✓				✓		GOV	\$10,458.63	
22-03	Westridge (12 lots) - Sharkey/GreenHalo	Permitted	03/25/22		✓						RES DEV		-\$442.71
22-05	13290 Boutwell Road N - Sharkey/GreenHalo	Permitted	03/25/22		✓						RES DEV		-\$590.51
22-11	7125 Lone Oak Trail (WOS L106)- Wiechman	Permitted	09/25/22		✓						SF RES		\$8,607.88
22-18	Stillwater Oaks	Permitted	10/11/25	✓	✓	✓			✓		RES DEV		\$16,509.97
22-20	Popeyes OPH	Permitted	11/09/22		✓						COM		-\$189.62
22-31	Wash Co. CSAH 57 culverts	Permitted	02/02/23		✓						GOV	\$1,053.00	
23-01	Cty Rd 61 Re-alignment	Permitted	04/12/23	✓	✓						GOV	\$8,147.40	
23-02	WOS L114 - Cates (7211 Lone Oak Trail Tweden)	Permitted	05/04/23		✓	✓			✓		SF RES		\$0.00
23-03	Boutwell Farm Lot 1 (2545 Boutwell Farm Rd)	Permitted	05/03/23		✓						SF RES		\$3,569.86
23-04	Westridge B1L4 (986 Creekside)	Permitted	05/03/23		✓						SF RES		-\$656.02
23-07	7239 Lone Oak Trail (WOS L118)	Permitted	05/03/23		✓						SF RES		\$689.54
23-11	7273 Lone Oak Trail- WOS Lot 122 - Freiroy Residence	Permitted	04/04/24		✓						SF RES		\$1,958.42
23-15	7085 Lone Oak Trail- WOS L102- Mensah Res/Cates	Permitted	09/06/23		✓						SF RES		\$2,533.54
23-18	7285 Lone Oak Tri- WOS L124	Permitted	11/09/23		✓						SF RES		\$1,204.75
23-19	Liberty Classical Academy Expansion	Permitted	09/10/25	✓	✓	✓			✓		COM		\$4,916.58
24-01	Take 5 Oil Change	Permitted	08/23/24	✓	✓				✓		COM		-\$304.50
24-03	WOS L120- 7255 Lone Oak- Hilgert	Permitted	03/18/24		✓						SF RES		\$3,770.28
24-06	Rutherford Elementary	Permitted	08/29/24	✓	✓				✓		GOV	\$8,580.06	
24-07	Elliott Crossing	Permitted	04/29/25	✓	✓	✓			✓		RES DEV		\$13,098.43
24-08	Altendorfer Residence - 13075 Lynch Rd	Permitted	05/08/24		✓						SF RES		\$729.81
24-09	Washington County CSAH 5 - Trails and Bridge	Permitted	01/28/25	✓	✓		✓		✓		GOV	\$22,890.73	
24-11	WOS Lot 127 Karr Residence (Cates)	Permitted	08/29/24		✓						SF RES		\$2,265.09
24-12	WOS Lot 130-Carlson Residence	Permitted	10/15/24		✓						SF RES		\$1,296.18
24-15	Lornston Residence	Permitted			✓	✓					SF RES		-\$165.70
24-16	Goodsell Residence	Permitted	12/10/24		✓	✓					SF RES		\$0.00
24-17	WOS Lot 129 - Weatherby	Permitted	12/03/24		✓						SF RES		\$1,539.91
24-18	Washington County CSAH 15B/South Frontage Rd	Permitted	04/09/25	✓	✓		✓	✓	✓	✓	GOV	\$25,679.65	
25-01	Curve Crest Boulevard Utility Extension	Permitted	02/19/25		✓						GOV	\$2,458.23	
25-02	Anderson Holdings Mass Grading	Permitted	05/01/25		✓	✓					COM		\$5,950.88
25-03	HealthPartners Lakeview Campus	Permitted	07/02/25	✓	✓		✓		✓		COM		\$7,304.05
25-04	Kranz Home Addition	Permitted	03/14/25	✓	✓				✓	✓	RES DEV		\$1,396.94
25-05	St. Croix Rec Center Parking Lot Extension	Permitted	07/28/25		✓						GOV	\$13,834.19	
25-06	CSAH 15 Pavement Preservation	Permitted	03/18/25		✓						GOV	\$2,070.24	
25-07	WOS Lot 121 - Castillo Residence	Permitted	04/24/25		✓						SF RES		\$2,484.89
25-09	Marylane Lot 4 - Dockett Residence	Permitted	05/20/25		✓						SF RES		\$1,653.72
25-11	Stillwater Wellhead 10 PFAS Treatment	Permitted	06/27/25	✓	✓						GOV	\$7,864.89	
25-12	Doede Home Construction	Permitted	07/25/25		✓	✓					SF RES		\$723.91
25-13	Xcel Energy Steel Pole Replacement	Permitted	07/14/25		✓						COM		\$2,291.26
25-14	119th St. N - Husnik Residence	Permitted	08/22/25	✓	✓						SF RES		-\$420.91
25-15	Elliott Crossing Lot 1 - Belin Residence	Permitted	07/07/25		✓						SF RES		\$1,059.23
25-17	WOS Lot 128 - Morud Residence	Permitted	08/22/25		✓						SF RES		\$1,357.83
25-18	Marylane Gateway Lot 3 - Deininger Residence	Permitted	07/24/25		✓						SF RES		\$739.50
25-19	Elliott Crossing Lot 3 - Kootenia	Permitted	09/03/25		✓						SF RES		\$342.16
25-21	Bryant Yard Extension	Permitted	09/10/25		✓						SF RES		-\$120.18
25-22	WOS Lot #117- Upadhyaya	Permitted	10/02/25		✓						SF RES		\$935.76
25-23	10286 BOWD Board Packet 3-11-2026	Permitted	10/17/25		✓						SF RES		\$0.00

25-24	Ziegler Pole Shed	Permitted	10/02/25	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SF RES		\$208.98
25-26	Elliott Crossing Lot 4 - Zawadski Homes	Permitted	10/23/25	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SF RES		-\$181.81
25-27	Elliott Crossing Lot 5 - Style & Structure	Permitted	12/01/25	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SF RES		-\$841.52
25-28	Chick-fil-A Stillwater	Conditionally Approver	02/11/26	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	COM		\$13,593.12
25-29	Sunrise Park Trail	Under Review	02/19/26	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	GOV	\$2,511.00	
25-30	Brixton Townhomes	Conditionally Approver	02/11/26	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	RES DEV		\$13,200.72
26-01	Elliott Crossing Lot 2 - Anderson	Permitted	01/14/26	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SF RES		-\$193.75
26-02	Sanctuary Wastewater Treatment Facility	Permitted	02/20/26	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RES DEV		-\$838.75

Brown's Creek Watershed District
2026 Budget -Approved 12/10/2025
3/11/2026

		Estimated 2025 Carry Forward	2026 Grants	2026 Levy	2026 Total Budget	Allocated	Available
100-2910	Designated Funds - Management Plan Projects	\$ 726,935			\$ 726,935		\$ 726,935
					\$ -		\$ -
					\$ -		\$ -
Revenue							
100-3700	Interest Income				\$ -		\$ -
100-3601	Metropolitan Council Outlet Monitoring Grant		\$ 5,000		\$ 5,000		\$ 5,000
100-3630	Washington County Cost-share Applewood Reuse				\$ -		\$ -
100-3631	MPCA Small Watershed Grant 2023-2025				\$ -		\$ -
100-3400	Permits				\$ -		\$ -
100-3632	MPCA Small Watershed Grant 2025-2029		\$ 310,191		\$ 310,191		\$ 310,191
100-3633	WCD HELP Grant 2025-2026				\$ -		\$ -
100-3635	Lower St Croix Parntership grant		\$ 34,100		\$ 34,100		\$ 34,100
100-3100	Tax Levy			\$ 1,247,745	\$ 1,247,745		\$ 1,247,745
TOTAL, ESTIMATED Sources of Funding		\$ 726,935	\$ 349,291	\$ 1,247,745	\$ 2,323,971	\$ -	\$ 2,323,971

ACCT. #	General Expenses	Estimated 2025 Carry Forward	2026 Grants	2026 Levy	2026 Total Budget	Allocated	Available
200-4000	Manager Per Diem and Expense			\$ 10,000	\$ 10,000	\$ 6,500	\$ 3,500
200-4210	Meeting Space	\$ 880		\$ 1,440	\$ 2,320	\$ 2,320	\$ -
200-4250	Dues & Subscriptions (MN Watersheds 7200 and LMCIT 2800)			\$ 10,000	\$ 10,000	\$ 10,000	\$ -
200-4270	Bonding & Insurance			\$ 6,500	\$ 6,500	\$ 6,500	\$ -
200-4280	Postage & Delivery			\$ 1,000	\$ 1,000		\$ 1,000
200-4290	Printing & Notices			\$ 1,000	\$ 1,000		\$ 1,000
200-4330	Accounting			\$ 5,040	\$ 5,040	\$ 5,040	\$ -
200-4331	Audit			\$ 11,500	\$ 11,500	\$ 11,500	\$ -
200-4949	Misc., Other Expense			\$ 2,000	\$ 2,000		\$ 2,000
200-4320	Wash. Conservation District--Admin			\$ 70,000	\$ 70,000	\$ 70,000	\$ -
200-4265	Admin Conference Registrations			\$ 3,500	\$ 3,500		\$ 3,500
200-4410	Legal Fees - General			\$ 29,100	\$ 29,100	\$ 29,100	\$ -
200-4500	Staff Engineer			\$ 33,000	\$ 33,000	\$ 33,000	\$ -
	Equity Training	\$ 5,000		\$ (5,000)	\$ -		\$ -
	Contingency Reserve	\$ 10,878		\$ 40,000	\$ 50,878		\$ 50,878
TOTAL GENERAL FUND EXPENSES:		\$ 16,758	\$ -	\$ 219,080	\$ 235,838	\$ 173,960	\$ 61,878

ACCT. #	MANAGEMENT PLAN EXPENSES	Estimated 2025 Carry Forward	2026 Grants	2026 Levy	2026 Total Budget	Allocated	Available
300-4320	Wash. Conservation District--Administrator			\$ 256,500	\$ 256,500	\$ 256,500	\$ -
300-4410	Legal Fees - Mgmt Plan			\$ 60,000	\$ 60,000		\$ 60,000
300-4501	Staff Engineer	\$ 3,500		\$ 99,000	\$ 102,500	\$ 102,500	\$ -
300-4702	Permitting, Legal Review			\$ 17,500	\$ 17,500		\$ 17,500
300-4703	Permitting, Engineering Review			\$ 78,000	\$ 78,000		\$ 78,000
300-4704	Permitting, Inspection Database	\$ 4,000		\$ -	\$ 4,000	\$ 4,000	\$ -
300-4710-1	Baseline Monitoring		\$ 5,000	\$ 162,500	\$ 167,500	\$ 167,500	\$ -
300-4640	Equip. Maint. and Upgrades	\$ 10,000		\$ 15,000	\$ 25,000	\$ 1,015	\$ 23,985
300-4810	Shared Educator Position	\$ 6,500		\$ 25,500	\$ 32,000	\$ 25,480	\$ 6,520
300-4950	Management Plan Implementation -future projects				\$ -		\$ -
903-0001	Trout Habitat Preservation Project: Monitoring,	\$ 6,592		\$ 340	\$ 6,932	\$ 6,932	\$ -
909-0000	Rules Review/Evaluation	\$ 22,150		\$ (20,000)	\$ 2,150	\$ 2,150	\$ -
909-0001	Groundwater Dep Nat Resource Inventory update			\$ 8,400	\$ 8,400		\$ 8,400
909-0002	Permitting Program Internal Procedure updates	\$ 25,000		\$ (25,000)	\$ -		\$ -
910-0000	Education & Outreach	\$ 35,500		\$ 64,500	\$ 100,000	\$ 3,800	\$ 96,200
911-0000	Volunteer Stream Monitoring			\$ 5,000	\$ 5,000		\$ 5,000
914-0000	Homeowner BMP Program			\$ 50,000	\$ 50,000	\$ 1,500	\$ 48,500
923-0000	H & H Model Maintenance	\$ 8,000		\$ (8,000)	\$ -		\$ -
923-0002	Flood Risk Assessment			\$ -	\$ -		\$ -
923-0003	Long Lake - Flood Risk - Weir Modification Assessment				\$ -		\$ -
923-0004	Stormwater Structure Inventory			\$ -			\$ -
927-0000	Management Plan Update				\$ -		\$ -
929-0000	Long Lake Plan Implementation	\$ 103,700		\$ (100,000)	\$ 3,700		\$ 3,700
929-0012	Long Lake - Marketplace Reuse Feasibility			\$ -	\$ -		\$ -
929-0013	Long Lake - Chloride Impairment Assessment	\$ 10,000		\$ -	\$ 10,000		\$ 10,000
929-0014	Long Lake - Brewer's Pond BMP/LGU cost-share				\$ -		\$ -
935-0000	Land Conservation Program	\$ 200,000		\$ 50,000	\$ 250,000		\$ 250,000
935-0001	110th Street Property				\$ -		\$ -
935-0002	110th Street Property Implementation	\$ 50,000			\$ 50,000	\$ 3,300	\$ 46,700
935-0003	Develop Land Conservation Priorities	\$ 20,000			\$ 20,000		\$ 20,000
940-0000	BMP Program – LGU/Community Demonstration Projects				\$ -		\$ -
942-0004	Measuring Trends in GW Elevations & Flow			\$ 5,000	\$ 5,000		\$ 5,000
942-0007	Groundwater - Browns Creek piezometers			\$ 10,000	\$ 10,000		\$ 10,000
942-0008	Groundwater -recharge mapping			\$ -	\$ -		\$ -
942-0011	Groundwater - Coordination with users			\$ 8,500	\$ 8,500		\$ 8,500
947-0002	Fish Baffles - Hwy 95 & 96 Culverts			\$ 7,500	\$ 7,500		\$ 7,500
947-0009	Browns Creek Trail Improvements			\$ -	\$ -		\$ -
947-0017	Brown's Creek Implementation - Ecoli	\$ 10,000		\$ (10,000)	\$ -		\$ -
947-0018	Brown's Creek - Biological Survey (Macroinvert)			\$ 4,160	\$ 4,160	\$ 4,160	\$ -
947-0020	Brown's Creek - Stream Channel Survey			\$ 7,500	\$ 7,500		\$ 7,500
947-0022	Brown's Creek - Buffer and Stream Restoration-BC Park				\$ -		\$ -
947-0025	Brown's Creek - Golf Course Reuse - SCC		\$ 88,191	\$ 12,000	\$ 100,191		\$ 100,191
947-0026	Brown's Creek - Brown's Creek Cove Reach	\$ 58,000	\$ 256,100	\$ 124,800	\$ 438,900	\$ 31,400	\$ 407,500
947-0027	Brown's Creek - McKusick Road rock crib feasibility	\$ 26,000		\$ (26,000)	\$ -		\$ -
947-0028	Brown's Creek - Millbrook Phase II			\$ -			\$ -
948-0000	CIP Maintenance	\$ 90,000		\$ 115,300	\$ 205,300	\$ 150	\$ 205,150
950-0001	South School Curly Leaf Treatment			\$ 6,000	\$ 6,000	\$ 4,168	\$ 1,832
950-0003	Aquatic Vegetation Surveys			\$ 12,000	\$ 12,000		\$ 12,000
953-0000	Fen Management Plan Implementation			\$ 4,200	\$ 4,200		\$ 4,200
957-0000	Weather Station	\$ 1,200		\$ 3,000	\$ 4,200		\$ 4,200
960-0000	St Croix Phosphorus Reduction	\$ 10,000		\$ (10,000)	\$ -		\$ -
960-0001	DNR Gully Stabilization			\$ -	\$ -		\$ -
961-0000	Mendel Wetland Restoration Feasiblity	\$ 7,535		\$ (7,535)	\$ -		\$ -
961-0001	Mendel Wetland Restoration -Vegetation Management			\$ 5,500	\$ 5,500		\$ 5,500
964-0000	District-Wide Chloride Source Assessment	\$ 2,500		\$ (2,500)	\$ -		\$ -
967-0000	Brewers Pond Subwatershed Plan			\$ 20,000	\$ 20,000		\$ 20,000
TOTAL MANAGEMENT PLAN PROJECT EXPENSES:		\$ 710,177	\$ 349,291	\$ 1,028,665	\$ 2,088,133	\$ 614,555	\$ 1,473,578
TOTAL, OPERATING EXP. & MGMT. PLAN PROJECTS:		\$ 726,935	\$ 349,291	\$ 1,247,745	\$ 2,323,971	\$ 788,515	\$ 1,535,456

BROWN'S CREEK WATERSHED DISTRICT
 3/11/2026
 CURRENT ITEMS PAYABLE-PAGE 1 of 2

	YES	NO	ABSTAIN	ABSENT
ECKLES	_____	_____	_____	_____
BROD	_____	_____	_____	_____
LEROUX	_____	_____	_____	_____
WIRTH	_____	_____	_____	_____
MATTSON	_____	_____	_____	_____

VENDOR

Emmons & Olivier Resources, Inc.

	ACCOUNT #	ITEMS	TOTAL	CK NO
Inv. 41-0000-243 Retainer	300-4500	\$ 7,932.00		
Inv. 41-0000-243 Retainer	200-4500	\$ 2,644.00		
Inv. 41-0001-246 General Permitting	300-4703	\$ 5,844.75		
Inv. 41-0402-47 Permits 2022				
Permit #22-18 Stillwater Oaks	300-4703	\$ 1,863.00		
Inv. 41-0420-37 Permits 2023				
Permit #23-19 Liberty Classical Academy Expansion	300-4703	\$ 229.85		
Inv. 41-0438-26 Permits 2024				
Permit #24-09 CSAH 5 Phase 3	300-4703	\$ 40.50		
Permit #24-18 CSAH 15 Frontage	300-4703	\$ 121.50		
Inv. 41-0461-14 Permits 2025				
Permit #25-11 Stillwater PFAS Treatment	300-4703	\$ 108.60		
Permit #25-17 WOS Lot 128 Morud	300-4703	\$ 84.35		
Permit #25-22 WOS Lot 117 Upadhyaya	300-4703	\$ 84.35		
Permit #25-28 Chick-Fil-A	300-4703	\$ 3,211.62		
Permit #25-29 Sunrise Park Trail	300-4703	\$ 1,782.00		
Permit #25-30 80th & Manning Townhomes	300-4703	\$ 4,131.75		
Inv. 41-0475-2 Permits 2026				
Permit #26-02 Sanctuary WWTF	300-4703	\$ 161.25		
Inv. 41-0205-98 CIP Operation and Maintenance	948-0000	\$ 4,202.00		
Inv. 41-0447-22 BCWD 2024 WMP Update	927-0000	\$ 1,433.00		
Inv. 41-0449-5 Brown's Creek Cove	947-0026	\$ 8,622.03		
Inv. 41-0463-8 AHGC O&M	948-0000	\$ 405.00		
Inv. 41-0464-8 2025 Weather Station	957-0000	\$ 381.50		
Inv. 41-0470-10 BCWD IESF O&M 2025	948-0000	\$ 1,093.50	\$ 44,376.55	

Xcel Energy

Inv. 966499250 Iron Enhanced Sand Filter Pump Operation	948-4500	\$ 23.65	\$ 23.65	
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Washington Conservation District

Inv. 7366 January 2026 Water Monitoring				
Baseline Water Monitoring - Labor	300-4710	\$ 11,529.66		
Baseline Water Monitoring - Equipment	300-4640	\$ 16.67		
Baseline Water Monitoring - Expenses	300-4640	\$ 192.91		
Metropolitan Council - Lab	300-4710	\$ 9,090.00		
Inv. 7360 January 2026 BMP Program	914-0000	\$ 1,340.75	\$ 22,169.99	

Smith Partners	Inv. 46456 Retainer - Meetings, Preparation	200-4410	\$ 2,464.66		
	Inv. 46457 General Legal Services	300-4410	\$ 242.40		
	Inv. 46458 Planning	300-4410	\$ 2,607.15		
	Inv. 46459 Contracts	300-4410	\$ 545.40		
	Inv. 46460 Permits	300-4702	\$ 1,030.92		
	Inv. 46461 Policy Issues	300-4410	\$ 30.30		
	Inv. 46462 Lake McKusick Iron-Sand Infiltration	300-4410	\$ 333.30		
	Inv. 46463 Brown's Creek Restoration	300-4410	\$ 848.49		
	Inv. 46464 BC Cove	300-4410	\$ 787.80	\$ 8,890.42	
Dave S. McCord, LTD	Inv. 4740 January 2026 Accounting Services	200-4330	\$ 420.00	\$ 420.00	
City of Stillwater	Inv. 65600 Brewers Pond Stormwater Separator Reimbursement	929-0014	\$ 25,000.00	\$ 25,000.00	
League of MN Cities Insurance Trust P&C	Package 1001461-10 Agreement Period 02/23/2026 - 02/23/2027	200-4270	\$ 5,207.00	\$ 5,207.00	
Total Amount Disbursed				\$ 106,087.61	

BROWN'S CREEK WATERSHED DISTRICT
 3/11/2026
 MONTHLY ITEMS DEPOSITED - Page 1 of 1

VENDOR	INVOICE/DESCRIPTION	ACCOUNT #	CK NO	DEPOSIT DATE	TOTAL
4M Fund	Dividend (Interest)	100-3700	Direct Deposit	2/28/2026	\$ 2,471.78
Sanctuary of Lake Elmo Homeowners Association	#26-02 Permit Fee Deposit	300-4703	1099	2/18/2026	\$ 1,000.00
Metropolitan Council	WOMP 1 Final Payment	100-3601	2065328	2/9/2026	\$ 1,000.00
TOTAL AMOUNT DEPOSITED:					\$ 4,471.78

**Brown's Creek Watershed District
Treasurer's Report
3/11/26**

Total Bank Balance		
4M Fund	\$	761,680.64
USBank		-
Less Accounts Payable		(106,087.61)
Plus Unrecorded Deposits since	02/28/2026	-
Total Balance	\$	<u>655,593.03</u>

BROWN'S CREEK WATERSHED DISTRICT

2025 WATER MONITORING SUMMARY



Prepared for:



Prepared by:



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DRAFT

ACKNOWLEDGMENTS

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

Brown's Creek Watershed District (BCWD) Board of Managers

Klayton Eckles, President
Charles LeRoux, Vice President
Larry Odebrecht, 2nd Vice President
Celia Wirth, Treasurer
Debra Sahulka, Secretary
Griffin Brod, Manager

Brown's Creek Watershed District

Karen Kill, BCWD Administrator

Watershed Engineer

Emmons and Olivier Resources, Inc.

Watershed Legal Council

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Metropolitan Council

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Stillwater Area High School

Pete Stenross
Katie Crowley
SAHS Students

Minnesota Trout Unlimited- Trout in the Classroom

Evan Griggs
Amber Taylor

Washington Conservation District

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

ABBREVIATIONS, ACRONYMS, AND SYMBOLS

Bi-weekly	Every two weeks
CaCO ₃	Calcium Carbonate
CAMP	Citizen-Assisted Lake Monitoring Program
cfs	cubic feet per second
Chl- α	Chlorophyll- α
BCWD	Brown's Creek Watershed District
DO	Dissolved Oxygen
EIMS	Environmental Information Management System
<i>E. coli</i>	<i>Escherichia coli</i>
FAV	Final Acute Value
IESF	Iron Enhanced Sand Filter
lbs	pounds
lbs/ac	pounds per acre
m	meters
MCES	Metropolitan Council Environmental Services
mg/L	milligrams per liter
MN DNR	Minnesota Department of Natural Resources
MPCA	Minnesota Pollution Control Agency
MPN	most probable number
NTU	nephelometric turbidity units
OHWL	Ordinary High Water Level
Ortho-P	Ortho-phosphorus
THPP	Trout Habitat Preservation Project
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TP	Total Phosphorus
TSI	Trophic State Index
TSMP	Trout Stream Mitigation Project/Diversion Structure
TSS	Total Suspended Solids
$\mu\text{g/L}$	micrograms per liter
$\mu\text{mhos/cm}$	micromhos per centimeter
VSS	Volatile Suspended Solids
WCD	Washington Conservation District

2025 Brown's Creek Watershed District Baseline Water Quality Monitoring

MONITORING SUMMARY

This report focuses on the summary of lake and stream water quality data collected by the Washington Conservation District (WCD) in 2025. References will also be made to the Brown's Creek and Long Lake 2020 Trend Analysis completed by Brown's Creek Watershed District's engineer, Emmons & Olivier Resources, Inc. (EOR). Additional information on the natural and cultural resources, improvement projects, and challenges related to water resources within the Brown's Creek Watershed District (BCWD) can be found in the BCWD 2017-2026 Watershed Management Plan, the 2010 Brown's Creek Biota TMDL, and past monitoring summaries.

Similar to 2024, very low snow totals were present at the end of winter. With the exception of a heavy snowstorm at the beginning of March, which fully melted after a few days, snowpack was less than five inches for most of January and February, and was entirely gone by March 11 according to the National Weather Service in Stillwater. Spring conditions were warmer than average, with overnight freezing temperatures largely ending by late March while daytime temperatures reached as high as the mid-seventies in mid-March. Most lakes in the area lost their ice around two weeks earlier than median ice-out dates. Contrary to most years, due to the lack of snow cover and a dry fall in 2024, water levels in streams and lakes in the District were at their lowest immediately after ice-out with minimal recharge from snowmelt. Spring moisture conditions were near normal, while June and July were very wet with 2.91 inches and 1.24 inches of rain, respectively, above the 30 year average for those months. Much of that precipitation came in several severe storms, which led to high runoff events. According to recorded precipitation, there were four storm events during the year that exceeded two inches of rain, with the greatest being approximately 3.2 inches. Similar to 2024, September and October were drier than usual. Overall, annual precipitation was 1.42 inches greater than the thirty year average of 33.9 inches. Warm air temperatures impacted water conditions, with six days over 90 °F as recorded by the National Weather Service. A beaver dam on Brown's Creek downstream of Highway 15 appears to have caused significant warming of the water at all downstream monitoring stations, with some of the warmest stream temperatures recorded in the twenty years of monitoring. The stream restoration activities around Neal Avenue also likely contributed to the warming of the creek, as there is not yet enough vegetation re-established to shade and cool the stream. Ice-in was much earlier than recent years, with most lakes in the area being fully ice covered by the end of November. The wet and warm conditions in 2025 are generally reflected by poorer water quality conditions than previous years.

Lake Monitoring

BCWD monitored eighteen basins for nutrients, chlorophyll- α , Secchi disk transparency, temperature and dissolved oxygen profiles, elevation, and user perception rankings. Bass Lake East, Bass Lake West, Benz Lake, Goggins Lake, Jackson WMA (Sinnits) Pond, Kismet Basin, Long Lake, Lynch Lake South, Masterman Lake, Plaisted Lake, South School Section Lake, and Woodpile Lake were monitored every other week, while Brewer's Pond, Heifort's Pond, July Avenue Wetland, Lynch Lake North, North School Section Lake, and Pat Lake were monitored every four weeks by WCD staff. Volunteers also monitored Brewer's Pond and Heifort's Pond every four weeks on an offset schedule with WCD, such that samples were collected every other week. A summer and fall alkalinity and hardness sample was also collected on all eighteen basins, and spring and summer chloride samples were collected on all three basins of Long Lake and Jackson WMA (Sinnits) Pond.

Four lakes experienced an improvement in lake grade; Bass Lake West, Goggins Lake, Pat Lake, and South School Section Lake. Heifort's Pond, July Avenue Wetland, Kismet Basin, Lynch Lake South, Masterman Lake, and North School Section Lake declined in grade from the year prior, and all other lakes maintained their lake grade.

Of the eighteen lakes monitored, Heifort's Pond, July Ave Wetland and Lynch Lake North summer averages exceeded (were poorer than) state impairment thresholds for total phosphorus, chlorophyll- α , and Secchi disk transparency. South School Section Lake exceeded the impairment threshold for chlorophyll- α , and Brewer's Pond exceeded the impairment threshold for chlorophyll- α and Secchi disk transparency.

Peak elevation for the year on most lakes occurred in mid to late August. In 2025 five basins had elevations above their Ordinary High Water (OHW) level, for part or all of the monitoring season.

Stream and Stormwater Monitoring

Brown's Creek

Consistent with past years, Brown's Creek was monitored at four locations; Highway 15, McKusick Road, Stonebridge, and the Outlet. Automated storm composite and manual grab samples during storm and base flow conditions were collected at all sites and analyzed for nutrients, sediment, metals, and *Escherichia coli* (*E.coli*). Continuous (15 minute) stage, discharge, temperature, dissolved oxygen (DO), turbidity, pH, and specific conductivity were collected at all four stations.

Nutrients & Discharge

The total discharge to the St. Croix River in 2025 was 268,491,496 cubic feet of water, as recorded at the Outlet. The total phosphorus (TP) and total suspended solids (TSS) loads to the St. Croix River at the Outlet were 2,893 pounds of phosphorus (0.626 lbs/ac) and 648,136 pounds of sediment (140.17 lbs/ac), as calculated by Metropolitan Council Environmental Services (MCES). These were near the long term median load since load calculations began in 2000. The sampling strategy at the Outlet was changed by MCES in 2017 to a manual grab collected on the same weekday every other week, and composite samples collected in major storm events. This change in sampling method has resulted in an apparent shift to lower annual loads, as the strategy is not biased towards runoff events as it was in the past, and the method used to calculate annual loads was altered to comply with MCES standard operating procedures. The creek exceeded the state standard of 0.100 mg/L of TP for 12 of 27 applicable samples. The creek met the TMDL goal of 23 mg/L of TSS during base flow, but exceeded the state standard of 10 mg/L (between April 1 to September 30) from May through August for a total of nine of 14 applicable samples. TSS loading was greater than the TMDL goal of 74 pounds per acre, primarily due to the wet spring conditions. Additionally, remnant sediment from in-water construction work as part of the 2024 streambank and floodplain restoration project along Neal Avenue contributed to the higher TP and TSS loads. Loading and conditions at individual sites are discussed in greater detail later in this summary.

Metals

No metals exceedances were recorded at the Outlet. A small number of chronic level exceedances of lead and copper were recorded at the upstream monitoring stations, primarily at McKusick Road where metals exceedances seem to be related to high sediment concentrations.

Bacteria

Samples taken during base flow at each station were above state standards for *E.coli*. Based on long term monitoring, bacteria concentrations at all stations are above the standard June through September. Sufficient data has not been collected at Highway 15, McKusick Road, or Stonebridge to compare to the standard in April.

Temperature & Dissolved Oxygen

Temperature and dissolved oxygen regimes were most suitable for trout and coldwater community survival at the Outlet. The threat level threshold of 18.3 °C was exceeded at McKusick Road, Stonebridge, and the Outlet for the most or second most number of days since temperature monitoring began in 2006. The critical level threshold at which trout could not survive of 23.9 °C was exceeded at Highway 15, McKusick, and Stonebridge on June 22, which was the first instance of this occurring since 2013. This is likely due to a large beaver dam slowing and allowing heating of the water between Highway 15 and McKusick Road, temporary lack of stream shading in the Neal Avenue restoration area, and warm water inputs all summer

long from the McKusick Wetland Outlet tributary. Dissolved oxygen concentrations were better than the state standard of 7 mg/L as a daily minimum for the entire season at the Outlet. Dissolved oxygen concentrations were poorer than the standard 27 and 24 days, respectively, at McKusick Road and Stonebridge, partially due to the warm water conditions. Highway 15 is not suitable for trout during summer months due to low dissolved oxygen and warm temperatures. The upper reaches of the creek around Highway 15 have been found to contain invasive curly-leaf pondweed, which will further hinder trout suitability by slowing the water, allowing for warmer temperatures and sediment deposition over spawning gravel.

Turbidity

Continuous turbidity and specific conductivity were monitored at each of the four stations on the creek. Average daily turbidity exceeding the TMDL goal of 10 NTU ranged from 10.1% to 27.6% of the days monitored across the four monitoring stations. In 2025 the Outlet was the most turbid site, with 27.6% of the days monitored exceeding the 10 NTU goal. Turbidity conditions were influenced by the in-water restoration work around Neal Avenue in the summer of 2024, which had not fully stabilized in early 2025, and had not had a major runoff event to flush remnant sediment out of the channel since the work finished. Specific conductivity data are not discussed, but are available upon request.

Biology

The MN DNR has a management plan to stock 1,000 yearling rainbow trout in the creek each spring. Due to difficulties of raising brown trout at state hatcheries to target size, the agency shifted to stocking rainbow trout in 2019. Stillwater Area High School (SAHS) and the Minnesota Trout Unlimited – Trout in the Classroom program also raised and released several hundred fingerling rainbow trout into the creek. The rainbow trout thrive in similar conditions as brown trout, but grow faster and will provide better recreational opportunities to anglers. In May of 2025 SAHS students observed stonefly larvae, which require very clean and well oxygenated water to survive, already inhabiting the newly constructed rock riffles in the stream restoration area around Neal Avenue.

Diversion Drainage

The diversion drainage was again monitored at the Trout Stream Mitigation Project (TSMP) Diversion Structure for nutrients, sediment, and metals, as well as continuous stage, velocity, discharge, and temperature. Total discharge to McKusick Lake was 60,305,225 cubic feet of water; the fifth highest volume recorded since monitoring began in 2006. The TP load was 416 pounds (0.108 lbs/ac) and the TSS load was 73,469 pounds (19.06 lbs/ac). In spite of wetter than average conditions, the TP and TSS loads were the sixth and second lowest, respectively, recorded since monitoring began in 2006. The site largely met the state standard for 2B waters for TP and TSS, but has historically shown an extremely high storm loading rate. Erosional head cuts in the drainage tributaries had been identified as the source of the excessive loading rates

through drone flights and surveys conducted by the District's engineer. Rock vanes and stabilization projects have since been implemented by the District to reduce erosion and restore floodplain connectivity. Beginning in 2024 beavers also constructed a series of dams upstream of the site, further trapping sediment and phosphorus by reducing flow rate, allowing settling of sediments, and improving floodplain connectivity. The high total discharge and very low nutrient loads provide evidence the restoration projects and natural processes resulting from beaver activity may be improving water quality conditions in the drainage. Only one chronic standard exceedance of lead was recorded, which is tied for the lowest number of metal exceedances ever recorded at the station. Continuous temperature monitoring was added to the site in 2024 to provide further data on how restoration and beaver activities are affecting habitat and water quality conditions in the drainage.

Long Lake Drainages

The Tributary to Long Lake at Marketplace Pond was monitored for nutrients, sediment, metals, and continuous stage and discharge. Grab sampling resumed at the Tributary to Long Lake at 62nd Street, in addition to continuous stage monitoring. The total discharge to Long Lake at Marketplace Pond was 17,069,510 cubic feet, while the discharge at 62nd Street was 2,166,546 cubic feet. These were near the long term average discharge for these sites. The tributary at Marketplace Pond contributed 130 pounds of phosphorus (0.316 lbs/ac) and 10,449 pounds of sediment (25.49 lbs/ac). The tributary at 62nd Street contributed 50 pounds of phosphorus (0.087 lbs/ac) and 6,265 pounds of sediment (10.90 lbs/ac). Although not classified as 2B waters, both sites exceeded state standards for TP for nearly every sample collected, and the tributary at 62nd Street exceeded state TSS standards for the majority of samples collected. Storm events at the tributary at Marketplace Pond exceeded the maximum standard for copper once, the chronic standard for copper once, and the chronic standard for lead three times. The tributary at 62nd Street exceeded the chronic standard for lead once.

McKusick Wetland Outlet

McKusick Wetland Outlet was added to the monitoring network in 2017. The outlet was monitored at its discharge point to Brown's Creek 100 feet upstream of the McKusick Road site for continuous stage, discharge, and temperature, as well as nutrients, sediment, and metals. Discharge to Brown's Creek during the period of monitoring (April 23 to September 8) was calculated at 23,349,104 cubic feet. The TP load for this period contributed 403.8 pounds of phosphorus, while the TSS load contributed 11,354 pounds of sediment. Although not a 2B water, when compared to state standards for TP and TSS the site meets the standard for TSS, but was above the TP standard for 10 of 11 samples collected. Contrary to recent years, the outlet was observed flowing the entire summer, which likely negatively impacted temperature conditions in Brown's Creek.

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I. INTRODUCTION

Knowledge of the changes to water quality and quantity of our water resources through monitoring guides when, where, and how management activities should be implemented to protect or restore those resources. The Brown's Creek Watershed District (BCWD) utilizes monitoring and the data collected to make such decisions as outlined in its watershed management plan. In 2025 BCWD monitored 23 basins (lakes), four stations on Brown's Creek, a tributary to Brown's Creek, two stations in the Long Lake subwatershed, and one station in the diversion drainage at the Diversion Structure. A summary of monitoring locations and monitored parameters can be found in Table 1 and Figure 1.

The Washington Conservation District (WCD) also conducted special project and maintenance monitoring at several locations including the Iron Enhanced Sand Filter (IESF) on Morgan Avenue, Brown's Creek Park Rock Crib, Countryside Auto sediment chamber, McKusick Road sediment chambers, the Oak Glen Golf Course Irrigation Reuse project, alkalinity and hardness sampling on 18 basins (lakes), and chloride samples on six Stillwater stormwater ponds. Comparable levels of data collection versus baseline sites occurred at each project, such as collection of continuous stage, discharge, and temperature, and measurement of sediment depths in complex monitoring situations. As this summary focuses on baseline monitoring data, special project monitoring will not specifically be discussed, although the locations of several projects are described. Individual monitoring summaries for each project will be prepared and made available in separate reports.

Table 1. Monitoring Site Location, Description, and Parameter(s) Monitored

Site Description	Map Site ID#	Site Name	General Site Location	Monitored Parameters
Stream Monitoring	1	Brown's Creek at Hwy 15	Hwy 15	Continuous Water Quality and Discharge; Water Quality Composite/Grab Samples
Stream Monitoring	2	Brown's Creek at McKusick Road	McKusick Road	Continuous Water Quality and Discharge; Water Quality Composite/Grab Samples
Stream Monitoring	3	Brown's Creek at Stonebridge Trail	Stonebridge Trail	Continuous Water Quality and Discharge; Water Quality Composite/Grab Samples
Stream Monitoring	4	Brown's Creek Outlet	Hwy 95 & 96	Continuous Water Quality and Discharge; Water Quality Composite/Grab Samples
Stream Monitoring	5	Brown's Creek Diversion	Neal Ave.	Discharge, Temperature, and Water Quality Composite/Grab Samples
Stream Monitoring	6	Tributary to Long Lake at 62nd St.	62nd St.	Stage and Water Quality Grab Samples
Stream Monitoring	7	Tributary to Long Lake at Marketplace Pond	Market Dr.	Discharge and Water Quality Composite/Grab Samples
BMP Effectiveness	8	Iron Enhanced Sand Filter (IESF)-1 Outlet	Morgan Ave. N.	Discharge and Water Quality Composite/Grab Samples
Stream Monitoring	9	McKusick Wetland Outlet	McKusick Road	Discharge, Temperature, and Water Quality Grab Samples
BMP Effectiveness	10	Brown's Creek Park Rock Crib (5 In-Crib Temperature Loggers, 2 In-Stream Temperature Loggers, and Outlet Discharge)	Neal Ave.	Discharge, Temperature, Sediment Depth and Maintenance Requirements
BMP Maintenance	11	McKusick Road and Countryside Auto Sediment Chambers	McKusick Road	Sediment Depth and Maintenance Requirements
BMP Effectiveness	12	Oak Glen Pond Water Reuse	McKusick Road	Stage
			DNR ID	
Lake Monitoring	13	Kismet Basin	82-033400	Water Quality Samples, Elevation
Lake Monitoring	14	Long Lake (North Basin)	82-002100	Water Quality Samples, Elevation
Lake Monitoring	15	Goggins Lake	82-007700	Water Quality Samples, Elevation
Lake Monitoring	16	South School Section Lake	82-015100	Water Quality Samples, Elevation
Lake Monitoring	17	Benz Lake	82-012000	Water Quality Samples, Elevation
Lake Monitoring	18	Masterman Lake	82-012600	Water Quality Samples, Elevation
Lake Monitoring	19	Woodpile Lake	82-013200	Water Quality Samples, Elevation
Lake Monitoring	20	Lynch Lake (North Basin)	82-004200	Water Quality Samples, Elevation
Lake Monitoring	21	Lynch Lake (South Basin)	82-004202	Water Quality Samples, Elevation
Lake Monitoring	22	Bass Lake (West)	82-012300	Water Quality Samples, Elevation
Lake Monitoring	23	Bass Lake (East)	82-012400	Water Quality Samples, Elevation
Lake Monitoring	24	July Avenue Pond	82-031800	Water Quality Samples, Elevation
Lake Monitoring	25	Pat Lake	82-012500	Water Quality Samples, Elevation
Lake Monitoring	26	Plaisted Lake	82-014800	Water Quality Samples, Elevation
Lake Monitoring	27	Jackson Wildlife Management Area Pond (Sinnits Pond)	82-030500	Water Quality Samples, Elevation
Lake Monitoring	28	Brewer's Pond	82-002200	Water Quality Samples, Elevation
Lake Monitoring	29	Heifort's Pond	82-048500	Water Quality Samples, Elevation
Lake Monitoring	30	North School Section	82-014900	Water Quality Samples, Elevation
Lake Monitoring	31	Highway 12 & Kimbro Pond	82-034900	Elevation
Lake Monitoring	32	Brown's Creek at Gateway Trail	82-030300	Elevation
Lake Monitoring	33	55th St. Pond	82-031600	Elevation
Lake Monitoring	34	Vanzwol Pond	82-012800	Elevation
Lake Monitoring	35	75th St. Wetland	N/A	Elevation
Lake Monitoring	36	Marketplace Pond	N/A	Surface and Hypolimnion Chloride Samples
Lake Monitoring	37	62nd St. Pond	N/A	Surface and Hypolimnion Chloride Samples
Lake Monitoring	38	Wildwood Pines Pond	N/A	Surface and Hypolimnion Chloride Samples
Lake Monitoring	39	Washington Ave Pond	N/A	Surface and Hypolimnion Chloride Samples
Lake Monitoring	40	Clinic Pond 2	N/A	Surface and Hypolimnion Chloride Samples
Lake Monitoring	41	Tower Dr. Pond	N/A	Surface and Hypolimnion Chloride Samples

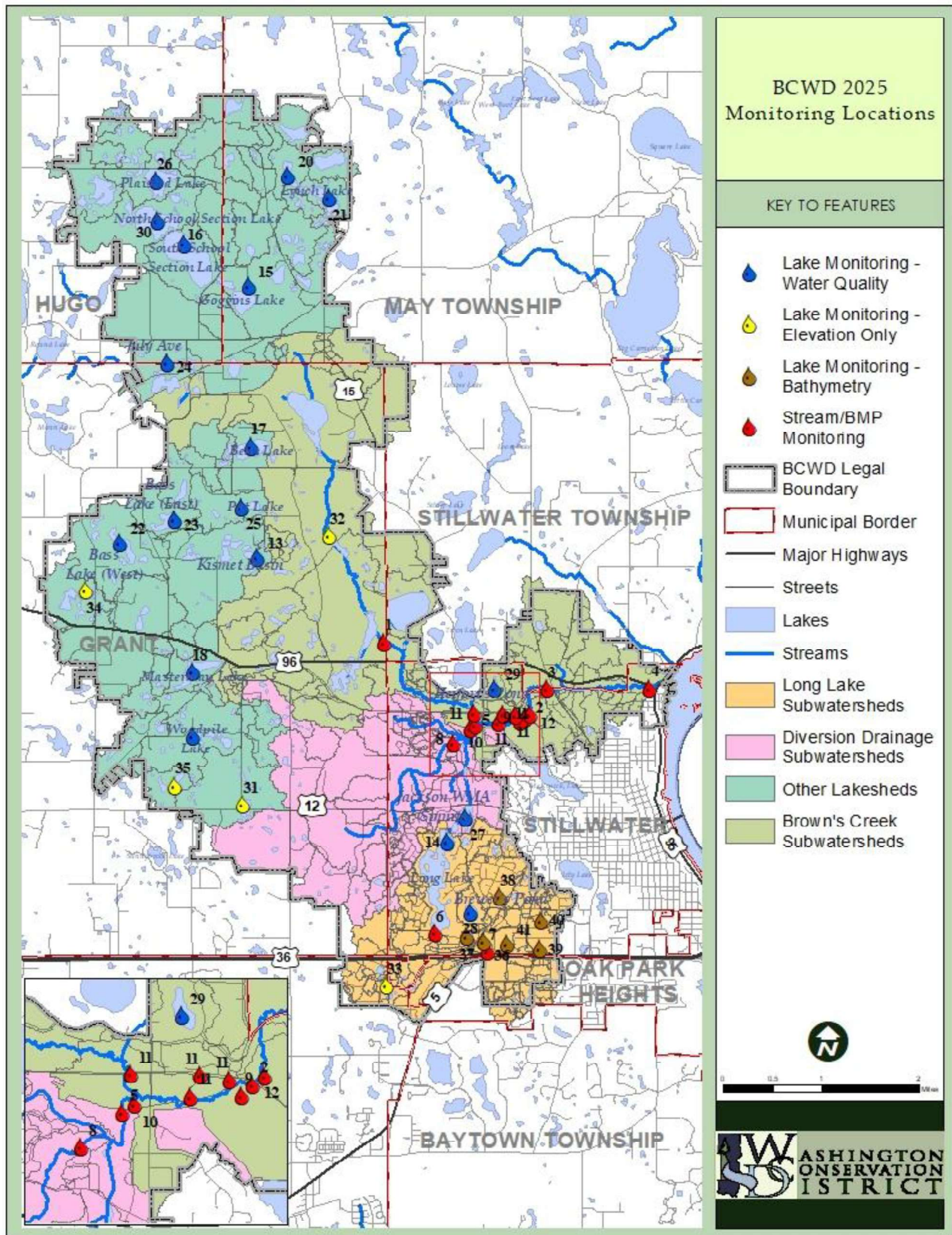


Figure 1. Brown's Creek Watershed District 2025 Sampling Locations

II. PURPOSE AND GOALS

BCWD uses a monitoring network to assess the quality of its water resources and maintains partnerships with the Minnesota Department of Natural Resources (MN DNR), Metropolitan Council, WCD, Stillwater Area High School, and volunteers to collect and manage data. The general purpose of the baseline water monitoring program is to collect long term data to identify issues within the watershed and track changes towards meeting water quality goals described in the 2017-2026 Watershed Management Plan and the Brown's Creek TMDL Implementation Plan. The goals specific to this monitoring summary include the collection of useful data about the water resources of the District, production of an annual assessment of monitoring data, and the use of those data to determine the performance of District programs and regulations. Additional policies, goals, and implementation strategies related to monitoring data are more fully described in the watershed management plan.

III. LAKE MONITORING

III.A. Locations and Parameters

In 2025 water quality data were collected by the WCD on eighteen basins (lakes) (Table 1 and Figure 1). Each lake was sampled for total phosphorus (TP), total Kjeldahl nitrogen (TKN), chlorophyll- α , and Secchi disk transparency. A complete listing of nutrient and Secchi data by lake is available in Appendix A. One-meter increment temperature and dissolved oxygen profiles as well as a user perception ranking (physical and recreational suitability) were also recorded. A summer and fall alkalinity and hardness sample was collected on all eighteen basins, and spring and summer chloride samples were collected on all three basins of Long Lake and Jackson WMA (Sinnits) Pond. These data are available via request or on the Metropolitan Council's Environmental Information Management System (EIMS) Water Quality Database website (<https://eims.metc.state.mn.us>). Surface and bottom chloride samples were collected on six stormwater ponds, but results are not discussed in this summary. These data will be available upon request and in technical reports for special projects.

III.B. Methods

Each basin was sampled April through October using a two-meter (6.56 feet) integrated surface water column sampler from a watercraft, except for Brewer's Pond and Heifort's Pond, which were sampled from the surface only using a bucket to match citizen volunteer protocols. Bass Lake East, Bass Lake West, Benz Lake, Goggins Lake, Jackson WMA (Sinnits) Pond, Kismet Basin, Long Lake, Lynch Lake South, Masterman Lake, Plaisted Lake, South School Section Lake, and Woodpile Lake were monitored bi-weekly, while Brewer's Pond, Heifort's Pond, July Avenue Wetland, Lynch Lake North, North School Section Lake, and Pat Lake were monitored every four weeks. Volunteers monitored Brewer's Pond and Heifort's Pond on an offset schedule with WCD so that samples were collected every other week. Chlorophyll- α samples were obtained by filtering water from the integrated sample through a 1.5 μm fiberglass filter using a

hand pump. Samples collected for TP, TKN, chlorophyll- α , alkalinity, hardness, magnesium, calcium, and chloride were analyzed by the Metropolitan Council Environmental Services Lab. The sampling methods above were developed by and consistent with Metropolitan Council’s Citizen Assisted Monitoring Program (CAMP). Measurements obtained during the sampling season were averaged to allow comparison of individual lake dynamics from year to year. Trend analysis for long term Secchi disk transparency, TP, and chlorophyll- α (corrected for pheophytin) trends were completed using a Kendall’s Tau statistical test, presented in Appendix A, and only data collected by professional agencies were used to assess for trends. All other data were quality assured, quality controlled, and reviewed by WCD staff. Detailed standard operating procedures used by WCD for water sampling, monitoring, and data management are available on the WCD website (<https://www.mnwc.org/water-monitoring>).

III.C. Results and Discussion

III.C.1. Lake Grades

The lake water quality grading system was developed following the 1989 sampling season by Metropolitan Council. This grading system ranks water quality characteristics by comparing summer averages to those of other lakes specific to the metro area. The grading curve represents percentile ranges for the May through September averages of total phosphorus concentration, uncorrected trichromatic chlorophyll- α concentration, and Secchi disk transparency for 119 lakes sampled from 1980 to 1988, and the ranges were re-confirmed in 2000 using more recent data. Percentile ranges for each parameter can be found in Table 2. A benefit of the lake grade system is that it was developed specifically for lakes in the metro area, and serves as a convenient way to compare water quality between lakes. Current grades for each lake can be found in Figure 2, and the latest ten years of grades for each lake can be found in Appendix A. In addition, comparison of June through September water quality averages (total phosphorus concentration, pheophytin-corrected chlorophyll- α , and Secchi disk transparency) will be made to state eutrophication standards for each lake as the Minnesota Pollution Control Agency (MPCA) uses this timeframe to assess impairment status. Beginning in 2019 volunteer data collected through the CAMP program on Brewer’s Pond and Heifort’s Pond were incorporated into lake grade and summer averages. June through September averages and impairment thresholds can be found in Table 3.

Table 2. Lake Grade Ranges

Grade	Percentile	TP ($\mu\text{g/L}$)	Chl- α ($\mu\text{g/L}$)	Secchi (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	0.7-1.2
F	>90	>152	>77	<0.7

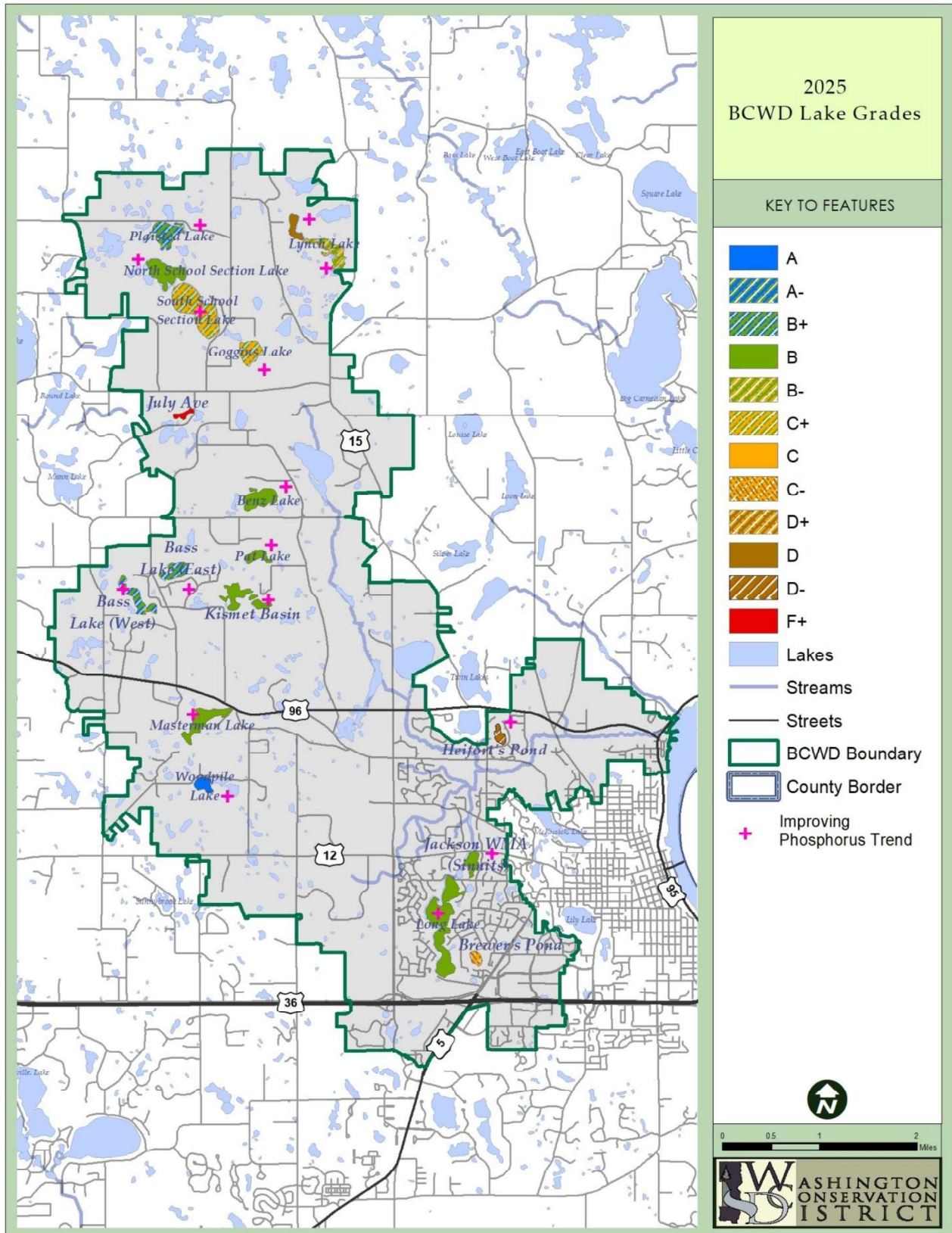


Figure 2. Brown's Creek Watershed District 2025 Lake Grades

Table 3. Impairment Thresholds and June Through September Average 2025 Parameters

Lake	Total Phosphorus (mg/L)	Pheophytin Corrected Chlorophyll- α ($\mu\text{g/L}$)	Secchi (meters)	Total Kjeldahl Nitrogen (mg/L)
<i>Impairment Threshold- Shallow</i>	0.060	20.0	1.00	N/A
<i>Impairment Threshold- Deep</i>	0.040	14.0	1.40	N/A
<i>Eco-Region Value</i>	0.023-0.050	5.0-22.0	1.5-3.2	0.60-1.20
Bass East	0.025	3.2	2.49	0.64
Bass West	0.024	9.1	2.27	0.80
Benz	0.027	5.9	1.61	0.58
Brewer's	0.053	34.1	0.99	1.74
Goggins	0.043	18.0	2.05	1.14
Heifort's	0.069	69.1	0.55	2.14
Jackson WMA	0.031	3.3	1.41	0.59
July Ave	0.106	87.2	0.52	2.46
Kismet	0.024	7.0	1.63	0.61
Long	0.042	9.2	2.49	0.65
Lynch North	0.113	36.4	0.70	1.44
Lynch South	0.035	8.4	2.10	0.85
Masterman	0.024	5.3	1.63	0.60
North School Section	0.033	8.7	2.65	0.79
Pat	0.030	4.9	2.29	0.61
Plaisted	0.023	3.6	2.54	0.55
South School Section*	0.039	34.9	1.68	1.20
Woodpile*	0.020	4.6	3.69	0.65

Exceeds impairment threshold

*Indicates deep lake. All others are classified as shallow.

Lake grades generally held stable or declined slightly for most lakes in the District when compared to 2024. Four lakes improved in lake grade: Bass Lake West, Goggins Lake, Pat Lake, and South School Section Lake. Heifort’s Pond, July Avenue Wetland, Kismet Basin, Lynch Lake South, Masterman Lake, and North School Section Lake declined in lake grade, and all other lakes maintained their grade from the year prior. Warm temperatures, early ice-out, and severe rains can account for the declines in lake grade, but it should be noted all but two basins, July Avenue Wetland and Lynch Lake North, are equal to or better than their ten year average grade.

The most notable shift in lake grade occurred at July Avenue Wetland moving from a D in 2024 to an F+ in 2025, primarily due to increasing chlorophyll- α and phosphorus concentrations. South School Section Lake and Long Lake continue to hold high grades compared to the D and F grades observed in the mid-2010’s, likely due to enhanced aquatic vegetation and invasive species management.

III.C.2. Total Phosphorus

Phosphorus is a major nutrient involved in eutrophication and is generally associated with the growth of aquatic plants and algal blooms. Common sources of phosphorus include runoff from agricultural fields, livestock areas, urban areas, lakeshore lawns and improperly operating septic systems. In most lakes in this region, phosphorus is the least available nutrient; therefore, its

abundance or scarcity controls the extent of algal growth. Algal growth in turn affects the clarity of the water and light penetration, and can control the extent of aquatic vegetation by shading out plants. The phosphorus flow path through the watershed can be found in Appendix C.

The state impairment threshold for TP is 0.060 mg/L in shallow lakes (generally greater than 50 acres and less than 15 feet deep, or more than 80% littoral area) and 0.040 mg/L in deeper lakes. In 2025 Heifort's Pond, July Avenue Wetland, and Lynch Lake North summer average TP concentrations exceeded impairment standards (Table 3).

Trend analyses were completed on lakes where eight or more years (with at least six years occurring in the last ten years) of TP measurements had been collected to determine if lakes are improving, declining, or stable in terms of average summer TP. A two-tailed Kendall's Tau statistical test was completed using a p-value of <0.05 to determine statistical significance of the trend. The same trend analysis method was applied to chlorophyll- α and Secchi depth transparency measurements. Bass Lake East, Bass Lake West, Benz Lake, Goggins Lake, Heifort's Pond, Jackson WMA (Sinnits) Pond, Kismet Basin, Long Lake, Lynch Lake North, Lynch Lake South, Masterman Lake, North School Section Lake, Pat Lake, Plaisted Lake, South School Section Lake, and Woodpile Lake have improving trends for TP, meaning the average summer TP concentration is decreasing (Figure 2 and Appendix A). No statistically significant trend exists on July Avenue Wetland or Brewer's Pond. The Brown's Creek and Long Lake 2020 Trend Analysis completed by the District's engineer, Emmons & Olivier Resources, Inc. (EOR) also show an improving short term trend from 2011-2020, and a statistically significant improving trend over the long term, from 1995-2020, on Long Lake.

III.C.3. Chlorophyll- α

Chlorophyll- α is a photosynthetic compound found in algae and aquatic plants, and is a direct indicator of algal productivity. Lakes with high chlorophyll- α concentrations are often eutrophic or hypereutrophic. These lakes tend to have excessive algal growth, shading out rooted plants. Lakes with low chlorophyll- α concentrations can be mesotrophic or even oligotrophic, and tend to have more rooted plants to take up phosphorus, rather than phosphorus being used by algae within the water column which produces more chlorophyll- α .

The impairment threshold for chlorophyll- α is 20 $\mu\text{g/L}$ in shallow lakes and 14 $\mu\text{g/L}$ in deeper lakes. Brewer's Pond, Heifort's Pond, July Avenue Wetland, Lynch Lake North, and South School Section Lake summer average concentrations exceeded the impairment threshold (Table 3).

Trend analyses were completed to determine if lakes are improving, declining, or stable in terms of algal productivity. Bass Lake East, Benz Lake, Goggins Lake, Jackson WMA (Sinnits) Pond, Kismet Basin, Long Lake, Lynch Lake North, Lynch Lake South, Masterman Lake, North School Section Lake, Pat Lake, Plaisted Lake, and Woodpile Lake show statistically significant

long term trends for improving chlorophyll- α concentrations, meaning less algae is being produced (Appendix A). No statistically significant trends were present on Bass Lake West, Brewer's Pond, Heifort's Pond, July Avenue Wetland, or South School Section Lake. No lakes showed an increasing trend for chlorophyll- α concentration. Heifort's Pond changed from an improving trend to no trend in 2025. EOR's trend analysis also shows a short term improving trend and a statistically significant long term improving trend on Long Lake.

III.C.4. Transparency

The measurement of depth of light penetration using a Secchi disk provides a simple measure of water transparency, or clarity. It can also serve as a proxy for turbidity in the water, as well as an indication of the trophic state of the lake. A reduction in water transparency is usually the result of turbidity composed of suspended sediments, organic matter and/or phytoplankton (algae). Several lakes in the district, such as Benz Lake and Masterman Lake, are clearer than they are deep, meaning an accurate measure of transparency cannot be achieved because the disk rests on the lake bottom or is obscured by vegetation instead of reaching a depth where it is no longer visible. This can give the false appearance of low water clarity when considering average transparency, when in reality the true Secchi depth is much higher. Lakes which experience this phenomenon are noted in the summary points sections of Appendix A.

The impairment threshold for Secchi disk transparency is 1.00 meter in shallow lakes and 1.40 meters in deep lakes. Brewer's Pond, Heifort's Pond, July Avenue Wetland, and Lynch Lake North summer average transparencies were poorer than the state standard (Table 3).

Trend analyses were completed on lakes to determine if lakes are improving, declining, or stable in terms of average summer clarity. Goggins Lake, Heifort's Pond, Long Lake, Lynch Lake North, Lynch Lake South, North School Section Lake, and Woodpile Lake show statistically significant long term trends for improving water clarity (Appendix A). No statistically significant trends have been observed on Brewer's Pond, Pat Lake or South School Section Lake. Bass Lake East, Bass Lake West, Benz Lake, Jackson WMA (Sinnits) Pond, Kismet Basin, Masterman Lake, and Plaisted Lake are too shallow to determine an accurate trend, since the lakes are often clearer than they are deep. July Avenue Wetland is the only lake exhibiting a declining trend for clarity. Heifort's Pond changed from no trend to an improving trend in 2025. EOR's trend analysis shows an improving short term trend and a statistically significant long term improving trend on Long Lake.

III.C.5. Total Kjeldahl Nitrogen

Total Kjeldahl nitrogen (TKN) measures the sum of ammonia and organic nitrogen present in the water column. An abundance of this nutrient can lead to excess plant growth and increase the rate of eutrophication, especially if it is the limiting nutrient in a lake. Sources of TKN are similar to those of TP. Although eutrophication standards do not exist at this time for TKN, June

through September averages can be compared to the North Central Hardwood Forest ecoregion to assess if lakes may have excessive amounts of nitrogen. The ecoregion range for TKN is 0.60-1.20 mg/L. Brewer's Pond, Heifort's Pond, July Avenue Wetland, and Lynch Lake North were poorer than the ecoregion range, while Bass Lake East, Bass Lake West, Goggins Lake, Kismet Basin, Long Lake, Lynch Lake South, Masterman Lake, North School Section Lake, Pat Lake, South School Section Lake, and Woodpile Lake were within the ecoregion range (Table 3). Benz Lake, Jackson WMA (Sinnits) Pond, and Plaisted Lake were better than the ecoregion range.

III.C.6. Temperature and Dissolved Oxygen

In addition to surface water measurements, temperature and dissolved oxygen data were recorded during each sampling event. Temperature and dissolved oxygen were recorded at one-meter increments from the surface to the lake bottom. The data collected from these profiles are housed by WCD and are available upon request, or are available via the MPCA website (<https://webapp.pca.state.mn.us/wqd/surface-water>).

These data show the extent of summer stratification and are useful in identifying the thermocline (the layer of water in which the temperature rapidly declines), if one exists. As a lake stratifies, the water column becomes more stable and mixing is less likely to occur. If mixing occurs during the growing season, benthic nutrients become available and can result in increased algal production. As a general rule of thumb, shallow lakes are constantly mixed by wind, wave action, and precipitation, while lakes deeper than 20 feet often stratify. Shallow lakes can loosely stratify if they are protected from wind, during calm weather periods, or if enough algae and aquatic plants exist near the surface to block out solar radiation near the bottom.

In 2025 Bass Lake East, Bass Lake West, Brewer's Pond, Goggins Lake, Long Lake, Lynch Lake South, Pat Lake, South School Section Lake, and Woodpile Lake stratified to some degree during the monitoring season. These lakes may have benefited from reduced internal loading due to the lack of mixing of nutrient-rich waters near the lake bottom. Details on the depth of the thermocline for each lake that stratified can be found in Appendix A. The other nine lakes in the district did not significantly stratify in 2025, meaning nutrients from internal loading were available for algal growth during the entire growing season.

III.C.7. Elevations

Lake elevations rose throughout the mid-monitoring season due to several severe precipitation events, which is contrasted by previous year's drought conditions. Peak elevation for the year on nearly every basin occurred in mid-August or early September, rising after several storm events. In 2020, twelve basins maintained elevations above their regulated Ordinary High Water (OHW) level. In contrast, only five basins were above their OHW during 2025; Goggins Lake, Heifort's Pond, North School Section Lake, Plaisted Lake, and South School Section Lake. Elevation

charts for each lake monitored can be found in Appendix A or using the MN DNR’s Lake Finder (<http://www.dnr.state.mn.us/lakefind/index.html>).

III.C.8. Alkalinity, Hardness, and Chloride

Some lakes in the watershed district have been found to support rare aquatic plant communities which only thrive in soft water conditions typically found in lakes north of St. Cloud, MN and in northern Wisconsin within specific geologic contexts. Each of the eighteen basins were sampled for alkalinity and hardness in mid-summer and early fall to determine which lakes may be suitable for rare plant species requiring these settings. It was found nearly all lakes in the District have suitable water chemistry for these species. These data will be used to help support rare plant conservation in the District.

Spring and summer chloride monitoring was also conducted on all three basins of Long Lake and Jackson WMA (Sinnits) Pond in relation to the chloride impairment on Long Lake. No results exceeded the chronic level chloride standard of 230 mg/L. Alkalinity, hardness, and chloride sampling results can be found in the table below.

Table 4. Alkalinity, Hardness, and Chloride Results

Lake	Alkalinity July Result (mg/l CaCO3)	Alkalinity September Result (mg/l CaCO3)	Hardness July Result (mg/l CaCO3)	Hardness September Result (mg/l CaCO3)	Calcium July Result (mg/L)	Calcium September Result (mg/L)	Magnesium July Result (mg/L)	Magnesium September Result (mg/L)	Spring Chloride Result (mg/L)	Summer Chloride Result (mg/L)
Bass East	22	27	32.9	30.1	7.3	6.7	3.6	3.2		
Bass West	21	31	38.7	43.0	8.5	9.5	4.2	4.7		
Benz	28	26	40.1	48.9	8.5	11.0	4.6	5.2		
Brewer's	23	22	42.7	44.6	9.1	9.2	4.8	5.2		
Goggins	24	30	46.0	47.1	10.5	10.7	4.8	5.0		
Heifort's	<15	<15	21.9	22.7	5.2	5.2	2.2	2.3		
Jackson WMA (Sinnits)	<15	29	41.6	33.2	10.7	8.3	3.6	3.0	58.1	46.5
July Ave	20	30	35.4	44.3	7.5	10.2	4.0	4.6		
Kismet	29	30	45.9	44.1	10.4	10.3	4.8	4.5		
Long (North Basin)	29	27	41.9	33.4	10.7	8.4	3.7	3.0	67.8	60.4
Long (Middle Basin)									130.0	26.8
Long (South Basin)									140.0	13.4
Lynch North	<15	<15	12.9	14.3	2.8	3.4	1.4	1.4		
Lynch South	<15	<15	11.3	11.3	2.5	2.5	1.2	1.2		
Masterman	16	16	24.6	25.0	5.2	5.5	2.8	2.7		
North School Section	25	27	46.2	44.0	10.6	10.2	4.8	4.5		
Pat	20	21	28.8	26.3	6.0	5.6	3.3	3.0		
Plaisted	16	<15	58.9	63.1	13.2	14.3	6.3	6.7		
South School Section	34	35	56.5	57.5	13.1	13.3	5.8	5.9		
Wood Pile	19	22	49.8	52.0	11.2	12.0	5.3	5.3		

IV. STREAM AND STORMWATER MONITORING

IV.A. Locations and Parameters

In 2025, BCWD monitored four stations on Brown’s Creek, two stations in the Long Lake subwatershed, one station at the Diversion Structure in the diversion drainage, and one tributary to Brown’s Creek (Table 1 and Figure 1). The stations on Brown’s Creek were located at Manning Avenue (Highway 15), McKusick Road, Stonebridge Trail (Stonebridge), and the intersection of Minnesota State Highways 95 & 96 (the Outlet). The two tributaries to Long Lake were monitored at 62nd Street and the Marketplace Pond. The tributary to Brown’s Creek (McKusick Wetland Outlet) was monitored approximately 100 feet upstream of the McKusick Road station. Parameters monitored at each location can be found in the table below.

Table 5. Parameters Monitored at Each Station

	Continuous (15 Minute)									Discrete																										
	Stage	Velocity	Discharge	Precipitation	Temperature	Dissolved Oxygen	Specific Conductivity	Turbidity	pH	Temperature	Dissolved Oxygen	Specific Conductivity	pH	Total Phosphorus (TP)	Dissolved Phosphorus	Total Kjeldahl Nitrogen (TKN)	Total Suspended Solids (TSS)	Volatile Suspended Solids (VSS)	Copper	Nickel	Lead	Zinc	Cadmium	Chromium	Chloride	Calcium	Magnesium	Nitrate plus Nitrite	Ammonia	Hardness	E. Coli	Sulfate	Alkalinity	Ortho Phosphorus		
Brown's Creek at Hwy 15	X	X	X	X	X	X	X	X	X	X	X	X	X	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Brown's Creek at McKusick Road	X	X	X		X	X	X	X	X	X	X	X	X	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Brown's Creek at Stonebridge Trail	X	X	X		X	X	X	X	X	X	X	X	X	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Brown's Creek Outlet	X	X	X		X	X	X	X	X	X	X	X	X	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Brown's Creek Diversion	X	X	X		X									O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Tributary to Long Lake at 62nd St.	X		X											X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Tributary to Long Lake at Marketplace Pond	X	X	X	X										O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
McKusick Wetland Outlet	X	X	X		X									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

X= Monitored and/or grab samples only
 O= Grab and composite samples

IV.B. Methods

The Highway 15, McKusick Road, Stonebridge, Outlet, Marketplace Pond, and Diversion Structure monitoring stations utilized automated water quality samplers consisting of a stage/velocity sensor, data logger, bottle carousel containing 24 sample bottles, strainer, intake tubing, solar panel, deep cycle marine battery, and steel enclosure. Discharge was calculated using a rating curve based on permanent staff gauges at Highway 15, McKusick Road, Stonebridge, and the Outlet, while discharge at Marketplace Pond and the Diversion Structure was calculated using an area-velocity relationship. Continuous precipitation data were collected at Highway 15 and Marketplace Pond using tipping bucket rain gauges to assist in loading calculations, but are not discussed in this summary. The samplers were programmed to collect automated flow weighted storm composite samples triggered by a rise in stage. Manual grab samples were taken during storm conditions if it was determined the automated sampler had malfunctioned or had not yet been installed. Monthly manual grab samples during base flow

conditions were attempted at these sites, although the Tributary to Long Lake at Marketplace Pond is often dry or stagnant during non-event periods. *E.coli* samples were collected at the same time as the base grab samples when possible. Continuous temperature, dissolved oxygen, specific conductivity, pH, and turbidity at the four stations on Brown's Creek were collected using long term deployed sondes, and secondary temperature loggers were deployed to fill data gaps created by malfunctions of the primary sonde. Sondes were also used to collect continuous pH at McKusick Road, Stonebridge and the Outlet. Stand-alone temperature loggers were used to collect temperature data at the Diversion Structure and McKusick Wetland Outlet.

It must be noted the sampling strategy at the Outlet, at the direction of Metropolitan Council Environmental Services's (MCES) Watershed Outlet Monitoring Program (WOMP), was changed to a manual grab sample on the same day every other week regardless of flow conditions, and the composite sampler was to be programmed to capture only major events. MCES installed a new data logger and refrigerated sampler in 2019, and five storm composite samples were collected in 2025. Some analytes such as metals, sulfate, ortho phosphorus, alkalinity, and hardness were changed to be analyzed quarterly. The goal of this strategy is to create a more robust dataset that is better suited for long term statistical trend analysis and impairment assessment. However, the change in sampling methods causes an apparent shift to lower nutrient loading totals due to differences in load calculation methods, as well as the timing of samples with respect to precipitation events. A limitation of grab sampling is the sample occurs at a discrete point in time and often misses the peak load which is most likely to occur on the rising limb or at the peak flow of a storm. This can lead to artificially low loading estimates, whereas composite sampling captures multiple samples throughout the storm and can provide more accurate data for loading calculations but is less appropriate for trend analysis due to bias and variation in each storm event.

The Tributary to Long Lake at 62nd Street station was monitored using a stage sensor only, and discharge during the monitoring period was estimated based on stage and discharge data collected in previous years. The McKusick Wetland Outlet station was monitored using a stage/velocity sensor, and discharge was calculated using an area-velocity relationship. Similar to other stations, monthly manual grab samples were collected during base flow conditions, and grab samples were attempted during storm events.

All samples collected were analyzed by the MCES Lab and reviewed by WCD staff. All continuous data were quality assured, quality controlled, and analyzed by WCD staff, with the exception of the Outlet stage, discharge, and loading, which were reviewed and analyzed by MCES. More detailed standard operating procedures used by WCD and MCES for water sampling, monitoring, and data management are available upon request.

IV.C. Results and Discussion

IV.C.1. Brown's Creek

Brown's Creek is classified as a 2A water by the State of Minnesota, meaning it is designated for aquatic life and recreation, and should support a cold water fishery, aquatic life, and their habitats. The creek is listed as impaired by the MPCA due to a lack of cold water fish assemblages and low scores for indices of biological integrity (IBI) as described in the 2010 Brown's Creek Biota TMDL, and two reaches are impaired for *E.coli*. The stressors identified which contribute to these conditions are high total suspended solids (TSS), high temperature, low dissolved oxygen, high copper concentrations, and high nitrate-nitrite concentrations. The lower reaches of the creek where groundwater inputs help to cool the stream do support a trout fishery with some natural reproduction, and is annually stocked by the MN DNR. The following sections will make comparisons between the parameters monitored and state standards for 2A waters as described in the Minnesota Administrative Rules Part 7050.0222, as well as recommendations and goals set forth in the TMDL study. A summary of the standards and goals can be found in Table 6.

Table 6. State Standards for 2A and 2B Waters and Brown's Creek Biota TMDL Goals

Parameter	Class 2A Waters	Class 2B Waters	TMDL Goal
Total Phosphorus (TP)	0.100 mg/L	0.100 mg/L	N/A
Total Suspended Solids (TSS)	10 mg/L (Apr 1 to Sept 30)	30 mg/L (Apr 1 to Sept 30)	23 mg/L (10 NTU equivalent)
Chloride (Chronic)	>230 mg/L	>230 mg/L	N/A
Dissolved Oxygen (Daily Minimum)	7 mg/L	5 mg/L	7 mg/L
pH	<6.5 or >8.5	<6.5 or >8.5	N/A
Temperature	N/A	N/A	18.3 °C (Threat), 23.9 °C (Critical)

1a. Discharge

Total discharge was slightly higher than the year prior at each station on Brown's Creek. The total amount of water discharged to the St. Croix River as measured at the Outlet was 268,491,496 cubic feet, and was slightly lower than the ten year average. Calculated discharge for each site can be seen in Table 11. The Brown's Creek and Long Lake 2020 Trend Analysis completed by EOR shows there is a statistically significant increasing trend in overall streamflow at all stations except the Outlet, after construction of the Diversion Structure. Base flow also shows a statistically significant increasing trend at all sites except the Outlet. Increased base flow is considered beneficial for cooling the stream and maintaining dissolved oxygen concentrations.

According to the National Weather Service (NWS) station in Stillwater the total precipitation for 2025 was 35.27 inches; 1.42 inches above the thirty year average. Precipitation was well above average in March, June, and July, with a combined departure of +5.61 inches during these months. This was followed by a dry late summer and fall, with a combined departure for September through November of -2.71 inches. Several

intense storms produced significant runoff events, with four storms exceeding two inches of rain observed. The most significant precipitation event occurred May 20-22, where a storm total of 3.18 inches of precipitation was recorded.

1b. Phosphorus & Sediment

The total phosphorus (TP) and total suspended solids (TSS) loads increased at all sites when compared to 2024 (Table 11, Figure 3, and Figure 4). The TP load discharged to the St. Croix River at the Outlet was 2,893 pounds, which equates to 0.626 pounds per acre of watershed land. For reference, the load at the Outlet was near the median value since calculations began in 2000. The state standard for TP is 0.100 mg/L; manual grab samples exceeded the standard for sites in February, March, and May through September due to the wet conditions. Nutrient water chemistry results for each site and sample can be found in Table 7-Table 10. TP flow weighted mean concentrations show a statistically significant decreasing trend over the most recent ten year period at Stonebridge and the Outlet according to EOR's trend analysis. There are no statistically significant long term trends, although the overall pattern for TP concentrations appears to be improving in the lower reaches of the creek. Short term trends show statistically significant improving conditions at Stonebridge and the Outlet.

The TSS load exported to the St. Croix River was 648,136 pounds, or 140.17 pounds per acre of watershed land. For reference, the TMDL goal for the creek is 74 pounds per acre. This is a departure from conditions observed during the droughts from 2021-2023, when the creek did meet the TMDL goal. It is important to note that in-stream construction activities as part of the streambank and floodplain restoration project on Neal Avenue in 2024 very likely contributed to high TSS concentrations as sediment from the work flushes through the creek. For reference, the McKusick Road monitoring station exhibited the highest sediment load recorded since 2016, since it is closest to the restoration area and sediment washed through the site during each storm event. Increased sediment loads were not as dramatic at Stonebridge or the Outlet, but were elevated compared to previous years under similar flow conditions. The impact to the creek is temporary and the long term benefits of the project are expected to outweigh these impacts.

While the state standard for TSS is 10 mg/L from April 1 to September 30, the target concentration identified in the TMDL is 23 mg/L. The target concentration specific to Brown's Creek of 23 mg/L correlates to the former state standard for turbidity of 10 NTU, but has since been replaced by the river eutrophication standards which use TSS concentration to assess impairment status. The state TSS standard was exceeded at the Outlet for May through September. The TMDL goal of 23 mg/L was met at all sites under base flow conditions, but the annual flow weighted mean concentration (annual load divided by annual discharge) at the Outlet was 38.7 mg/L. Site and sample specific results

can be found in Table 7-Table 10. No statistically significant long term trends in TSS exist at any station according to EOR's trend analysis. However, the most recent ten year period does show significant trends for decreasing flow weighted mean concentrations for TSS at McKusick Road, Stonebridge, and the Outlet.

A summary of site specific total loads and loading per acre of watershed area can be found in Table 11 and detailed loading tables describing hourly intervals for the year can be found in Appendix B. Discrete measurements of dissolved oxygen, temperature, pH, and specific conductivity can also be found in Appendix B. TP concentrations and loads moving on flow paths through the watershed can be seen in Appendix C.

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Table 7. Brown's Creek at Highway 15 2025 Chemistry Results

Sample Type	Start	End	TSS (mg/L)	VSS (mg/L)	TKN (mg/L)	TP (mg/L)	Dissolved P (mg/L)	<i>E. coli</i> (mpn/100 mL)	Copper (ug/L)	Nickel (ug/L)	Lead (ug/L)	Zinc (ug/L)	Cadmium (ug/L)	Chromium (ug/L)	Chloride (mg/L)	Nitrite + Nitrate N (mg/L)	Ammonia Nitrogen (mg/L)	Hardness (mg/L _{CaCO3})
Storm Composite	5/20/2025 10:19	5/21/2025 13:16	169	97	3.76	0.407	0.053		3.680	1.940	2.170	11.500	0.159	2.840	12.4	<0.20	<0.06	109
Storm Composite	6/13/2025 7:55	6/14/2025 10:14	294	174	4.57	0.218	0.066		5.120	3.920	5.690	22.900	0.184	6.850	10.7	<0.20	<0.06	156
Storm Composite	6/25/2025 15:23	6/26/2025 13:03	165	99	3.27	0.449	0.086		2.440	1.660	2.240	11.200	0.224	2.890	8.9	<0.20	<0.06	113
Storm Composite	7/27/2025 20:58	7/28/2025 7:38	331	161	3.98	0.699	0.082		2.750	2.090	3.190	13.700	0.110	3.630	8.2	<0.20	<0.06	110
Storm Composite	8/9/2025 14:13	8/10/2025 12:59	168	92	4.20	0.797	0.072		2.610	1.950	2.880	13.100	0.122	2.980	12.3	<0.20	<0.06	166
Storm Composite	8/16/2025 11:01	8/17/2025 2:36	702	410	13.50	1.630	0.065		10.000	6.180	10.500	36.700	0.274	11.800	10.8	<0.20	<0.06	175
Base Grab	4/29/2025 8:21	4/29/2025 8:21	4	3	0.60	0.069	0.021								18.8	0.32	0.06	
Base Grab	5/14/2025 14:09	5/14/2025 14:09	9	6	0.59	0.102	0.031	56							16.5	0.41	<0.06	
Base Grab	6/11/2025 8:10	6/11/2025 8:10	5	3	0.54	0.119	0.042	167							14.4	0.25	0.09	
Base Grab	7/10/2025 10:26	7/10/2025 10:26	8	6	0.69	0.189	0.071	162								0.22	<0.06	198
Base Grab	8/5/2025 9:11	8/5/2025 9:11	5	3	0.58	0.122	0.039	64							13.7	0.33	<0.06	
Base Grab	9/8/2025 14:26	9/8/2025 14:26	6	4	0.41	0.080	0.022	118	<1.000	<0.500	<0.500	<5.000	<0.100	<2.500	15.0	0.46	<0.06	216
Base Grab	10/8/2025 10:28	10/8/2025 10:28	6	4	0.47	0.088	0.024	86							16.0	0.44	<0.06	

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

Table 8. Brown's Creek at McKusick Road 2025 Chemistry Results

Sample Type	Start	End	TSS (mg/L)	VSS (mg/L)	TKN (mg/L)	TP (mg/L)	Dissolved P (mg/L)	<i>E. coli</i> (mpn/100 mL)	Copper (ug/L)	Nickel (ug/L)	Lead (ug/L)	Zinc (ug/L)	Cadmium (ug/L)	Chromium (ug/L)	Chloride (mg/L)	Nitrite + Nitrate N (mg/L)	Ammonia Nitrogen (mg/L)	Hardness (mg/L _{CaCO3})
Storm Composite	4/21/2025 3:50	4/21/2025 11:05	3,470	632	10.30	1.650	0.042		10.500	8.300	8.300	38.000	0.259	12.700	23.4	0.42	0.11	182
Storm Composite	5/19/2025 23:11	5/21/2025 3:51	1,220	256	7.97	1.460	0.063		14.000	10.700	11.000	49.200	0.539	17.100	19.4	0.23	<0.06	153
Storm Composite	6/13/2025 0:57	6/13/2025 9:32	1,500	327	9.38	1.290	0.064								21.4	0.52	0.10	
Storm Composite	6/25/2025 12:25	6/25/2025 18:01	3,220	916	15.50	2.060	0.057		20.200	15.000	17.500	75.700	0.461	23.900	17.2	0.38	<0.06	192
Storm Composite	7/27/2025 20:35	7/28/2025 1:17	867	145	4.46	0.791	0.087		8.470	6.410	6.520	28.600	0.159	8.850	13.4	0.30	0.08	112
Storm Composite	8/9/2025 5:06	8/9/2025 12:56	172	51	2.23	0.490	0.089		4.280	3.100	2.670	14.300	0.155	3.900	23.7	0.30	<0.06	169
Storm Composite	8/15/2025 19:12	8/17/2025 10:26	61	24	1.20	0.256	0.083		1.280	1.120	0.729	5.320	<0.100	<2.500	19.6	<0.20	<0.06	140
Base Grab	4/29/2025 8:48	4/29/2025 8:48	4	3	0.68	0.072	0.035								23.8	0.34	<0.06	
Base Grab	5/14/2025 14:22	5/14/2025 14:22	6	3	0.61	0.093	0.042	79							24.5	0.31	<0.06	
Base Grab	6/11/2025 8:24	6/11/2025 8:24	10	4	0.66	0.132	0.056	98							24.1	0.28	<0.06	
Base Grab	7/10/2025 9:46	7/10/2025 9:46	11	7	0.78	0.234	0.097	326								0.24	0.07	212
Base Grab	8/5/2025 8:19	8/5/2025 8:19	8	4	0.65	0.203	0.055	260							29.1	0.28	<0.06	
Base Grab	9/8/2025 15:08	9/8/2025 15:08	7	4	0.40	0.074	0.028	818	<1.000	0.866	<0.500	<5.000	<0.100	<2.500	24.4	0.40	<0.06	227
Base Grab	10/8/2025 10:06	10/8/2025 10:06	6	3	0.43	0.081	0.031	231							24.1	0.45	<0.06	

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

Table 9. Brown’s Creek at Stonebridge 2025 Chemistry Results

Sample Type	Start	End	TSS (mg/L)	VSS (mg/L)	TKN (mg/L)	TP (mg/L)	Dissolved P (mg/L)	<i>E. coli</i> (mpn/100 mL)	Copper (ug/L)	Nickel (ug/L)	Lead (ug/L)	Zinc (ug/L)	Cadmium (ug/L)	Chromium (ug/L)	Chloride (mg/L)	Nitrite + Nitrate N (mg/L)	Ammonia Nitrogen (mg/L)	Hardness (mg/L CaCO3)
Storm Composite	4/21/2025 3:59	4/21/2025 5:58	85	34	1.69	0.248	0.032		2.400	1.810	1.290	9.680	<0.100	2.980	22.9	0.38	0.08	156
Storm Composite	5/19/2025 23:21	5/20/2025 11:52	183	51	2.71	0.422	0.046		4.080	2.970	2.610	15.200	<0.100	4.320	21.9	0.24	<0.06	166
Unknown Event Grab	7/10/2025 9:24	7/10/2025 9:24	113	20	1.21	0.406	0.080	308								0.28	0.08	211
Storm Composite	7/27/2025 20:50	7/28/2025 1:01	626	124	4.03	0.866	0.080		8.100	5.740	5.360	30.400	0.159	7.960	12.1	0.28	0.08	95
Base Grab	4/29/2025 8:36	4/29/2025 8:36	4	3	0.70	0.071	0.035								24.1	0.32	<0.06	
Base Grab	5/14/2025 14:42	5/14/2025 14:42	9	4	0.67	0.098	0.043	75							25.1	0.34	0.06	
Base Grab	6/11/2025 8:38	6/11/2025 8:38	3	<3	0.51	0.078	0.045	140							58.4	<0.20	<0.06	
Base Grab	8/5/2025 9:12	8/5/2025 9:12	6	3	0.61	0.178	0.079	261							28.1	0.26	<0.06	
Base Grab	9/8/2025 14:52	9/8/2025 14:52	8	4	0.37	0.085	0.030	326							24.7	0.41	<0.06	
Base Grab	10/8/2025 9:46	10/8/2025 9:46	8	4	0.44	0.086	0.032	162							24.3	0.44	<0.06	

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

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Table 10. Brown’s Creek Outlet 2025 Primary Chemistry Results

Sample Type	Start	End	TSS (mg/L)	VSS (mg/L)	TKN (mg/L)	TP (mg/L)	Dissolved P (mg/L)	Sulfate (mg/L)	Ortho P (mg/L as P)	Alkalinity (mg/L_CaCO3)	E. coli (mpn/100 mL)
Scheduled Grab	1/15/2025 15:15	1/15/2025 15:15	20	3	0.23	0.059	0.022		0.020		6
Scheduled Grab	1/29/2025 11:20	1/29/2025 11:20	5	<3	0.21	0.045	0.022		0.019		38
Scheduled Grab	2/13/2025 11:26	2/13/2025 11:26	3	<3	<0.20	0.042	0.022		0.019		15
Scheduled Grab	2/25/2025 10:35	2/25/2025 10:35	10	4	0.83	0.119	0.066		0.052		122
Duplicate Grab	2/25/2025 11:08	2/25/2025 11:08	7	3	0.76	0.116	0.066		0.059		248
Scheduled Grab	3/12/2025 10:10	3/12/2025 10:10	6	<3	0.67	0.305	0.151	6.52	0.038	146	37
Scheduled Grab	3/25/2025 9:55	3/25/2025 9:55	3	<3	0.28	0.044	0.024		0.013		10
Scheduled Grab	4/9/2025 10:40	4/9/2025 10:40	9	3	0.40	0.053	0.023		0.011		13
Storm Composite	4/21/2025 3:10	4/21/2025 12:58	74	22	1.31	0.200	0.034				
Scheduled Grab	4/23/2025 9:12	4/23/2025 9:12	5	<3	0.66	0.066	0.033		0.014		19
Scheduled Grab	5/6/2025 9:47	5/6/2025 9:47	6	3	0.54	0.062	0.030		0.018		108
Storm Composite	5/20/2025 7:48	5/20/2025 16:19	271	75	3.52		0.055				
Scheduled Grab	5/21/2025 14:02	5/21/2025 14:02	95	22	1.54	0.207	0.052		0.038		488
Scheduled Grab	6/4/2025 13:48	6/4/2025 13:48	30	11	0.90	0.140	0.056	3.78	0.044	169	285
Storm Composite	6/13/2025 7:17	6/13/2025 21:38	88	36	1.83	0.280	0.057				
Scheduled Grab	6/18/2025 9:28	6/18/2025 9:28	14	6	0.62	0.126	0.067		0.054		326
Storm Composite	6/25/2025 14:26	6/26/2025 0:59	259	85	3.36	0.596	0.094				
Scheduled Grab	7/2/2025 9:43	7/2/2025 9:43	22	8	0.97	0.430	0.177		0.151		261
Scheduled Grab	7/16/2025 10:10	7/16/2025 10:10	85	28	1.02	0.369	0.072		0.067		1,733
Scheduled Grab	7/30/2025 8:46	7/30/2025 8:46	25	8	1.03	0.294	0.136		0.102		770
Scheduled Grab	8/13/2025 9:29	8/13/2025 9:29	6	<3	0.52	0.158	0.071		0.059		214
Storm Grab	8/18/2025 10:46	8/18/2025 10:46	31	10	1.02	0.220	0.091		0.074		
Scheduled Grab	8/27/2025 9:07	8/27/2025 9:07	16	5	0.50	0.128	0.045		0.036		119
Scheduled Grab	9/10/2025 8:32	9/10/2025 8:32	5	3	0.32	0.080	0.037	6.67	0.030	121	124
Storm Composite	9/20/2025 3:45	9/22/2025 8:03	120	45	2.28	0.426	0.083		0.064		
Scheduled Grab	9/24/2025 8:46	9/24/2025 8:46	11	5	0.63	0.109	0.055		0.041		201
Scheduled Grab	10/7/2025 14:23	10/7/2025 14:23	5	<3	0.34	0.074	0.042		0.037		119
Scheduled Grab	10/22/2025 9:10	10/22/2025 9:10	5	3	0.28	0.066	0.034		0.138		107
Scheduled Grab	11/5/2025 12:20	11/5/2025 12:20	<3	<3	0.24	0.051	0.032		0.018		26
Scheduled Grab	11/19/2025 12:21	11/19/2025 12:21	3	<3	0.23	0.044	0.024		0.021		18
Scheduled Grab	12/3/2025 10:25	12/3/2025 10:25	16	<3	0.24	0.046	0.021	8.79	0.020	186	131
Scheduled Grab	12/17/2025 11:20	12/17/2025 11:20	17	3	0.31	0.058	0.021		0.014		34
Scheduled Grab	12/31/2025 11:02	12/31/2025 11:02	19	5	0.36	0.070	0.020		0.010		18
	Exceeds Water Quality Standard										

Table 11. Brown’s Creek Historic Loading- Latest Ten Years

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Brown’s Creek at Highway 15										
Discharge (cf)	152,081,358	135,660,983	129,764,024	201,962,562	148,727,410	117,049,943	98,760,517	94,107,164	100,591,203	119,368,127
Total pounds of Phosphorus exported	1,736	831	1,182	1,406	1,072	690	567	659	838	1,279
TP (lbs/ac/yr)	0.492	0.235	0.335	0.398	0.303	0.195	0.161	0.187	0.237	0.362
Total pounds of TSS exported	239,237	105,900	132,765	136,203	128,722	46,409	59,093	52,665	91,374	288,988
TSS (lbs/ac/yr)	67.73	29.98	37.59	38.56	36.44	13.14	16.73	14.94	25.87	81.82
Brown’s Creek at McKusick Road										
Discharge (cf)	229,482,654	192,485,489	179,429,476	340,391,004	234,134,803	196,267,817	163,409,449	163,853,967	158,481,122	191,931,114
Total pounds of Phosphorus exported	3,059	1,766	1,602	4,062	2,204	1,386	1,282	1,432	1,803	2,474
TP (lbs/ac/yr)	0.765	0.442	0.401	1.016	0.551	0.347	0.321	0.358	0.451	0.619
Total pounds of TSS exported	1,646,798	638,650	404,296	978,014	471,464	234,226	172,292	189,377	508,266	1,072,318
TSS (lbs/ac/yr)	411.80	159.70	101.10	244.56	117.90	58.57	43.08	47.36	127.10	268.15
Brown’s Creek at Stonebridge										
Discharge (cf)	224,138,246	232,701,338	225,604,711	368,848,809	235,850,584	192,272,282	168,072,167	164,126,900	173,826,291	208,855,854
Total pounds of Phosphorus exported	2,778	2,229	1,946	3,948	2,186	1,556	1,363	1,372	1,781	1,966
TP (lbs/ac/yr)	0.663	0.532	0.465	0.942	0.522	0.371	0.325	0.327	0.425	0.469
Total pounds of TSS exported	1,187,547	718,290	515,386	825,635	437,876	256,270	241,966	173,619	488,806	477,596
TSS (lbs/ac/yr)	283.49	171.47	123.03	197.10	104.53	61.18	57.76	41.45	116.69	114.01
Brown’s Creek Outlet										
Discharge (cf)	284,583,206	278,020,037	267,105,859	447,411,048	386,269,467	249,448,143	220,440,000	219,500,000	261,552,581	268,491,496
Total pounds of Phosphorus exported	3,514	2,275*	2,315*	4,833*	4,289*	1,566*	1,219*	1,494*	2,563*	2,893*
TP (lbs/ac/yr)	0.760	0.492	0.501	1.045	0.928	0.339	0.264	0.323	0.554	0.626
Total pounds of TSS exported	1,114,674	498,032*	400,729*	1,286,424*	1,137,017*	317,962*	172,589*	251,417*	507,151*	648,136*
TSS (lbs/ac/yr)	241.06	107.71	86.66	278.21	245.89	68.76	37.32	54.37	109.68	140.17
*Sampling regime and load estimation method changed										

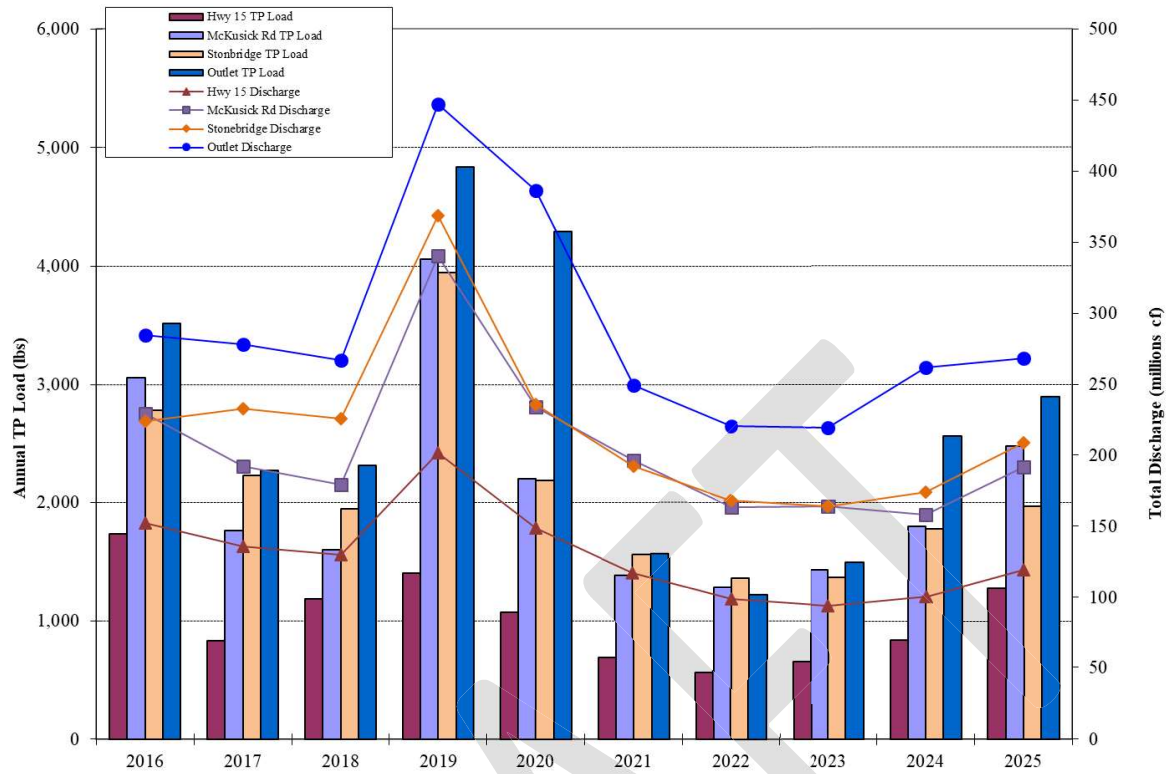


Figure 3. Brown's Creek Phosphorus Loading- Latest Ten Years

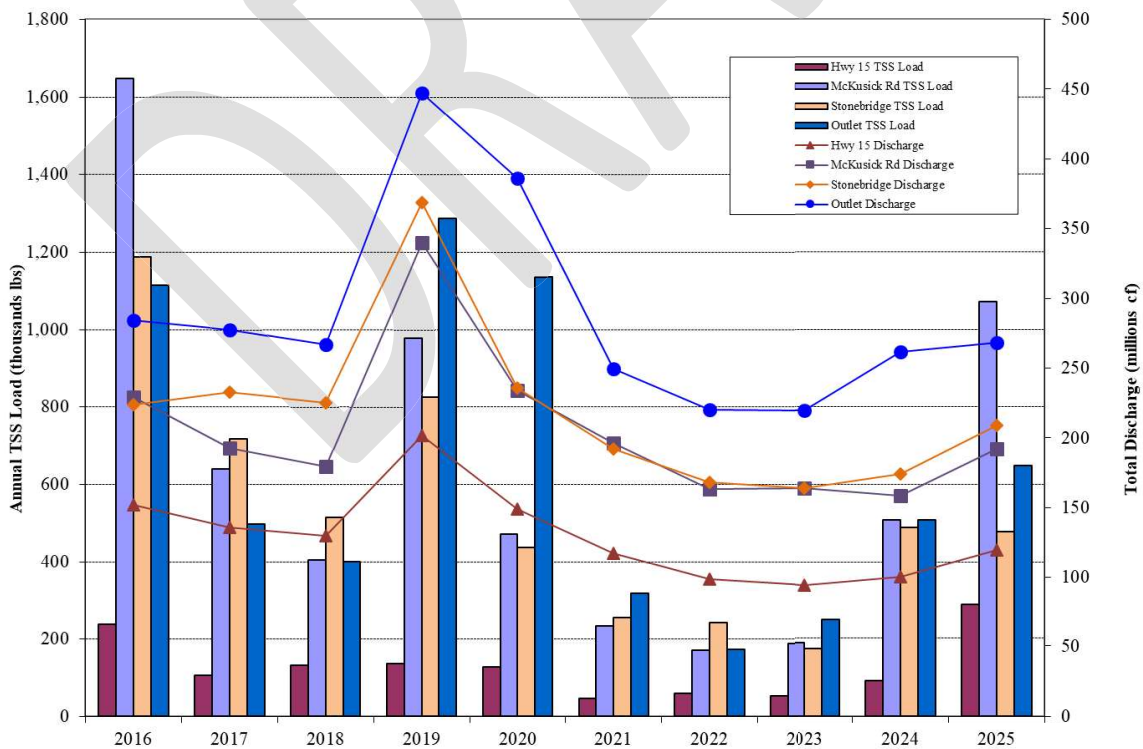


Figure 4. Brown's Creek Sediment Loading- Latest Ten Years

1c. Metals

One of the stressors identified in the TMDL study is high concentrations of copper, which are harmful to aquatic life. Additionally, other metals such as lead and zinc can be toxic to aquatic organisms. Standards for such metals are variable based on the hardness of the water which affects the level of toxicity a given concentration has. Under soft water conditions (low hardness) metals are more readily taken up by aquatic organisms, increasing the toxicity of the concentrations of metals in the water. Calculation of metals standards are 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.

Heavy metals exceedances for each site and sample can be found in Table 7-Table 9, and Table 12. A small number of chronic level exceedances of lead were detected at Highway 15 and Stonebridge. Four chronic level exceedances of lead and two chronic level exceedances of copper were recorded at McKusick Road, which are the most since 2016. This is likely due to the restoration work around Neal Avenue and the high sediment load moving through the site. Sediments in this area often have heavy metals bound to them, and high TSS concentrations tend to be correlated with metals exceedances, possibly due to legacy pollution from pesticides and debris along the former rail line that was converted to the state trail that parallels McKusick Road. No exceedances were detected at the Outlet.

Chloride concentrations have not exceeded the state standard for chronic exposure of 230 mg/L, but the trend analysis completed by EOR shows there are statistically significant increasing loads for chloride at all monitoring stations. For reference, the highest chloride concentration recorded on the creek occurred at the Outlet on July 2 at 49.6 mg/L. Unlike many other pollutants, chloride has no natural attenuation once it is in water, and there are no known cost-effective ways to treat water contaminated with chloride. The District should continue to investigate ways to promote reductions in salt use and smart salt management, especially for water softener and road de-icing applications.

Table 12. Brown’s Creek Outlet 2025 Secondary Chemistry Results

Sample Type	Start	End	Copper (ug/L)	Nickel (ug/L)	Lead (ug/L)	Zinc (ug/L)	Cadmium (ug/L)	Chromium (ug/L)	Chloride (mg/L)	Nitrate N (mg/L)	Nitrite N (mg/L)	Ammonia Nitrogen (mg/L)	Hardness (mg/L_CaCO3)
Scheduled Grab	1/15/2025 15:15	1/15/2025 15:15							31.0	0.35	<0.06	<0.06	
Scheduled Grab	1/29/2025 11:20	1/29/2025 11:20							30.2	1.18	<0.06	0.06	
Scheduled Grab	2/13/2025 11:26	2/13/2025 11:26							29.7	1.38	<0.06	<0.06	
Scheduled Grab	2/25/2025 10:35	2/25/2025 10:35							35.4	1.15	<0.06	0.32	
Duplicate Grab	2/25/2025 11:08	2/25/2025 11:08							34.6	1.26	<0.06	0.26	
Scheduled Grab	3/12/2025 10:10	3/12/2025 10:10	<1.000	<0.500	<0.500	<5.000	<0.100	<3.000	25.1	0.78	<0.06	0.20	182
Scheduled Grab	3/25/2025 9:55	3/25/2025 9:55							27.2	0.96	<0.06	<0.06	
Scheduled Grab	4/9/2025 10:40	4/9/2025 10:40							29.0	0.66	<0.06	<0.06	
Storm Composite	4/21/2025 3:10	4/21/2025 12:58	2.370	1.600	0.940	15.900	<0.100	<3.000		0.43	<0.06	<0.06	173
Scheduled Grab	4/23/2025 9:12	4/23/2025 9:12							25.4	0.40	<0.06	<0.06	
Scheduled Grab	5/6/2025 9:47	5/6/2025 9:47							28.2	0.33	<0.06	<0.06	
Storm Composite	5/20/2025 7:48	5/20/2025 16:19	8.180	4.630	3.850	23.900	0.110	7.000		0.25	<0.06	<0.06	156
Scheduled Grab	5/21/2025 14:02	5/21/2025 14:02							18.8	<0.20	<0.06	<0.06	
Scheduled Grab	6/4/2025 13:48	6/4/2025 13:48	<1.000	0.990	<0.500	<5.000	<0.100	<3.000	22.9	0.35	<0.06	<0.06	187
Storm Composite	6/13/2025 7:17	6/13/2025 21:38	2.500	1.890	1.510	14.500	<0.100	<3.000		0.27	<0.06	<0.06	162
Scheduled Grab	6/18/2025 9:28	6/18/2025 9:28							29.4	0.64	<0.06	<0.06	
Storm Composite	6/25/2025 14:26	6/26/2025 0:59	6.010	4.230	3.550	20.100	0.150	6.000		0.24	<0.06	0.09	137
Scheduled Grab	7/2/2025 9:43	7/2/2025 9:43							49.6	<0.20	<0.06	<0.06	
Scheduled Grab	7/16/2025 10:10	7/16/2025 10:10							27.8	0.52	<0.06	<0.06	
Scheduled Grab	7/30/2025 8:46	7/30/2025 8:46							28.2	<0.20	<0.06	<0.06	
Scheduled Grab	8/13/2025 9:29	8/13/2025 9:29							41.0	0.51	<0.06	<0.06	
Storm Grab	8/18/2025 10:46	8/18/2025 10:46	1.280	1.000	0.620	<5.000	<0.100	<3.000	25.9	<0.20	<0.06	<0.06	131
Scheduled Grab	8/27/2025 9:07	8/27/2025 9:07							29.2	0.60	<0.06	<0.06	
Scheduled Grab	9/10/2025 8:32	9/10/2025 8:32	<1.000	<0.500	<0.500	<5.000	<0.100	<3.000	29.4	0.69	<0.06	<0.06	237
Storm Composite	9/20/2025 3:45	9/22/2025 8:03	4.030	2.560	2.220	40.000	<0.100	4.000	25.8	0.34	<0.06	0.15	190
Scheduled Grab	9/24/2025 8:46	9/24/2025 8:46							27.4	0.51	<0.06	<0.06	
Scheduled Grab	10/7/2025 14:23	10/7/2025 14:23							29.9	0.74	<0.06	<0.06	
Scheduled Grab	10/22/2025 9:10	10/22/2025 9:10							30.0	0.66	<0.06	<0.06	
Scheduled Grab	11/5/2025 12:20	11/5/2025 12:20							30.5	0.76	<0.06	<0.06	
Scheduled Grab	11/19/2025 12:21	11/19/2025 12:21							31.0	0.93	<0.06	<0.06	
Scheduled Grab	12/3/2025 10:25	12/3/2025 10:25	<1.000	<0.500	<0.500	<5.000	<0.100	<3.000	31.3	1.01	<0.06	<0.06	236
Scheduled Grab	12/17/2025 11:20	12/17/2025 11:20							29.8	1.04	<0.06	<0.06	
Scheduled Grab	12/31/2025 11:02	12/31/2025 11:02							29.2	1.00	<0.06	<0.06	

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

1d. Bacteria (*E.coli*)

The sites on Brown’s Creek are not meeting the state standard for *E.coli* for nearly all months regulated by the standard, and two reaches of the creek have been listed as impaired for bacteria. A summary table by month and site can be found in Table 13. The standard is defined as follows, and is based on the latest ten years of data as per MPCA protocol:

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

Table 13. Monthly Geometric Means of *E.coli*- Latest Ten Years

Site	April	May	June	July	August	September	October
Highway 15	Insufficient Data	91	301	233	303	244	91
McKusick Road	Insufficient Data	121	364	659	416	258	109
Stonebridge	Insufficient Data	103	268	508	361	206	115
Brown’s Creek Outlet	18	112	385	400	179	219	87
	Exceeds geometric mean of 126 #/100mL from not less than 5 samples in a calendar month						
	10% of samples taken in the last 10 years exceed 1,260 #/100mL (Doesn't necessarily exceed geometric mean standard)						

Previous studies have excluded human borne *E.coli* as a significant source of bacteria, indicating failing septic systems and illegal straight pipes are not contributing to the high levels of bacteria. Likely sources of bacteria include large congregations of geese around the McKusick Road area, beavers and muskrat in the upper reaches of the creek, and nearby livestock operations. Further studies will focus on species of wildlife and livestock to determine sources of bacteria. The trend analysis completed by EOR has shown statistically significant long term trends for decreasing *E.coli* concentrations at McKusick Road and Stonebridge, and an increasing trend at the Outlet over the most recent ten year period.

1e. Temperature & Dissolved Oxygen

The 2010 Brown’s Creek Biota TMDL indicates a threat level temperature of 18.3 °C and a critical level temperature of 23.9 °C for trout survivability. The threat level impact as defined as physiological stress, reduced growth, and egg mortality. The critical level impact is defined as the point at which direct mortality can be expected. For the purposes of this summary, daily average temperatures are used to determine if impact levels have been reached.

Consistent with previous years, multi-parameter sondes were deployed at all four stations on the creek. Due to battery and logger malfunctions in years prior, secondary temperature loggers were deployed to minimize gaps in the temperature data created by the primary

loggers. However, these gaps will still exist in the dissolved oxygen period of record, as no secondary dissolved oxygen sensors were available. Metrics on the completeness of the dissolved oxygen record at each site in terms of the percentage of days that were logged vs the number of days the logger was physically deployed can be found in Table 15.

The number of daily average threat level temperature exceedances in the creek in 2025 was the highest in the latest ten years at McKusick Road, Stonebridge, and the Outlet, and the highest since temperature monitoring began in 2006 at McKusick Road and the Outlet (Table 14). The critical level was exceeded one day (June 22) at Highway 15, McKusick Road, and Stonebridge, which is the first time the daily average temperature has exceeded this threshold at any site since 2013. According to the NWS station in Stillwater air temperatures were in excess of 90 °F six days of the season.

The higher than normal temperatures observed in the creek are likely due to a combination of factors. Most notably, a significant beaver dam has been constructed downstream of Manning Trail, between the Highway 15 and McKusick Road stations. Water levels around the Highway 15 station have risen and velocity has slowed dramatically, allowing the sun to heat the slow moving water. Second, the restoration work around Neal Avenue has removed buckthorn and other vegetation that provided stream shading. The planted native shrubs and grasses as part of the restoration have not yet matured to provide shading of the creek, and will allow some temporary warming of the creek for several years until the vegetation has grown enough to provide shading. Third, the McKusick Wetland Outlet tributary upstream of McKusick Road flowed all year instead of being offline for part of the summer. This tributary is known to contribute water that is around 2.5 °C on average warmer than Brown's Creek. These factors have combined to produce some of the warmest temperatures ever recorded, and are likely having a negative impact on the coldwater biological community in the creek. The District should consider options to remove or alter the beaver dam in the upper reaches of the creek, as this appears to be having the most dramatic impact on stream temperature.

The warm temperatures in 2025 are a stark contrast to conditions recorded in 2022 and 2023 when some of the coolest temperatures ever recorded in the creek were observed in spite of warm, dry summers. This was especially encouraging given the conditions, and may indicate other thermal load reduction practices including riparian shade restorations, the Brown's Creek Park Rock Crib, and surface water diversions such as the Diversion Drainage and the Oak Glen Golf Course Irrigation Reuse projects were positively impacting the creek.

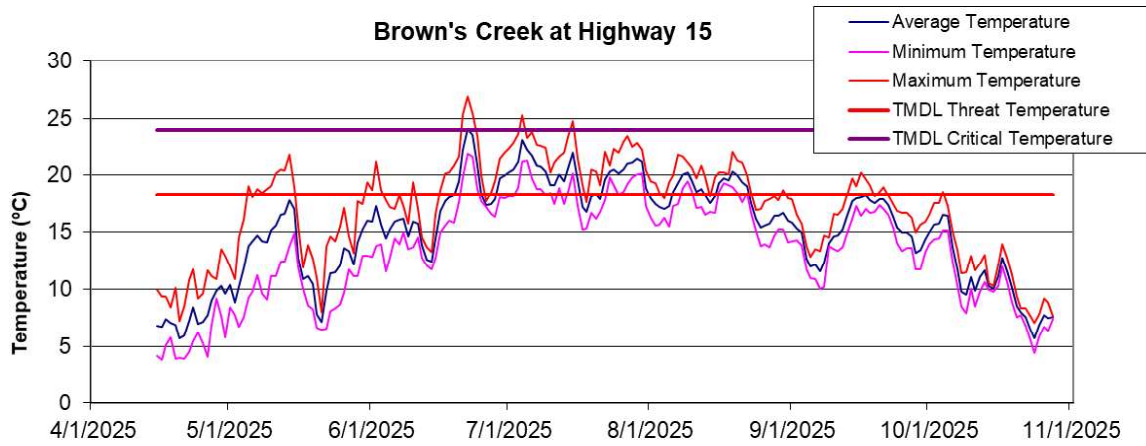


Figure 5. Brown's Creek at Highway 15 2025 Daily Temperature Summary

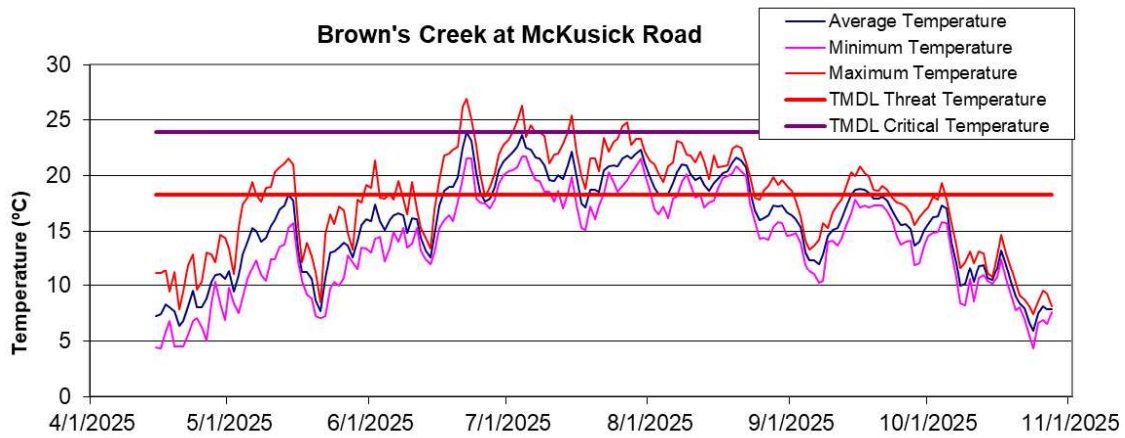


Figure 6. Brown's Creek at McKusick Road 2025 Daily Temperature Summary

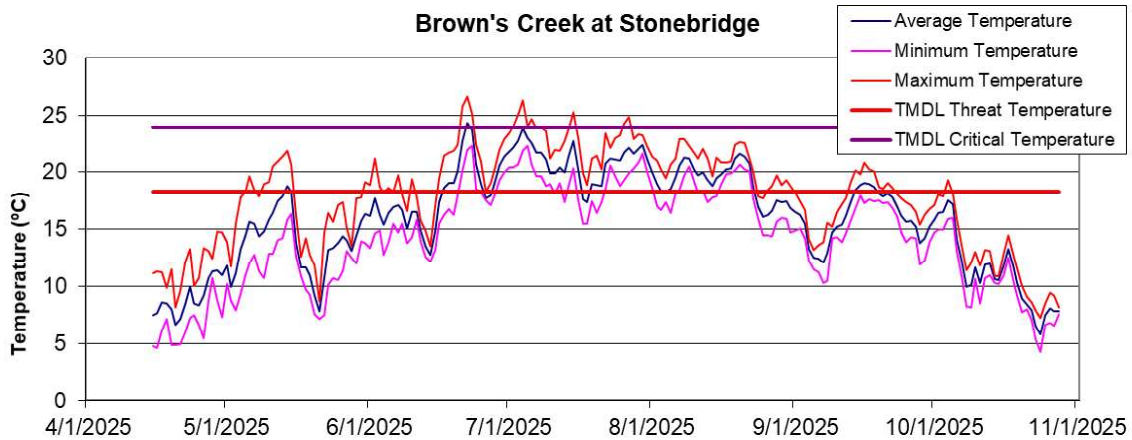


Figure 7. Brown’s Creek at Stonebridge 2025 Daily Temperature Summary

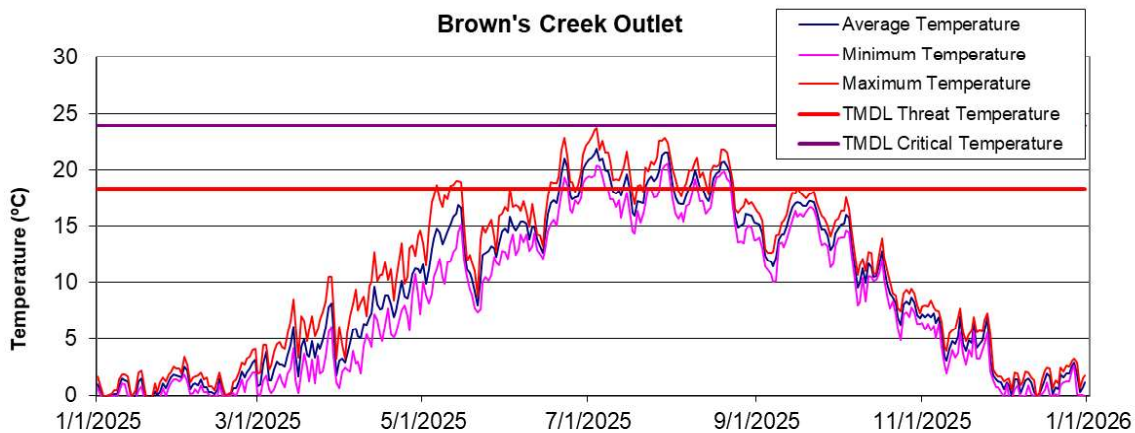


Figure 8. Brown’s Creek Outlet 2025 Daily Temperature Summary

Table 14. Annual Occurrences of Brown’s Creek Daily Average Temperature Greater than Threat and Critical Level Thresholds

Year	Exceedances at Highway 15		Exceedances at McKusick		Exceedances at Stonebridge		Exceedances at Outlet	
	18.3°C	23.9°C	18.3°C	23.9°C	18.3°C	23.9°C	18.3°C	23.9°C
2016	14*	0*	17*	0*	71	0	35	0
2017	54	0	43	0	48	0	8	0
2018	61	0	54	0	66	0	19	0
2019	31	0	36	0	42	0	20	0
2020	38	0	42	0	48	0	23	0
2021	47	0	39	0	54	0	11	0
2022	28	0	31	0	37	0	6	0
2023	34	0	35	0	49	0	4	0
2024	33	0	40	0	49	0	15	0
2025	47	1	67	1	71	1	42	0

* Based on severely limited period of record

The state standard for dissolved oxygen in 2A waters is 7 mg/L as a daily minimum. Logger malfunctions and sensor fouling limited the period of record at Highway 15, McKusick Road, and Stonebridge. Oxygen concentrations at Highway 15 were below the state standard 98.5% of the days monitored, likely due to the stream damming, and are unsuitable for trout survival (Table 15, Figure 9). The data collected show daily swings high above 7 mg/L at Highway 15 due to intense macrophyte growth, but drops well below the threshold at night.

Dissolved oxygen levels at McKusick Road were poorer than previous years, with 27 days being worse than the state standard. Again, this is likely influenced by the in-stream restoration work around Neal Avenue and stream damming.

Stonebridge continues to exhibit better conditions for trout survival, with 24 days monitored below the dissolved oxygen standard. However, temperatures at Stonebridge were above the threat level temperature threshold four days more than McKusick Road, indicating a slightly higher level of temperature stress as the creek flows through the golf course (Table 14 and Figure 7). Increased shading in the Oak Glen Golf Course buffer area and restoration project around Neal Avenue are expected to cool the water between the McKusick Road and Stonebridge sites, as well as increase oxygen levels.

Table 15. Daily Minimum Dissolved Oxygen Exceedances

Site	Days Monitored	Dissolved Oxygen Daily Minimum Below 7 mg/L	Percent of Days Exceeded	Record Completeness
Highway 15	136	134	98.5%	69.4%
McKusick Road	153	27	17.6%	78.1%
Stonebridge	152	24	15.8%	77.6%
Outlet	196	0	0.0%	100.0%

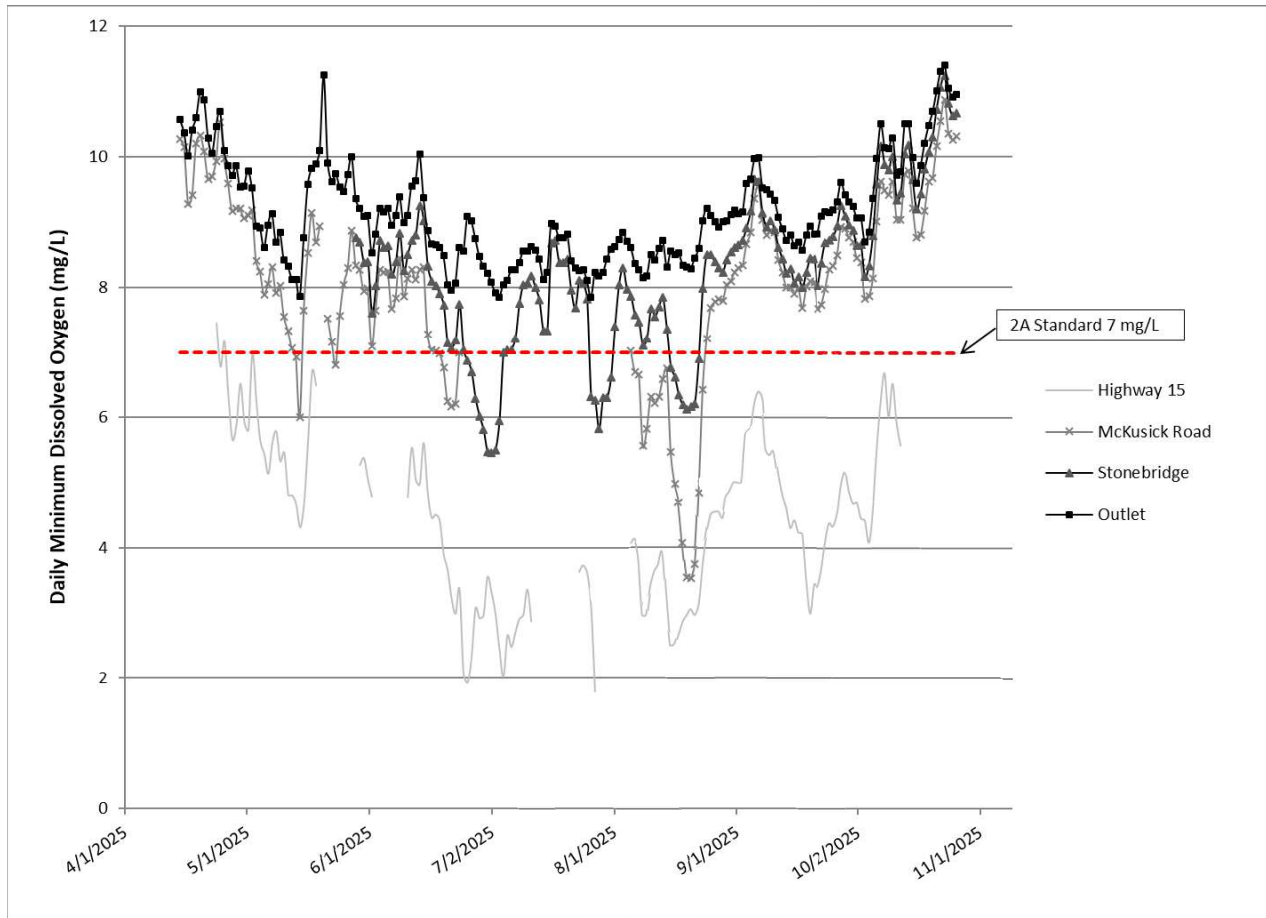


Figure 9. Daily Minimum Dissolved Oxygen in Brown's Creek

The Outlet continues to be the best location on Brown's Creek for trout survival. The average daily temperature exceeded the threat level threshold 42 days during the season, but was the only station without a critical level exceedance in 2025 (Table 14). This is due to cold groundwater inputs in the gorge upstream of the Outlet and a robust tree canopy to shade the stream. Daily minimum oxygen concentrations were suitable for trout for the entire season (Figure 9 and Appendix B).

The trend analysis completed by EOR shows there is a statistically significant long term cooling trend at the Outlet, and a long term cooling pattern at Stonebridge that is not statistically significant. The study also shows a long term statistically significant warming trend at McKusick Road. Dissolved oxygen concentrations show no statistically significant trends at any site, except the Outlet since construction of the Diversion Structure.

1f. Turbidity & Specific Conductivity

Turbidity and specific conductivity can be helpful for determining the amount of particles and dissolved materials in a stream. Turbidity measures the amount of light scattered by particles such as suspended sediment, phytoplankton, and bacteria while specific

conductivity measures electrical conductance of the water and is influenced by the amount of dissolved ions in the water. Excess turbidity can be detrimental to trout, since they are primarily sight feeders. It also typically indicates a high sediment load which can clog gills and cover spawning areas.

Continuous turbidity and specific conductivity were monitored at all four stations on Brown’s Creek. Turbidity sensors on the multi-parameter sondes have the tendency to be covered by bedload sediment during storm events and can be fouled by algae growth on the sensor itself, leading to gaps in the record at some sites. To account for fouling, continuous turbidity data were converted to a daily average where at least three quarters of a day was successfully logged for comparison to a 10 NTU threshold, which correlates to the TMDL goal of 23 mg/L of TSS. Specific conductivity data are not discussed in this report as they do not directly apply to state standards or TMDL goals, but are available upon request. Turbidity data is also used to help determine storm and base flow periods for the TP and TSS load calculations in Appendix B. A summary of days successfully monitored for turbidity at each site can be found in Table 16 and average daily turbidity can be viewed in Figure 10.

Table 16. Brown’s Creek Turbidity Standard Exceedances

Site	Days Monitored	Days Over 10 NTU	Percent of Days Exceeded	Record Completeness
Highway 15	129	13	10.1%	65.8%
McKusick Road	195	36	18.5%	99.5%
Stonebridge	150	28	18.7%	76.5%
Outlet	196	54	27.6%	100.0%

It is worth noting the creek tends to meet the 10 NTU goal during nearly all periods of base flow, indicating the majority of sediment and other sources of turbidity are being contributed during storm events (Figure 10). Turbidity was also significantly influenced by the recent in-stream restoration work around Neal Avenue. Due to dry conditions in the fall of 2024 and spring of 2025, a high amount of remnant sediment from the restoration work was present in the stream channel around Neal Avenue, which created significant bedload that sometimes caused sensor fouling at the downstream sites and appeared to contribute to higher than normal turbidity measurements at the Outlet. The turbidity sensor at Highway 15 was also frequently fouled by biofilms that the sensor wiper could not remove, which grew on the sensor due to the stagnant water conditions created by the beaver dams downstream of Highway 15. The Stonebridge logger was not able to be deployed for significant portion of the spring due to an internal battery failure that required manufacturer repair. The highest daily average turbidity at Highway 15, McKusick Road,

Stonebridge, and the Outlet were recorded during storms on September 20 (31 NTU), May 20 (47 NTU), June 25 (42 NTU), and May 20 (68 NTU), respectively.

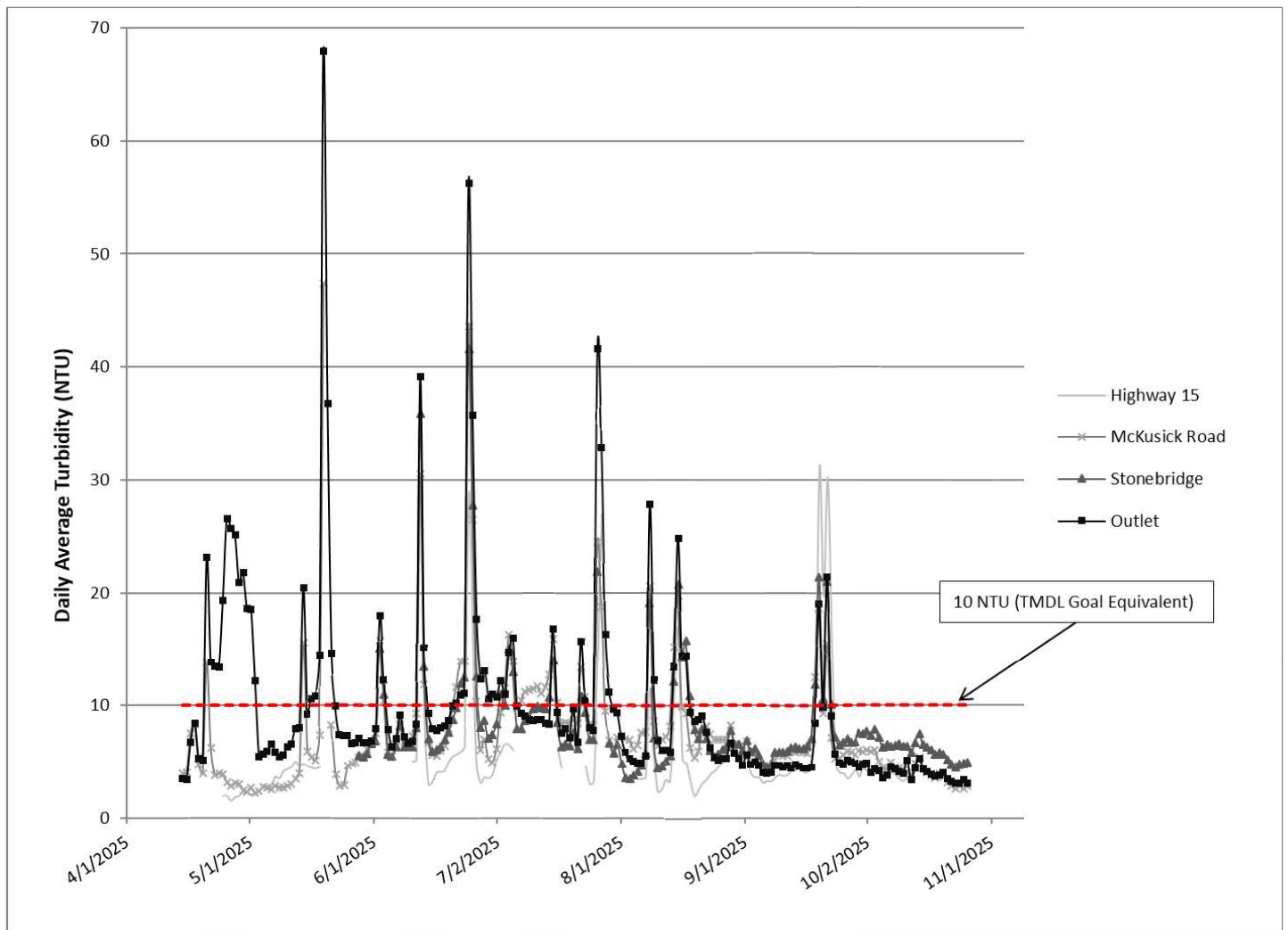


Figure 10. Brown’s Creek Daily Average Turbidity

1g. Fisheries & Aquatic Invasive Species

Brown’s Creek currently supports a brown and rainbow trout fishery dependent upon stocking in the lower reaches of the creek. Brown trout have been shown to have a limited amount of natural reproduction, and rainbow trout rely on stocking efforts. In 2020 the MN DNR switched from stocking brown trout to rainbow trout because they are easier to produce, grow larger and faster, and are stocked at a size that provides better recreational opportunity to anglers. Additionally, neither species is native to Minnesota, but they are considered naturalized and provide ecosystem and recreational benefits where native brook trout cannot survive at this time. MN DNR has a management plan to stock 1,000 yearling rainbows at the Outlet annually. Stillwater Area High School (SAHS) and the Minnesota

Trout Unlimited – Trout in the Classroom program also reared and stocked several hundred fingerling rainbow trout into the stream.

Fish and macroinvertebrate sampling conducted by the District’s engineer and SAHS have identified many varieties of organisms present in the creek that need high quality, well oxygenated water to survive, such as rainbow darters. In May of 2025, SAHS students in Brown’s Creek Park observed stonefly larvae, which also require very clean, well oxygenated water, already inhabiting the newly constructed rock riffles in the stream restoration area around Neal Avenue. Results of fish and macroinvertebrate samplings can be found on the District’s website or are available upon request.

Field staff continue to observe heavy growth of invasive curly-leaf pondweed in the upper reaches of the creek at Highway 15 and above McKusick Road. Dense mats of vegetation can alter flow rates, nutrient transport in the stream, hinder efforts to make stream improvements by slowing the water, and create conditions for warmer temperatures and increased sediment deposition on potential spawning areas. The BCWD should continue to work with partners to limit, prevent, or manage the spread of curly-leaf pondweed downstream.

IV.C.2. Diversion Drainage

The Trout Stream Mitigation Project (TSMP), also known as the Diversion Structure, has been functioning since 2003 to divert warm water flows away from Brown’s Creek through McKusick Lake to the St. Croix River (Table 1 and Figure 1). Diverting the water away from the creek protects it from additional thermal and sediment loads, improving conditions for trout and other cold water organisms. However, the water diverted away from the creek impacts its receiving waters: McKusick Lake and the wetland complex at the inlet to the lake. Therefore, monitoring is important to determine the load of pollutants discharged to the lake.

2a. Discharge

Discharge decreased slightly from the year prior to 60,305,225 cubic feet exported to McKusick Lake (Table 18). This volume of water is the fifth highest recorded since monitoring began in 2006. No water overtopped the Diversion Structure in 2025. The structure was designed to divert events up to the 1.5-year storm event under fully developed conditions. Since 2014 there have been five known events during which water has overtopped the structure and discharged directly to Brown’s Creek, ranging from a few hours to a half-day. Although noteworthy, the volume of direct discharges has been minimal and have only occurred during major storm events, and likely have little impact on thermal and nutrient loads in the creek when the creek is already high with runoff. More importantly, the structure diverts the significantly warmer base flow and all moderate and minor runoff events in the drainage away from the creek, reducing thermal loads to Brown’s Creek.

2b. Phosphorus & Sediment

The TP load to McKusick Lake was 416 pounds, or 0.108 pounds of phosphorus per acre of watershed land (Table 18). Despite the wetter than average year, the TP load was the sixth lowest recorded since monitoring began in 2006. Water flowing through the site met the 2B phosphorus standard at base flow for all but one samples collected, while storm event concentrations were much higher (Table 17). However, the trend analysis study shows statistically significant increasing concentrations of TP over both the short and long term in the drainage.

The TSS load was 73,469 pounds of sediment, equating to 19.06 pounds per acre of watershed land (Table 18). The state standard for 2B waters is 30 mg/L of TSS from April 1 to September 30. Water flowing through the site during this period met the standard during base flow conditions, and storm concentrations remain much lower than prior wet years when concentrations sometimes exceeded 2,000 mg/L (Table 17). Despite the wet conditions, the TSS load was second lowest recorded since monitoring began in 2006. No statistically significant trends exist for TSS in the drainage.

The District has worked since 2018 to repair erosional head cuts and increase floodplain connectivity through the installation of rock vanes on the drainage tributaries. The practices are estimated to reduce the TP load by 76 pounds per year, and the sediment load by 70 tons per year. Additionally, beavers remain active in the drainage, and have created a series of dams between the IESF harvest pond and the monitoring site. The dams enhance floodplain connectivity and promote settling of sediments and nutrients while improving habitat, and it appears a reduction in TP and TSS is evident in the annual loads. The relatively low TP and TSS loads paired with an annual total discharge falling within the highest quantile all recorded annual discharges indicates the restoration efforts by the District and natural processes from beaver activity are having positive impacts on water quality in the drainage. This is an interesting contrast to conditions in Brown's Creek, where dams tend to have negative impacts on conditions needed for coldwater biological communities to thrive. The IESF upstream of the monitoring site also continues to operate to reduce TP loads in the drainage. Monitoring data from the IESF is analyzed by EOR and summarized in an annual maintenance memo for the filter.

Table 17. Brown's Creek Diversion 2025 Chemistry Results

Sample Type	Start	End	TSS (mg/L)	VSS (mg/L)	TKN (mg/L)	TP (mg/L)	Dissolved P (mg/L)	Copper (ug/L)	Nickel (ug/L)	Lead (ug/L)	Zinc (ug/L)	Cadmium (ug/L)	Chromium (ug/L)	Chloride (mg/L)	Nitrite + Nitrate N (mg/L)	Ammonia Nitrogen (mg/L)	Hardness (mg/L _CaCO3)
Storm Composite	5/20/2025 6:52	5/21/2025 0:40	94	24	1.64	0.280	0.061	3.640	2.910	1.570	10.100	0.130	<2.500	31.4	0.31	<0.06	121
Storm Composite	6/13/2025 0:52	6/13/2025 8:32	30	8	1.10	0.176	0.041	1.800	1.710	0.774	5.450	0.117	<2.500	39.8	0.28	<0.06	147
Storm Composite	6/25/2025 13:29	6/25/2025 22:20	70	24	1.47	0.281	0.076	2.820	2.300	1.130	7.840	0.117	<2.500	26.0	0.34	<0.06	94
Storm Composite	7/27/2025 20:46	7/28/2025 4:47	161	41	2.11	0.470	0.074	3.850	3.580	2.270	14.700	0.128	3.270	24.8	0.37	<0.06	92
Storm Composite	8/9/2025 5:30	8/9/2025 9:20	283	68	3.00	0.546	0.065	5.520	5.020	5.000	22.100	0.166	4.590	37.9	0.40	<0.06	132
Storm Composite	8/16/2025 7:29	8/17/2025 23:58	166	61	2.11	0.361	0.067	3.970	3.660	2.310	12.900	0.148	2.920	36.6	<0.20	<0.06	98
Base Grab	5/1/2025 14:09	5/1/2025 14:09	<3	<3	0.47	0.051	0.023	<1.000	0.715	<0.500	6.040	<0.100	<2.500	46.4	<0.20	<0.06	155
Base Grab	5/12/2025 14:28	5/12/2025 14:28	<3	<3	0.60	0.074	0.032	1.840	1.890	<0.500	<5.000	<0.100	<2.500	52.8	<0.20	0.06	210
Base Grab	6/10/2025 13:32	6/10/2025 13:32	10	5	0.65	0.128	0.059	<1.000	0.642	<0.500	<5.000	<0.100	<2.500	24.4	0.28	0.07	209
Base Grab	7/10/2025 10:03	7/10/2025 10:03	3	<3	0.53	0.084	0.054	<1.000	0.573	<0.500	<5.000	<0.100	<2.500	70.6	<0.20	0.08	107
Base Grab	8/4/2025 14:36	8/4/2025 14:36	<3	<3	0.58	0.064	0.040	<1.000	0.540	<0.500	<5.000	<0.100	<2.500	62.4	<0.20	0.06	108
Base Grab	9/4/2025 10:38	9/4/2025 10:38	3	<3	0.47	0.057	0.026	<1.000	0.505	<0.500	<5.000	<0.100	<2.500	47.8	0.24	<0.06	152
Base Grab	10/8/2025 9:33	10/8/2025 9:33	5	3	0.54	0.078	0.018	<1.000	0.708	<0.500	<5.000	<0.100	<2.500	48.2	0.31	<0.06	205

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

Table 18. Brown's Creek Diversion Historic Loading- Latest Ten Years

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Brown's Creek Diversion Structure										
Discharge (cf)	70,780,581	39,625,672	45,453,990	112,468,888	68,165,935	46,792,341	41,610,620	35,622,586	72,832,083	60,305,225
Total pounds of Phosphorus exported	1,574	784	964	3,598	760	446	389	367	573	416
TP (lbs/ac/yr)	0.408	0.203	0.250	0.933	0.197	0.116	0.101	0.095	0.149	0.108
Total pounds of TSS exported	1,533,496	596,382	505,314	2,707,186	246,238	401,069	75,429	74,875	230,855	73,469
TSS (lbs/ac/yr)	397.79	154.70	131.08	702.25	63.87	104.01	19.57	19.42	59.88	19.06

2c. Metals

Heavy metals exceedances at the Diversion site can be seen in Table 17. The export of water high in metals to McKusick Lake and its wetland complex are particularly concerning due to the potential to destroy aquatic life in a short period of time, as opposed to nutrient or sediment loading which typically degrades habitat and populations of aquatic life over time. The chronic standard for lead was exceeded once, and no other exceedances of any metals standards were observed. The number and severity of exceedances of metals standards in the drainage were tied with two other years, 2022 and 2014, for the lowest number observed since metals analysis began in 2007. Improvements made to reduce erosion and allow the natural settling of sediments that may have metals bound to them in beaver impoundments are the most likely drivers of this. In most cases, severe exceedances of metals are associated with extreme TSS concentrations in this drainage. Sources of metals in the drainage may include historically improperly disposed wastes, such as deep cycle batteries, and legacy contamination from pesticide/herbicide applications along the former rail line that was later converted to a state trail. The combination and concentration of metals observed over time appear to point to this as a possible source. The District's engineer identified the North Branch of the drainage as a possible source of metals contamination through soil borings and review of previously collected data.

2d. Temperature

A stand-alone temperature logger was added to the monitoring site in 2024 to provide additional characterization of habitat and water quality conditions in the drainage. The drainage tends to be much warmer than Brown's Creek, and further collection of these data may provide insights on how restoration practices and beaver activity affect conditions in the drainage. Recorded daily average temperatures can be found in Figure 11. Although the drainage is effectively disconnected from Brown's Creek as a receiving water, daily average temperatures at McKusick Road are included for reference.

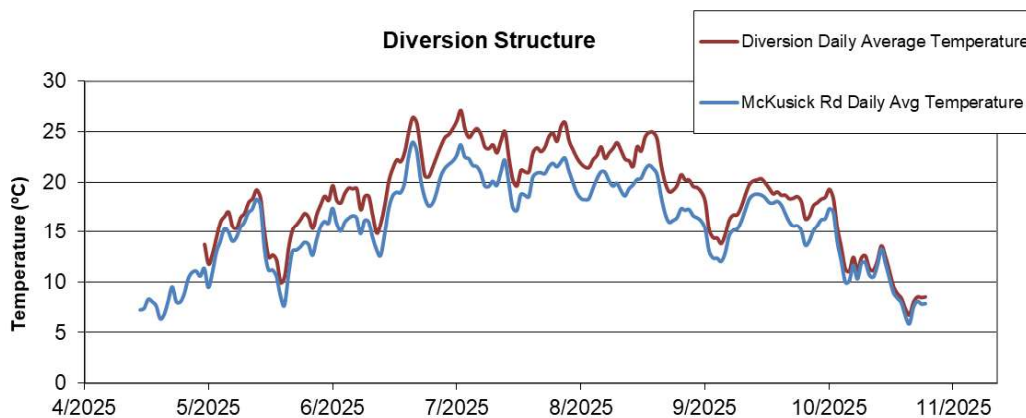


Figure 11. Diversion Drainage 2025 Daily Average Temperature

IV.C.3. Long Lake Drainage

The tributaries to Long Lake at 62nd St. and Marketplace Pond drain a high percentage of impervious surface and developed areas upstream of Long Lake (Table 1 and Figure 1). For the purposes of this report, the Tributary to Long Lake at Marketplace Pond will be compared to 2B water quality standards. The Tributary at Marketplace Pond is not classified as a 2B water, although its receiving water, Long Lake, is. Grab sampling at the Tributary at 62nd Street resumed in 2025 due to concerns with construction activity in the drainage, after sampling ceased in 2016. The water discharged to Long Lake directly affects the quality of the lake, which has had significant issues caused by excess nutrients. Water from Long Lake makes its way downstream to Jackson WMA (Sinnits) Pond, the diversion drainage, McKusick Lake and its wetland complex, and eventually to the St. Croix River. Monitoring subwatershed contributions to Long Lake can help determine locations for targeted management, as well as track improvements made upstream.

3a. Discharge

Annual discharge to Long Lake from the tributary at Marketplace Pond was 17,069,510 cubic feet, and estimated discharge at the tributary at 62nd Street was 2,166,546 cubic feet. Discharge at the tributary at 62nd Street was estimated based on stage data only, which was compared to stage and discharge data collected in 2014. Data from 2014 was used because it covered the widest range of observed stages and was representative of the average of other years of data collection. Historic discharge for each site can be found in Table 21. Flow in both systems is almost entirely event based, and flow often ceases during dry or winter conditions.

3b. Phosphorus & Sediment

The TP load at Marketplace Pond was 0.316 pounds per acre for a total of 130 pounds of phosphorus, and the TSS load was 25.49 pounds per acre for a total of 10,449 pounds of sediment (Table 21). It appears the tributary at Marketplace Pond is meeting the standard of 30 mg/L of TSS at base flow, but was above the 0.100 mg/L TP standard for both base flow samples collected (Table 19). Although storm composite samples are generally not compared to state standards, the concentrations of TSS were often below the standard, and the TP concentrations were well above the standard. The tributary at Marketplace Pond flows through several small settling ponds before discharging to Long Lake, and some additional settling of sediment and uptake of nutrients likely occurs.

The TP load at the tributary at 62nd Street was estimated based on grab sampling only to be 0.087 pounds per acre for a total of 50 pounds of phosphorus, while the TSS load was 10.90 pounds per acre for a total of 6,265 pounds of sediment (Table 21). TP concentrations were above the state standard for every sample collected, and TSS

concentrations were above the state standard for seven of the eleven applicable samples collected (Table 20).

3c. Metals

Heavy metal exceedances for the tributaries at Marketplace Pond and 62nd Street can be found in Table 19 and Table 20. The tributary at Marketplace Pond showed three chronic level exceedances of lead, and one chronic level and one max level exceedance of copper. The tributary at 62nd Street showed one chronic level exceedance of lead. The amount of heavy metals in the subwatershed is influenced by development and impervious surfaces, such as parking lots and Highway 36 where materials from vehicle leaks and brake dust tend to collect. The hardness of water in the subwatershed also tends to be very low, increasing the toxicity of metals. Metals contributed from this subwatershed have the potential to degrade aquatic life near the point of discharge to Long Lake before the water is fully integrated into the lake.

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Table 19. Tributary to Long Lake at Marketplace Pond 2025 Chemistry Results

Sample Type	Start	End	TSS (mg/L)	VSS (mg/L)	TKN (mg/L)	TP (mg/L)	Dissolved P (mg/L)	Copper (ug/L)	Nickel (ug/L)	Lead (ug/L)	Zinc (ug/L)	Cadmium (ug/L)	Chromium (ug/L)	Chloride (mg/L)	Nitrite + Nitrate N (mg/L)	Ammonia Nitrogen (mg/L)	Hardness (mg/L _CaCO3)
Storm Composite	6/3/2025 8:55	6/3/2025 14:51	17	5	0.85	0.120	0.037	4.360	0.946	0.521	13.100	<0.100	<2.500	87.2	<0.20	0.10	32.0
Storm Composite	6/12/2025 23:28	6/13/2025 2:11	14	6	0.88	0.132	0.026	3.620	0.930	0.583	18.200	<0.100	<2.500	41.2	<0.20	0.16	25.9
Storm Composite	6/25/2025 11:55	6/25/2025 15:25	28	8	0.96	0.138	0.046	4.210	1.110	0.693	23.800	0.123	<2.500	26.3	0.30	0.10	23.0
Storm Composite	7/16/2025 7:46	7/16/2025 14:13	14	7	1.12	0.150	0.029	3.990	0.801	<0.500	11.600	<0.100	<2.500	30.8	0.21	<0.06	30.2
Storm Composite	7/23/2025 14:22	7/23/2025 17:45	19	8	0.94	0.121	0.019	3.490	0.963	0.560	14.900	<0.100	<2.500	25.0	<0.20	0.20	29.0
Storm Composite	7/27/2025 20:37	7/27/2025 21:58	28	10	0.86	0.178	0.050	4.010	1.300	0.771	24.200	<0.100	<2.500	8.9	<0.20	0.19	19.0
Storm Composite	8/9/2025 4:51	8/9/2025 7:34	17	7	0.87	0.104	0.050	3.510	0.793	<0.500	15.100	<0.100	<2.500	9.3	0.25	0.22	21.5
Storm Composite	8/15/2025 12:11	8/15/2025 21:49	14	6	1.06	0.093	0.023	3.050	0.666	<0.500	15.400	<0.100	<2.500	8.9	0.24	0.18	20.4
Base Grab	7/9/2025 9:50	7/9/2025 9:50	3	<3	0.59	0.104	0.069	3.600	0.624	<0.500	<5.000	<0.100	<2.500	36.2	<0.20	<0.06	30.8
Base Grab	8/4/2025 13:48	8/4/2025 13:48	5	<3	0.77	0.129	0.090	3.580	0.609	<0.500	5.510	<0.100	<2.500	25.7	0.70	0.14	37.7
			Exceeds Water Quality Standard														
			No Exceedance Determinable														
			Exceeds Chronic Standard														
			Exceeds Max Standard														
			Exceeds Final Acute Standard														

Table 20. Tributary to Long Lake at 62nd Street 2025 Chemistry Results

Sample Type	Start	End	TSS (mg/L)	VSS (mg/L)	TKN (mg/L)	TP (mg/L)	Dissolved P (mg/L)	Copper (ug/L)	Nickel (ug/L)	Lead (ug/L)	Zinc (ug/L)	Cadmium (ug/L)	Chromium (ug/L)	Chloride (mg/L)	Nitrite + Nitrate N (mg/L)	Ammonia Nitrogen (mg/L)	Hardness (mg/L _CaCO3)
Storm Grab	6/3/2025 10:17	6/3/2025 10:17	25	7	1.06	0.300	0.059	2.560	1.820	0.612	12.200	<0.100	<2.500	113.0	<0.20	0.15	142
Storm Grab	6/13/2025 8:05	6/13/2025 8:05	36	6	1.18	0.324	0.133	5.210	2.880	1.470	15.100	<0.100	<2.500	42.5	0.58	0.07	72
Storm Grab	6/25/2025 13:50	6/25/2025 13:50	86	15	1.54	0.620	0.096	5.200	2.570	2.100	22.500	<0.100	<2.500	124.0	<0.20	0.12	81
Storm Grab	7/16/2025 8:57	7/16/2025 8:57	178	33	1.64	1.050	0.099	5.910	4.110	4.000	38.700	<0.100	3.630	98.0	<0.20	0.11	153
Storm Grab	7/29/2025 14:30	7/29/2025 14:30	43	7	0.97	0.269	0.114	5.330	4.120	2.370	13.200	0.626	3.540	48.8	<0.20	<0.06	79
Base Grab	5/21/2025 13:36	5/21/2025 13:36	14	<3	0.86	0.191	0.052	3.860	2.350	0.796	17.600	<0.100	<2.500	134.0	0.25	<0.06	114
Base Grab*	6/10/2025 13:05	6/10/2025 13:05	201	30	1.65	1.040	0.017	4.500	4.460	3.620	26.900	<0.100	3.400	221.0	<0.20	0.30	271
Base Grab	7/9/2025 9:32	7/9/2025 9:32	54	12	1.03	0.486	0.015	2.160	2.400	1.160	15.300	<0.100	<2.500	129.0	<0.20	0.23	212
Base Grab	8/4/2025 14:12	8/4/2025 14:12	34	7	0.78	0.324	0.012	1.480	1.830	0.672	7.370	<0.100	<2.500	156.0	<0.20	0.17	220
Base Grab	8/18/2025 9:39	8/18/2025 9:39	16	9	1.14	0.181	0.039	1.540	1.090	<0.500	9.590	<0.100	<2.500	28.2	<0.20	<0.06	44
Base Grab	9/4/2025 9:46	9/4/2025 9:46	18	4	0.75	0.191	0.006	1.160	1.650	0.553	5.060	<0.100	<2.500	185.0	<0.20	0.23	289
Base Grab	10/6/2025 13:44	10/6/2025 13:44	7	<3	0.50	0.150	0.017	<1.000	1.170	<0.500	<5.000	<0.100	<2.500	57.7	<0.20	0.07	149
			Exceeds Water Quality Standard														
			No Exceedance Determinable														
			Exceeds Chronic Standard														
			Exceeds Max Standard														
			Exceeds Final Acute Standard														

* Results excluded from average sample concentration calculations

Table 21. Long Lake Drainage Historic Loading- Latest Ten Years

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Tributary to Long Lake at Marketplace Pond										
Discharge (cf)	23,534,188	15,250,645	16,492,464	28,970,261	14,353,605	13,899,568	7,753,526	12,052,262	24,319,915	17,069,510
Total pounds of Phosphorus exported	137	77	70	150	83	121	79	121	157	130
TP (lbs/ac/yr)	0.333	0.187	0.170	0.367	0.202	0.296	0.192	0.294	0.383	0.316
Total pounds of TSS exported	18,278	15,162	16,473	15,882	10,645	9,593	7,112	12,870	18,320	10,449
TSS (lbs/ac/yr)	44.58	36.98	40.18	38.74	25.96	23.40	17.35	31.39	44.68	25.49
Tributary to Long Lake at 62nd Street										
Discharge (cf)	2,824,017	1,811,811*	957,234*	3,403,761*	2,842,101*	584,566*	274,469*	628,588*	3,294,857*	2,166,546
Total pounds of Phosphorus exported	49	NA	NA	NA	NA	NA	NA	NA	NA	50^
TP (lbs/ac/yr)	0.086	NA	NA	NA	NA	NA	NA	NA	NA	0.087
Total pounds of TSS exported	20,956	NA	NA	NA	NA	NA	NA	NA	NA	6,265^
TSS (lbs/ac/yr)	36.45	NA	NA	NA	NA	NA	NA	NA	NA	10.90
*Flow not estimated outside of logged data										
^Load estimated using grab samples only										

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IV.C.4. McKusick Wetland Outlet

The tributary to Brown's Creek at McKusick Wetland Outlet discharges water through a pipe approximately 100 feet upstream of the McKusick Road monitoring station from a wetland complex at the headwaters of McKusick Lake. Based on aerial photo evidence it may also provide a "short circuit" for warm, nutrient rich water diverted by the Diversion Structure to be introduced into Brown's Creek after flowing through the wetland complex at the headwaters of McKusick Lake. In 2021 the Oak Glen Golf Course Irrigation Reuse Project was completed, which redirects water from the outlet to a holding pond. This reduces warm, nutrient rich and oxygen poor inputs of water to Brown's Creek. Although not classified as a 2B water, for the purposes of this summary, the data collected will be compared to 2B TP and TSS standards.

4a. Discharge

Discharge at McKusick Wetland Outlet was calculated using an area velocity relationship during the period of recorded data. Periods of flow outside of recorded data were not estimated due to the site freezing during winter months. The recorded discharge to Brown's Creek was 23,349,104 cubic feet (Table 23). High water levels in Brown's Creek occasionally created backwater conditions at the site, making discharge calculations difficult during some periods. The outlet appeared to be flowing the entire monitoring period except for short periods in May and July. A significant portion of the stage and discharge data was lost after early September due to failure of the stage and velocity sensor.

4b. Phosphorus & Sediment

The TP load during recorded data was estimated at 403.8 pounds of phosphorus, while the estimated TSS load was 11,354 pounds of sediment (Table 23). The concentrations of TSS and TP were not precipitation or stage dependent, indicating the wetland complex "pulses" nutrients depending on factors other than storm events. As such, TP and TSS loads were calculated by averaging samples with similar concentrations based on seasonality, and applying the average concentration to the recorded discharge for the time period, which is consistent with past years. One TSS sample on July 16 was excluded as an outlier. It is important to note the characteristics of the site and sampling strategy do not allow for load calculations as precise as other monitored strategies, i.e. composite sampling.

Samples collected show the site nearly always meets the 2B standard of 30 mg/L of TSS, but exceeded the standard of 0.100 mg/L of TP for all but one sample collected (Table 22). The water discharging from the wetland is generally low in suspended sediment and other materials, but quite high in phosphorus, a large fraction of which is often dissolved phosphorus. This is typical of wetlands, which break down organic materials while filtering particulate matter, but can have negative effects on receiving waters by contributing nutrients that are readily available to organisms like algae.

Table 22. McKusick Wetland Outlet 2025 Chemistry Results

Sample Type	Start	End	TSS (mg/L)	VSS (mg/L)	TKN (mg/L)	TP (mg/L)	Dissolved P (mg/L)	Copper (ug/L)	Nickel (ug/L)	Lead (ug/L)	Zinc (ug/L)	Cadmium (ug/L)	Chromium (ug/L)	Chloride (mg/L)	Nitrite + Nitrate N (mg/L)	Ammonia Nitrogen (mg/L)	Hardness (mg/L CaCO3)
Grab Sample	4/29/2025 8:52	4/29/2025 8:52	7	3	0.77	0.101	0.025	<1.000	0.708	<0.500	5.970	<0.100	<2.500	30.0	<0.20	<0.06	178
Grab Sample	5/21/2025 14:50	5/21/2025 14:50	6	<3	0.81	0.151	0.064	<1.000	0.716	<0.500	<5.000	<0.100	<2.500	27.1	<0.20	<0.06	138
Grab Sample	6/26/2025 14:25	6/26/2025 14:25	7	<5	0.94	0.248	0.127	<1.000	0.724	<0.500	<5.000	<0.100	<2.500	21.6	<0.20	<0.06	106
Grab Sample*	7/16/2025 9:15	7/16/2025 9:15	37	17	1.03	0.927	0.128	<1.000	<0.500	<0.500	5.590	<0.100	<2.500	41.7	<0.20	<0.06	156
Grab Sample	7/24/2025 9:29	7/24/2025 9:29	8	<4	0.66	0.238	0.068	<1.000	<0.500	<0.500	<5.000	<0.100	<2.500	41.4	<0.20	<0.06	151
Grab Sample	7/28/2025 13:30	7/28/2025 13:30	6	<6	0.90	0.274	0.092	<1.000	0.706	<0.500	<5.000	<0.100	<2.500	26.3	<0.20	<0.06	96
Grab Sample	8/5/2025 8:31	8/5/2025 8:31	12	<10	0.78	0.516	0.238	<1.000	<0.500	<0.500	<5.000	<0.100	<2.500	56.3	<0.20	<0.06	121
Grab Sample	8/18/2025 9:21	8/18/2025 9:21	7	<5	0.68	0.286	0.102	<1.000	<0.500	<0.500	<5.000	<0.100	<2.500	41.5	<0.20	<0.06	89
Grab Sample	9/8/2025 15:21	9/8/2025 15:21	<3	<3	0.38	0.083	0.024	<1.000	<0.500	<0.500	<5.000	<0.100	<2.500	37.2	<0.20	<0.06	154
Grab Sample	10/8/2025 10:16	10/8/2025 10:16	7	3	0.44	0.131	0.023	<1.000	<0.500	<0.500	<5.000	<0.100	<2.500	34.0	<0.20	<0.06	178

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

* Results excluded from average sample concentration calculations

Table 23. McKusick Wetland Outlet 2025 Discharge and Loading Estimates

Site	Period	Total Flow (cf)	Total Flow (ac-ft)	Average TP Concentration (mg/L)	TP Range (mg/L)	Average TSS Concentration (mg/L)	TSS Range (mg/L)	TP Load (lbs.)	TSS Load (lbs.)
McKusick Wetland Outlet	4/23-6/25	4,079,820	93.71	0.126	0.101-0.151	7	6-7	32.1	1,783
McKusick Wetland Outlet	6/25-9/1	18,990,000	436.18	0.312	0.238-0.516	8	6-12	369.9	9,484
McKusick Wetland Outlet	9/1-9/8	279,284	6.41	0.107	0.083-0.131	5	3-7	1.9	87
Total		23,349,104	536.30					403.8	11,354

Table 24. McKusick Wetland Outlet Historic Loading Data

	2017	2018	2019	2020	2021	2022	2023	2024	2025
McKusick Wetland Outlet									
Discharge (cf)	18,610,746	8,319,145	43,988,560	18,179,910	5,072,806	5,153,850	5,834,490	9,588,210	23,349,104
Total pounds of Phosphorus exported	298.2	138.5	453.1	284.6	68.3	69.1	115.1	165.5	403.8
Total pounds of TSS exported	9,055	5,072	13,275	10,927	2,327	2,868	3,870	4,788	11,354
Values reported are totals during the monitoring period only.									

4c. Temperature

Historic thermal data recorded at McKusick Wetland Outlet show temperatures roughly 2.5 °C higher, on average, than those recorded at McKusick Road during similar time periods. The wetland is warmed by solar radiation and frequently reaches high temperatures. Although the wetland outlet is not intended to be suitable for trout, when compared to TMDL thresholds of 18.3 °C (threat level) and 23.9 °C (critical level), water temperatures exceeded the thresholds 54.7% and 9.1%, respectively, of the monitoring period when flow was present. It is important to compare temperatures to these thresholds because they directly influence temperatures in Brown's Creek when discharged upstream of the McKusick Road site. Trout have been observed and stocked in the reach of Brown's Creek the wetland outlet discharges to, but only during spring and fall when water temperatures are cooler. Continuous temperature data excluding data during periods of zero flow can be seen in Figure 11, alongside the daily average temperature at McKusick Road.

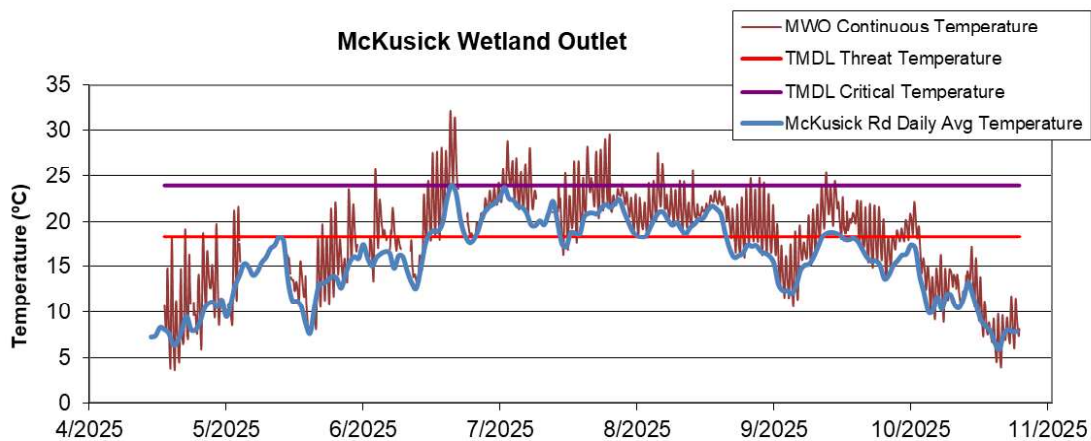


Figure 12. McKusick Wetland Outlet 2025 Continuous Temperature

V. RECOMMENDATIONS

- Consider options to remove, lower, or modify the beaver dam on Brown's Creek between Highway 15 and McKusick Road to protect coldwater biological communities.
- Continue monitoring of beaver activity in the Diversion Drainage, where their presence appears to be beneficial to improving phosphorus, sediment, and erosion conditions.
- Continue chloride monitoring on lakes likely to be impacted by salt use.
- Continue performing macrophyte surveys on lakes that are lacking data.
- Continue collecting water quality and continuous discharge data at existing monitoring stations to track changes in the watershed and provide baseline data for modeling and other uses.
- Continue identifying salt use reduction strategies to limit chloride loading.
- Continue identifying cooperative opportunities with landowners to implement stream shading projects.
- Continue monitoring repairs to erosion issues in the Diversion Drainage to prevent degradation of McKusick Lake.
- Consider modifying sampling on Brown's Creek to match Metropolitan Council's WOMP program using unbiased sampling regimes as opposed to storm/event based sampling to allow for more rigorous statistical trend analysis.
- For the 2027-2036 Watershed Management Plan Update, consider which monitoring activities may be reduced where water quality conditions are stable, improving, or data collection is more challenging than the benefits provided. Examples include reducing monitoring frequency on some lakes to monthly and pausing monitoring on McKusick Wetland Outlet and the Iron Enhanced Sand Filter where conditions don't appear to be changing and beaver activity has made monitoring largely infeasible, respectively.

APPENDIX A - WATER QUALITY DATA – BY LAKE

Brown's Creek Watershed Lakes: Bass East, Bass West, Benz, Brewer's Pond, Goggins, Heifort's Pond, Jackson WMA (Sinnits Pond), July Avenue, Kismet, Long (North Basin), Lynch North, Lynch South, Masterman, North School Section, Pat, Plaisted, South School Section, and Woodpile

Lake grades are assessed using the Metropolitan Council's lake grade system. Grades are determined based on May through September averages of total phosphorus concentration, uncorrected trichromatic chlorophyll- α concentration, and Secchi disk transparency.

The Minnesota Pollution Control Agency (MPCA) uses the June through September average to assess impairment status of a lake based on total phosphorus concentration, pheophytin-corrected chlorophyll- α concentration, and Secchi disk transparency. 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.

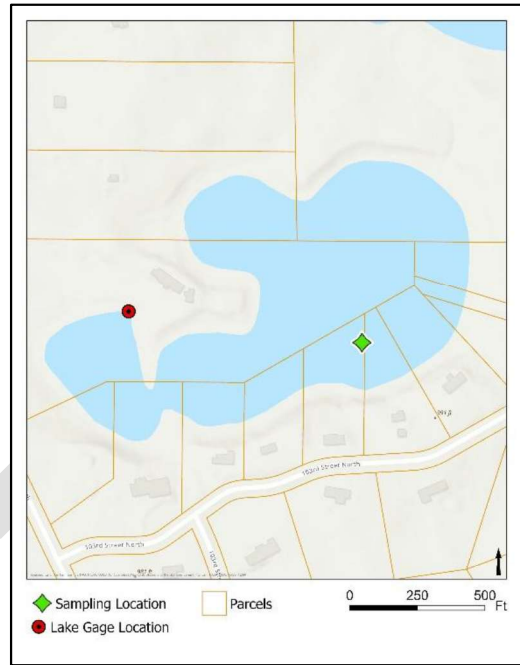
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Bass Lake (East) 2025 Lake Grade: B+

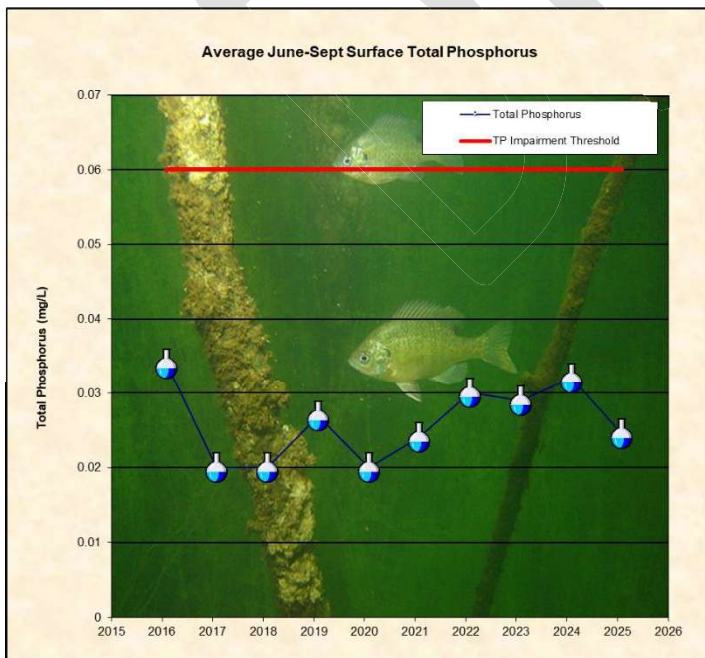
- DNR ID #: 820124
- Municipality: City of Grant
- Location: Section 10, T30N-R21W
- Lake Size: 29 Acres
- Maximum Depth (2025): 16 ft.
- Ordinary High Water Mark: 960.20 ft.
- 100-Year High Water Level: 963.80 ft.
- 99% Littoral

Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.

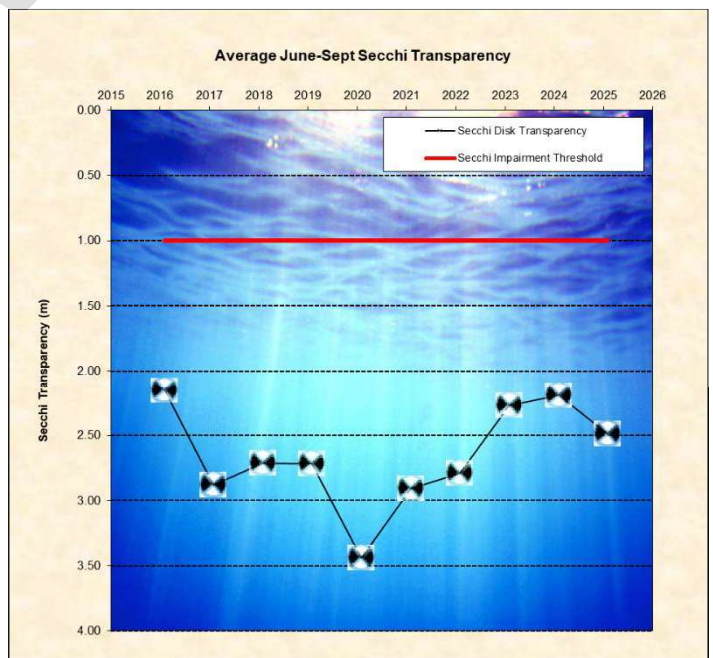


Summary Points

- Based on chlorophyll- α data, the lake is classified as mesotrophic according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ($p < 0.05$) there is a statistically significant **improving** trend for average total phosphorus and average chlorophyll- α , and the trend for the average Secchi transparency is skewed due to vegetation limiting the transparency.
- The major land use is rural/agricultural.
- The lake stratified in 2025 with a thermocline between 2 and 3 meters.
- This lake is categorized as shallow according to the Minnesota Pollution Control Agency's standards.
- Lab methodology was changed for 2023 total phosphorus sample analysis, as such no results were reported <0.022 mg/L (April-mid September).



2025 Water Monitoring Summary - BCWD



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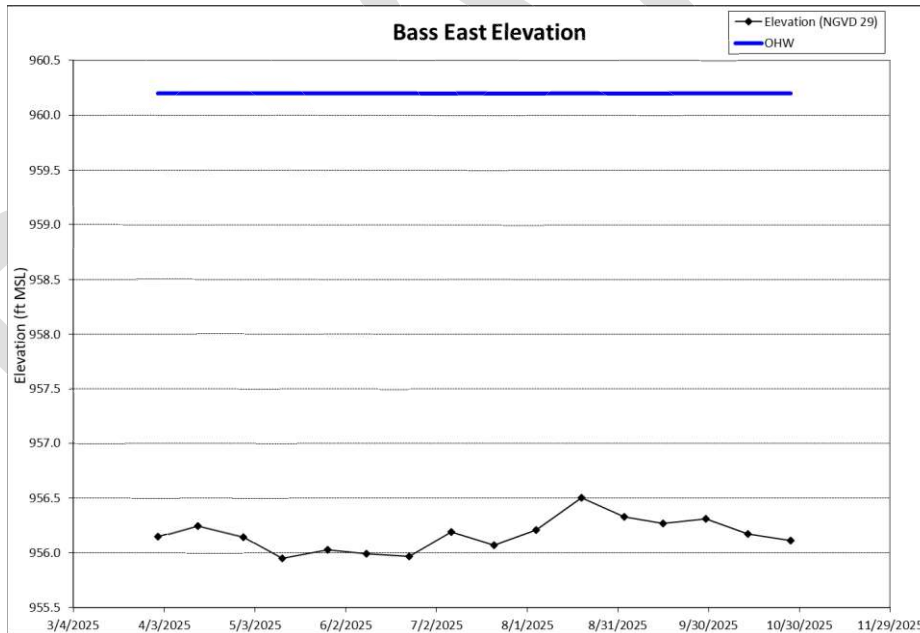
Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/14/2025 11:12	0.025	5.8	5.6	0.64	2.29	11.1	11.71
4/29/2025 10:03	0.026	4.6	3.7	0.58	3.05	13.8	8.87
5/12/2025 10:17	0.029	1.8	1.9	0.79	3.20	21.4	9.01
5/27/2025 9:45	0.031	3.4	3.2	0.65	3.66	18.6	11.09
6/9/2025 13:21	0.027	3.5	3.2	0.80	2.74	20.5	8.58
6/23/2025 13:48	0.050	6.2	5.3	0.81	2.44	27.9	7.95
7/7/2025 12:44	0.030	3.7	3.2	0.73	2.44	29.2	7.69
7/21/2025 13:15	0.025	4.4	3.5	0.66	1.83	24.9	7.16
8/4/2025 12:48	0.018	2.8	2.1	0.57	2.74	25.6	7.35
8/19/2025 8:56	0.016	4.5	4.0	0.62	2.44	24.2	6.45
9/2/2025 13:15	0.020	2.7	1.0	0.56	2.29	23.3	7.51
9/15/2025 10:37	0.019	4.5	4.0	0.52	2.59	22.7	9.52
9/29/2025 11:01	0.016	3.0	2.7	0.53	2.90	20.7	7.42
10/13/2025 9:59	0.013	2.8	1.9	0.57	3.66	15.3	6.30
2025 Average	0.025	3.8	3.2	0.65	2.73	21.4	8.33
2025 Summer Average	0.025	3.9	3.2	0.64	2.49	24.3	7.74

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
2025 Elevation (ft)	956.50	8/19/2025	955.95	5/12/2025	956.17

*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."

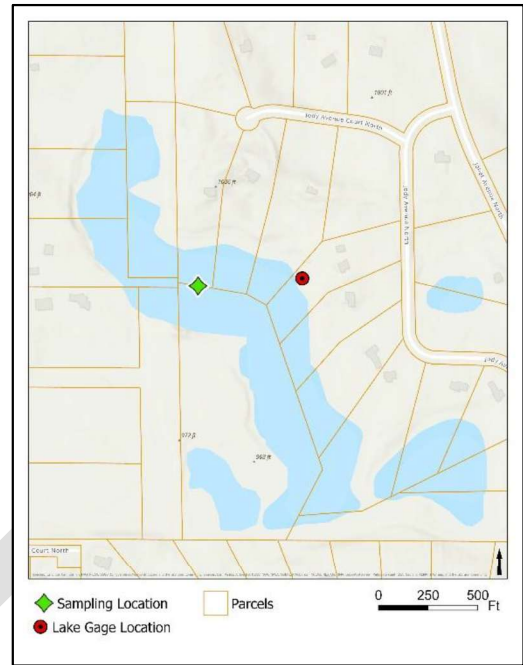


Lake Water Quality Summary										
	Lake Grades (May-Sept)									
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016
Total Phosphorus (mg/l)	B	B	B	B	A	A	B	A	A	C
Chlorophyll-a (ug/l)	A	A	A	A	A	A	A	A	A	A
Secchi depth (ft)	B	B	B	B	B	A	B	B	B	B
Overall	B+	B+	B+	B+	A-	A	B+	A-	A-	B

Bass Lake (West) 2025 Lake Grade: B+

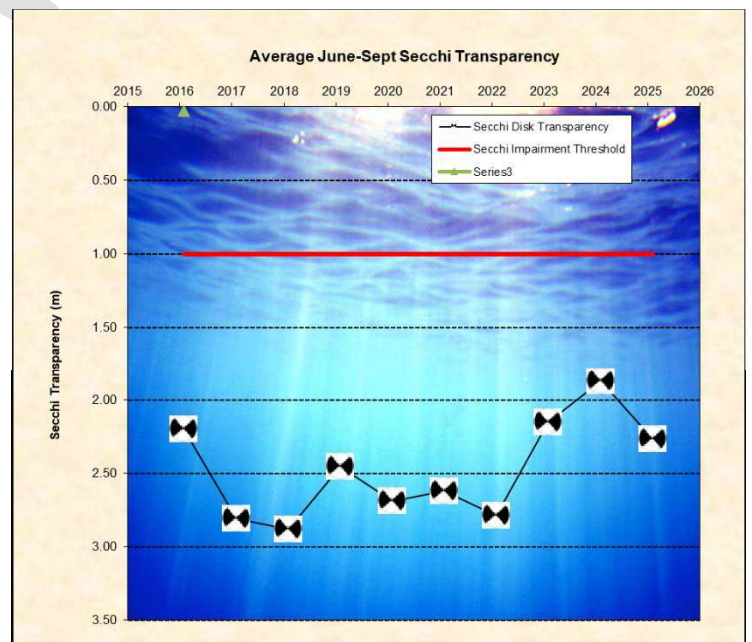
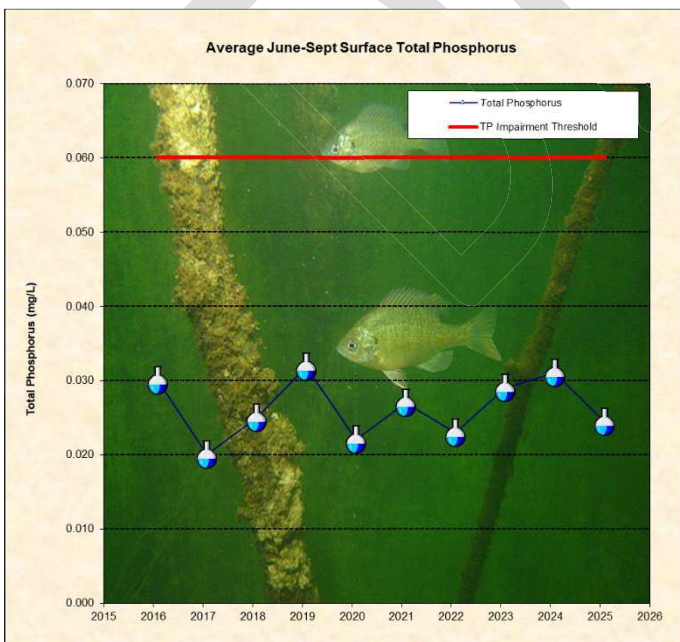
- DNR ID #: 820123
- Municipality: City of Grant
- Location: Section 10, T30N-R21W
- Lake Size: 72 Acres
- Maximum Depth (2025): 14 ft.
- Ordinary High Water Mark: 952.60 ft.
- 100-Year High Water Level: 957.00 ft.
- 100% Littoral

Note: Littoral area is the portion of the lake <15 ft and dominated by aquatic vegetation.



Summary Points

- Based on chlorophyll- α data, the lake is classified as eutrophic according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ($p < 0.05$) there is a statistically significant **improving** trend for average total phosphorus, no trend for average chlorophyll- α , and the trend for the average Secchi transparency is skewed due to vegetation limiting the transparency.
- The major land use is rural/agricultural.
- The lake stratified in 2025 with a thermocline of 3 meters.
- This lake is categorized as shallow according to the Minnesota Pollution Control Agency's standards.
- Lab methodology was changed for 2023 total phosphorus sample analysis, as such no results were reported < 0.022 mg/L (April-mid September).



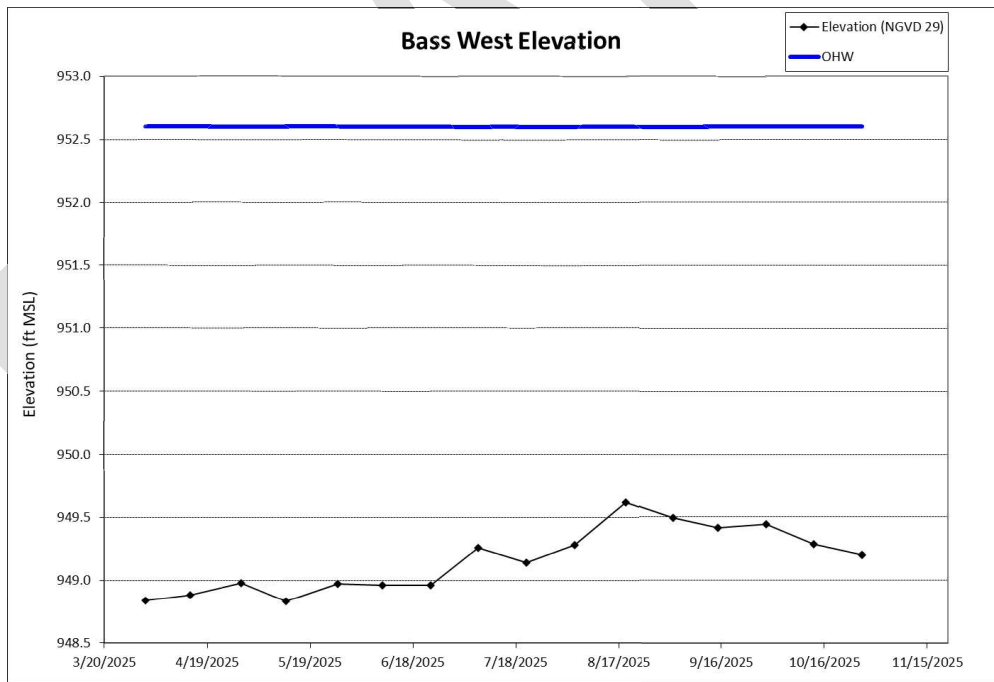
Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/14/2025 10:33	0.023	6.8	6.1	0.72	2.13	10.4	12.15
4/29/2025 9:31	0.021	5.1	5.1	0.68	2.90	13.5	9.14
5/12/2025 10:51	0.030	2.5	1.9	0.79	3.66	20.4	9.79
5/27/2025 9:12	0.027	2.5	1.6	0.78	3.96	18.4	11.30
6/9/2025 12:39	0.025	3.3	2.7	0.75	3.20	20.1	8.88
6/23/2025 14:17	0.020	2.9	2.1	0.80	3.35	27.7	7.30
7/7/2025 12:13	0.019	4.2	3.7	0.64	2.74	28.5	7.81
7/21/2025 13:43	0.032	15.0	14.0	0.92	1.52	24.5	7.60
8/4/2025 12:16	0.026	11.0	9.6	0.78	2.13	25.3	6.70
8/19/2025 9:21	0.024	16.0	16.0	0.78	1.83	24.2	6.77
9/2/2025 13:50	0.028	13.0	14.0	0.95	1.52	23.2	8.71
9/15/2025 10:11	0.022	11.0	10.0	0.76	2.29	22.7	9.08
9/29/2025 11:28	0.024	11.0	10.0	0.83	1.83	20.8	8.12
10/13/2025 9:33	0.017	6.4	5.6	0.69	3.20	15.2	8.01
2025 Average	0.024	7.9	7.3	0.78	2.59	21.1	8.67
2025 Summer Average	0.024	9.7	9.1	0.80	2.27	24.1	7.89

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
2025 Elevation (ft)	949.62	8/19/2025	948.83	5/12/2025	949.16

*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."

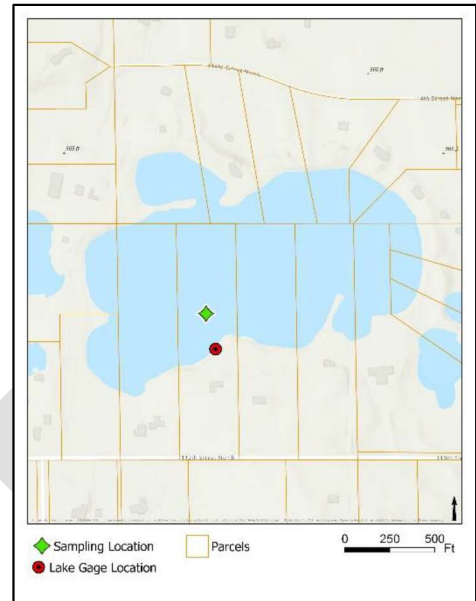


	Lake Water Quality Summary									
	Lake Grades (May-Sept)									
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016
Total Phosphorus (mg/l)	B	B	B	A	B	A	B	B	A	B
Chlorophyll-a (ug/l)	A	B	A	A	A	A	A	A	A	A
Secchi depth (ft)	B	C	B	B	B	A	B	B	B	B
Overall	B+	B-	B+	A-	B+	A	B+	B+	A-	B+

Benz Lake

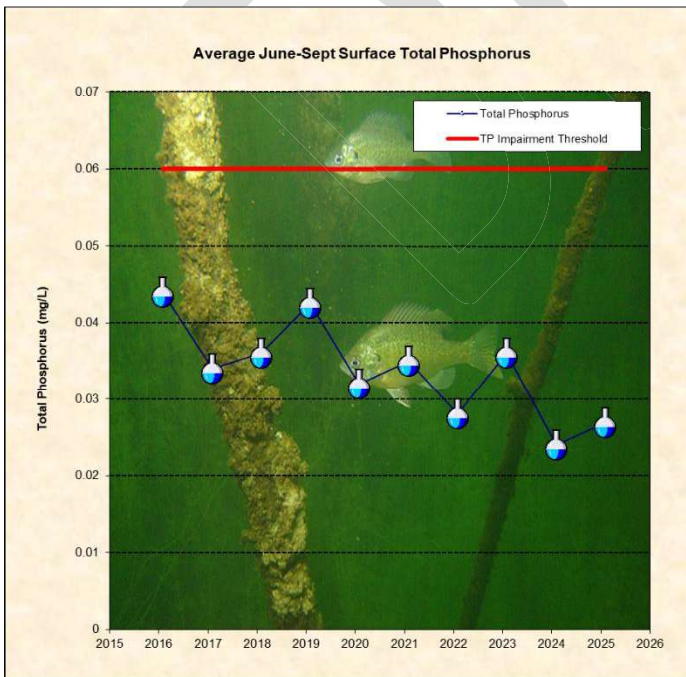
2025 Lake Grade: B

- DNR ID #: 820120
 - Municipality: City of Grant
 - Location: SE^{1/4} Section 2, T30N-R21W
 - Lake Size: 40 Acres
 - Maximum Depth (2025): 7 ft.
 - Ordinary High Water Mark: 958.90 ft.
 - 100-Year High Water Level: 956.51 ft.
 - 100% Littoral
- Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.

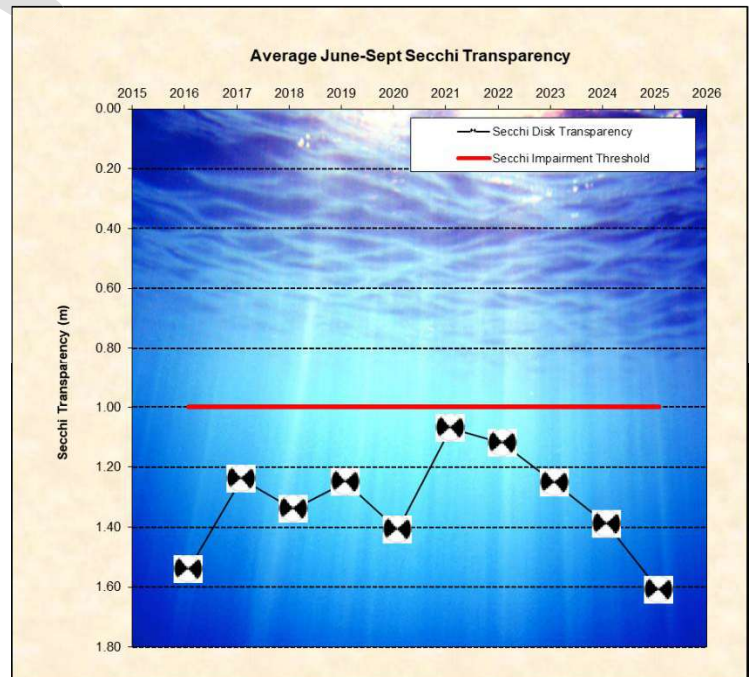


Summary Points

- Based on chlorophyll- α data, the lake is classified as eutrophic according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ($p < 0.05$) there is a statistically significant **improving** trend for average total phosphorus and average chlorophyll- α , and the trend for the average Secchi transparency is skewed due to vegetation limiting the transparency.
- The major land use is rural/agricultural.
- The lake did not stratify in 2025.
- This lake is categorized as shallow according to the Minnesota Pollution Control Agency's standards.
- Benz Lake is listed as impaired for nutrients on the Minnesota Pollution Control Agency's Impaired Waters List.



2025 Water Monitoring Summary - BCWD



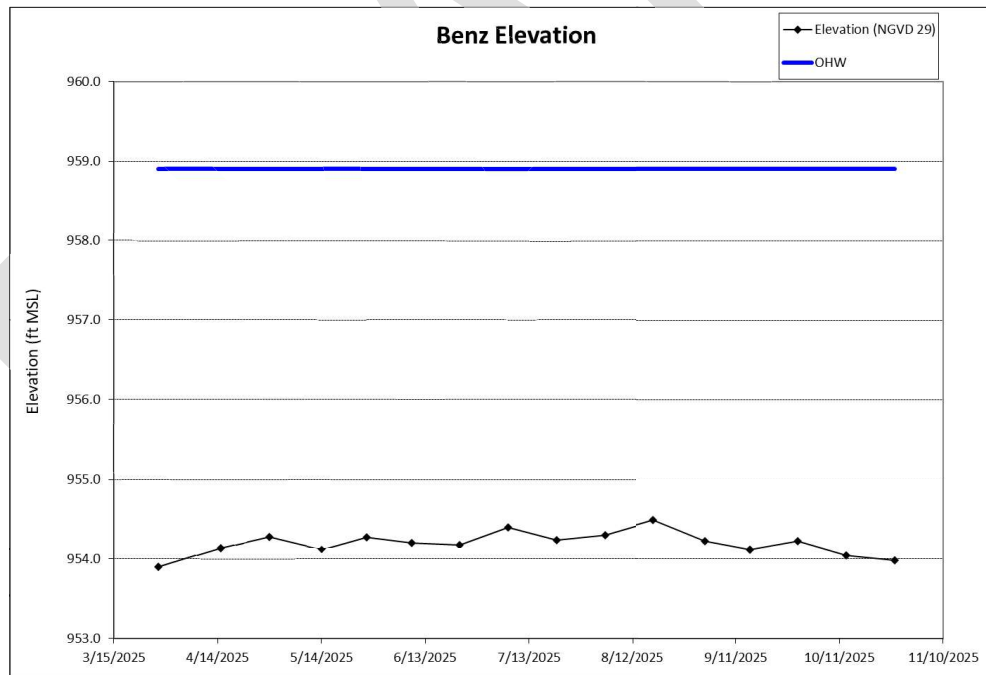
A7

Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/15/2025 13:38	0.028	4.6	4.3	0.53	1.83	10.5	12.08
4/29/2025 10:40	0.030	2.9	2.1	0.65	1.68	14.0	9.02
5/14/2025 10:15	0.031	4.7	5.9	0.66	1.52	23.3	10.19
5/27/2025 10:18	0.027	3.4	2.7	0.56	1.52	18.8	12.90
6/9/2025 10:50	0.028	5.5	4.5	0.56	1.68	19.6	9.10
6/23/2025 13:11	0.032	3.5	2.9	0.64	1.22	27.8	9.82
7/7/2025 10:49	0.026	4.3	2.9	0.61	1.68	27.8	9.86
7/21/2025 12:43	0.029	6.0	5.3	0.64	1.52	24.1	8.90
8/4/2025 10:53	0.028	5.8	4.8	0.58	1.37	24.8	7.84
8/18/2025 12:54	0.024	4.5	4.3	0.58	1.83	23.6	5.93
9/2/2025 12:40	0.025	25.0	25.0	0.54	1.83	23.1	9.59
9/15/2025 11:08	0.018	2.4	2.4	0.55	1.68	23.1	10.08
9/29/2025 10:33	0.032	1.3	1.3	0.54	1.68	20.3	7.90
10/13/2025 10:33	0.033	12.0	12.0	0.65	1.37	14.8	6.68
2025 Average	0.028	6.1	5.7	0.59	1.60	21.1	9.28
2025 Summer Average	0.027	6.5	5.9	0.58	1.61	23.8	8.78

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
2025 Elevation (ft)	954.48	8/18/2025	953.90	3/28/2025	954.19

*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."

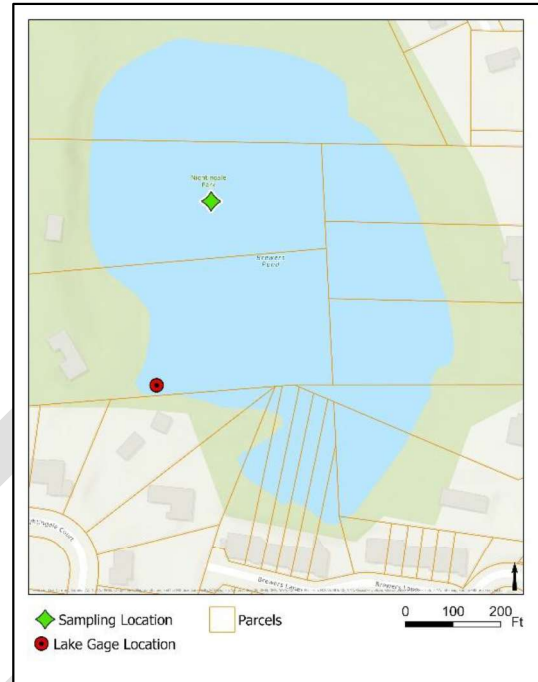


Lake Water Quality Summary										
	Lake Grades (May-Sept)									
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016
Total Phosphorus (mg/l)	B	B	C	B	C	B	C	C	C	C
Chlorophyll-a (ug/l)	A	A	A	A	A	A	C	A	A	A
Secchi depth (ft)	C	C	C	D	D	C	C	C	D	C
Overall	B	B	B-	B-	C+	B	C	B-	C+	B-

Brewer's Pond

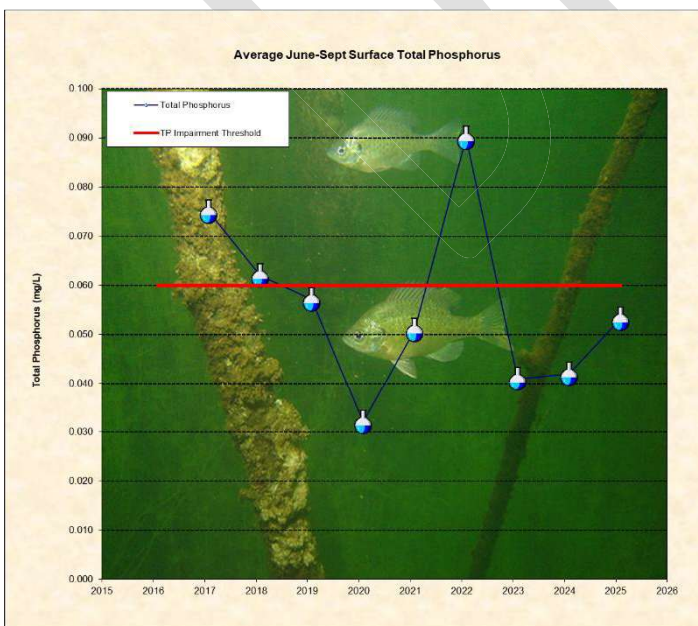
2025 Lake Grade: C-

- DNR ID #: 820022
 - Municipality: City of Stillwater
 - Location: SE^{1/4} Section 31, T30N-R20W
 - Lake Size: 9 Acres
 - Maximum Depth (2025): 13 ft.
 - Ordinary High Water Mark: 891.90 ft.
 - 100-Year High Water Level: 894.10 ft.
 - 100% Littoral
- Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.

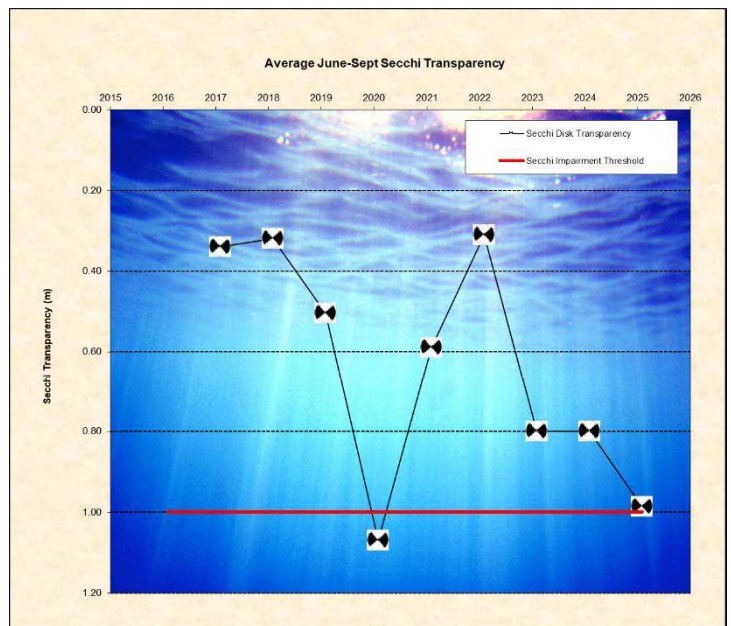


Summary Points

- Based on chlorophyll- α data, the lake is classified as eutrophic according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ($p < 0.05$) there is currently no trend for the average total phosphorus, average chlorophyll- α , and average Secchi transparency.
- The major land use is urban/residential.
- The lake stratified in 2025 with a thermocline around 3 meters.
- This lake is categorized as shallow according to the Minnesota Pollution Control Agency's standards.



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Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/14/2025 14:14	0.052	14.0	13.0	1.45	1.68	10.6	12.95
4/29/2025 19:30	0.042	10.0	8.2	1.37	1.90	15.7	NA
5/14/2025 13:08	0.047	11.0	11.0	1.47	1.83	23.8	11.09
5/26/2025 8:00	0.052	7.8	6.9	1.29	1.80	18.2	NA
6/9/2025 14:45	0.066	11.0	9.6	1.51	1.98	21.1	9.33
6/23/2025 20:00	0.038	6.6	5.9	1.24	2.00	28.6	NA
7/8/2025 13:10	0.045	19.0	18.0	1.38	1.52	29.0	11.34
7/21/2025 13:45	0.048	64.0	61.0	1.87	0.70	24.2	NA
8/4/2025 14:32	0.064	38.0	35.0	1.87	0.61	25.6	9.79
8/20/2025 7:00	0.043	41.0	41.0	1.43	0.70	25.1	NA
9/2/2025 14:33	0.063	5.0	3.6	2.17	0.46	23.3	10.88
9/15/2025 19:00	0.048	59.0	57.0	1.96	0.60	24.4	NA
9/29/2025 14:07	0.064	79.0	76.0	2.19	0.30	23.0	10.52
10/14/2025 11:30	0.056	75.0	76.0	2.44	0.50	15.7	NA
2025 Average	0.052	31.5	30.2	1.69	1.18	22.0	10.84
2025 Summer Average	0.053	35.8	34.1	1.74	0.99	24.9	10.37

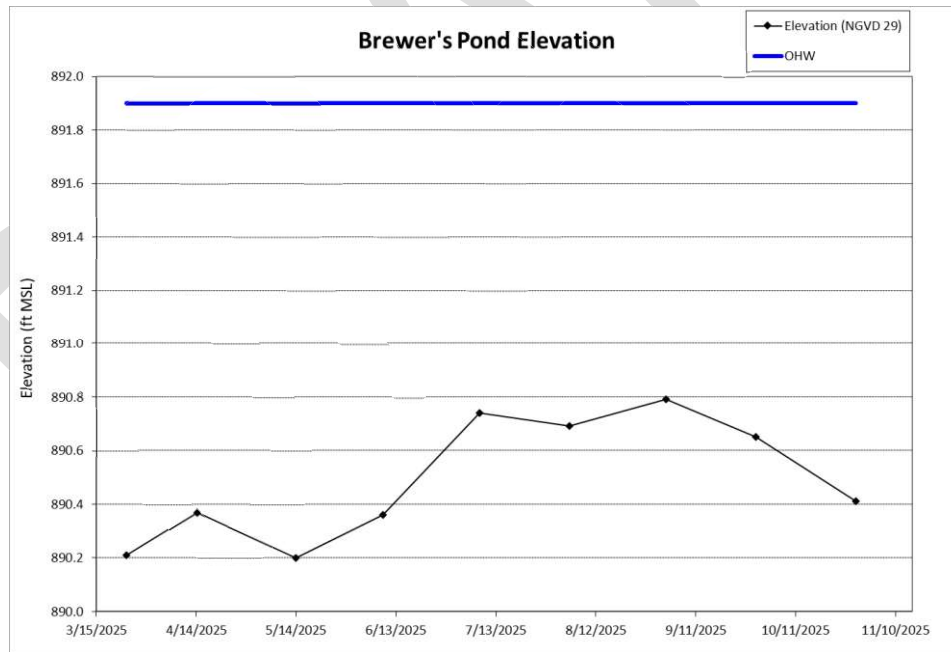
Water quality thresholds are 0.04 mg/L TP, 14 µg/L CL-a, 1.4 m Secchi depth*

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

Samples collected by a volunteer

	High	High Date	Low	Low Date	Average
2025 Elevation (ft)	890.79	9/2/2025	890.20	5/14/2025	890.49

*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."

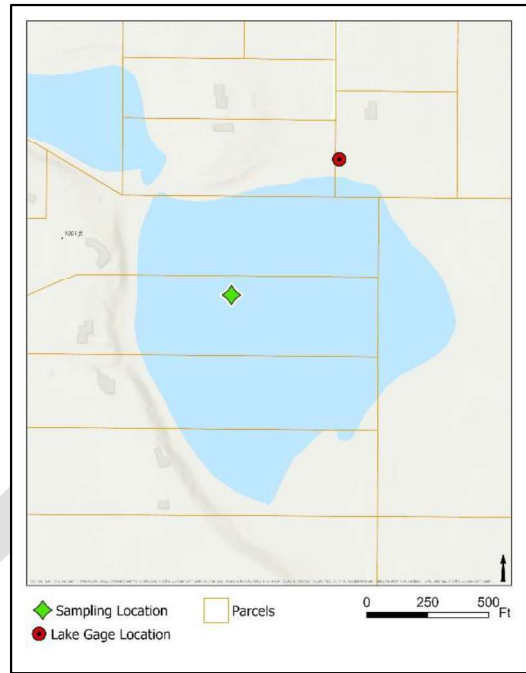


Lake Water Quality Summary										
	Lake Grades (May-Sept)									
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016
Total Phosphorus (mg/l)	C	C	C	D	C	C	C	C	D	NA
Chlorophyll-a (ug/l)	C	C	C	F	C	C	C	D	D	NA
Secchi depth (ft)	D	D	D	F	F	D	F	F	F	NA
Overall	C-	C-	C-	F+	D+	C-	D+	D	D-	NA

Goggins Lake

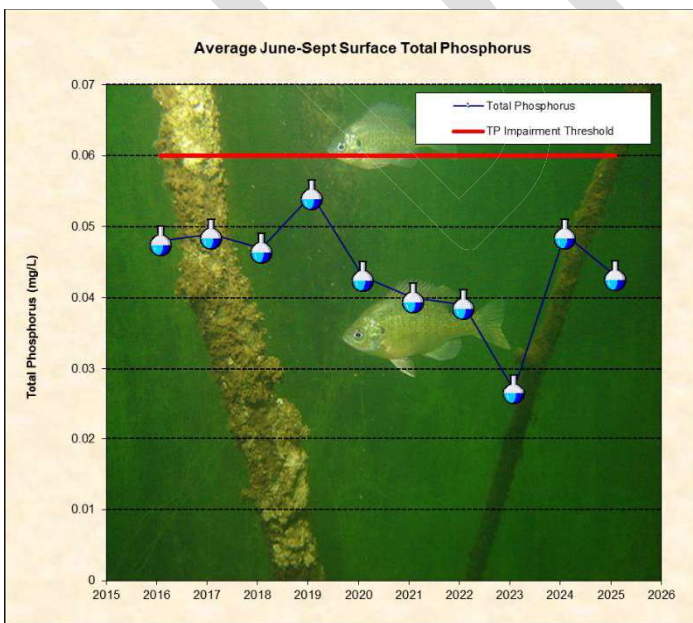
2025 Lake Grade: C+

- DNR ID #: 820077
 - Municipality: May Township
 - Location: NW^{1/4} Section 31, T31N-R20W
 - Lake Size: 85 Acres
 - Maximum Depth (2025): 13 ft.
 - Ordinary High Water Mark: 966.50 ft.
 - 100-Year High Water Level: 974.50 ft.
 - 99% Littoral
- Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.

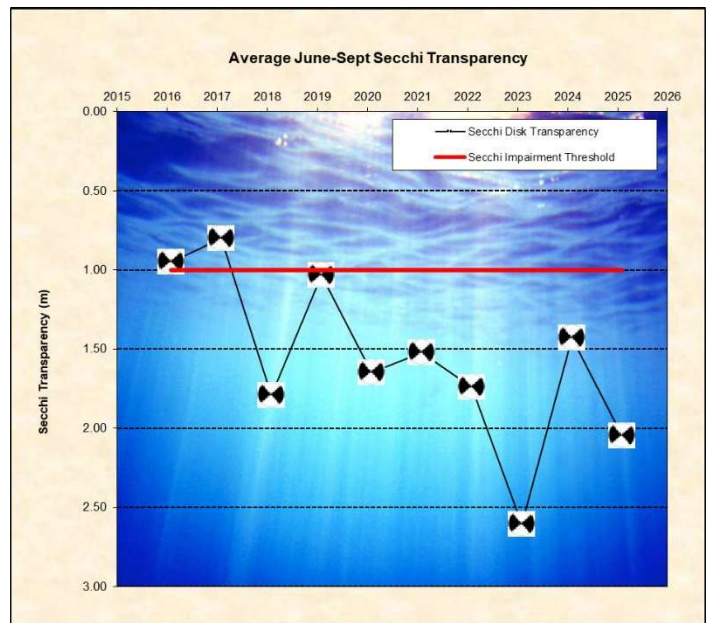


Summary Points

- Based on chlorophyll- α data, the lake is classified as eutrophic according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ($p < 0.05$) there is a statistically significant **improving** trend for the average total phosphorus, average chlorophyll- α , and average Secchi transparency.
- The major land use is rural/agricultural.
- The lake stratified in 2025 with a thermocline around 3 meters.
- This lake is categorized as shallow according to the Minnesota Pollution Control Agency's standards.
- Goggins Lake is listed as impaired for nutrients on the Minnesota Pollution Control Agency's Impaired Waters List.
- Lab methodology was changed for 2023 total phosphorus sample analysis, as such no results were reported < 0.022 mg/L (April-mid September).



2025 Water Monitoring Summary - BCWD



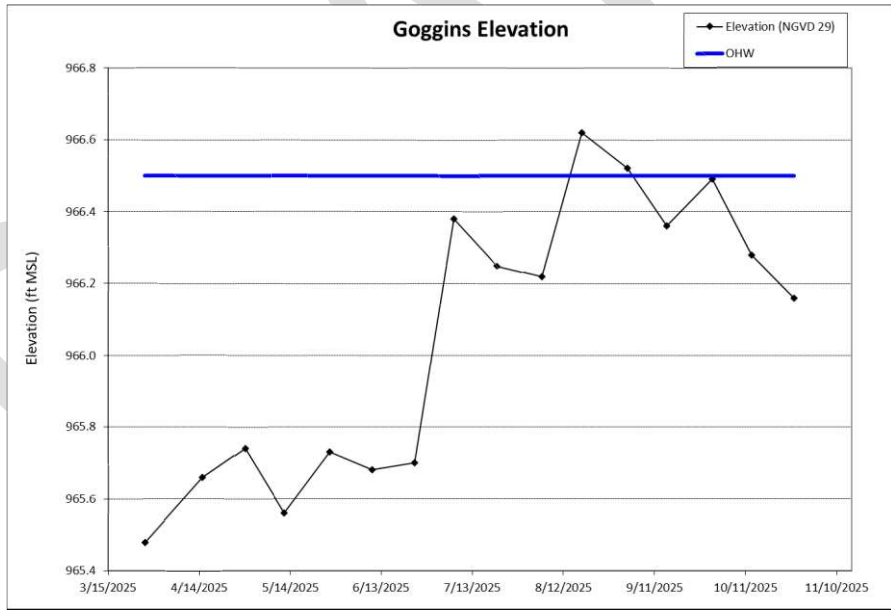
A11

Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/15/2025 13:05	0.039	7.0	6.1	0.88	2.44	9.5	11.78
4/29/2025 14:33	0.040	7.1	5.9	1.12	2.13	13.9	9.83
5/12/2025 15:20	0.047	4.4	4.5	1.11	2.90	21.1	10.06
5/27/2025 14:05	0.053	11.0	11.0	1.13	2.44	18.8	11.71
6/10/2025 10:36	0.047	13.0	12.0	1.05	2.44	19.3	9.60
6/24/2025 11:44	0.046	15.0	14.0	1.35	2.44	26.0	7.86
7/7/2025 14:50	0.044	20.0	18.0	1.15	1.98	29.7	9.98
7/21/2025 14:53	0.034	12.0	11.0	1.00	1.98	24.5	8.24
8/5/2025 11:44	0.035	11.0	9.3	0.89	2.29	25.0	7.45
8/18/2025 14:38	0.042	13.0	13.0	1.02	2.90	24.0	6.27
9/2/2025 16:00	0.039	28.0	38.0	1.31	1.22	23.7	10.07
9/15/2025 14:35	0.054	34.0	36.0	1.43	1.22	22.9	11.33
9/30/2025 11:49	0.047	12.0	11.0	1.06	1.98	21.2	8.91
10/13/2025 14:19	0.044	12.0	9.9	1.02	2.59	15.8	8.49
2025 Average	0.044	14.25	14.26	1.11	2.21	21.1	9.40
2025 Summer Average	0.043	17.56	18.03	1.14	2.05	24.0	8.86

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
2025 Elevation (ft)	966.62	8/18/2025	965.48	3/27/2025	966.05

*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."

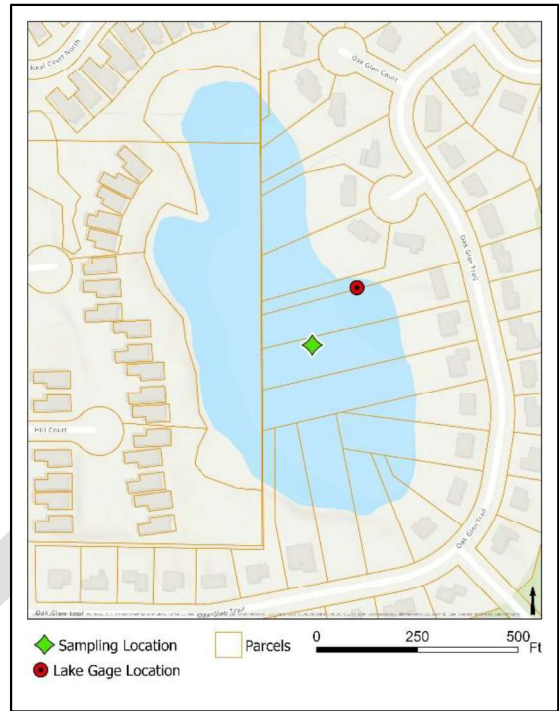


Lake Water Quality Summary										
	Lake Grades (May-Sept)									
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016
Total Phosphorus (mg/l)	C	C	C	C	C	C	C	C	C	C
Chlorophyll-a (ug/l)	B	C	A	B	B	B	C	B	C	C
Secchi depth (ft)	C	C	B	C	C	C	C	C	D	D
Overall	C+	C	B	C+	C+	C+	C	C+	C-	C-

Heifort's Pond

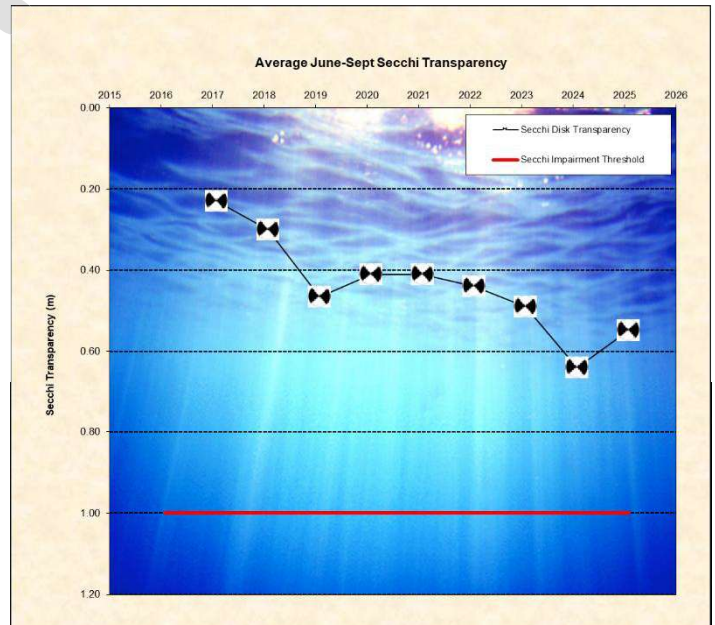
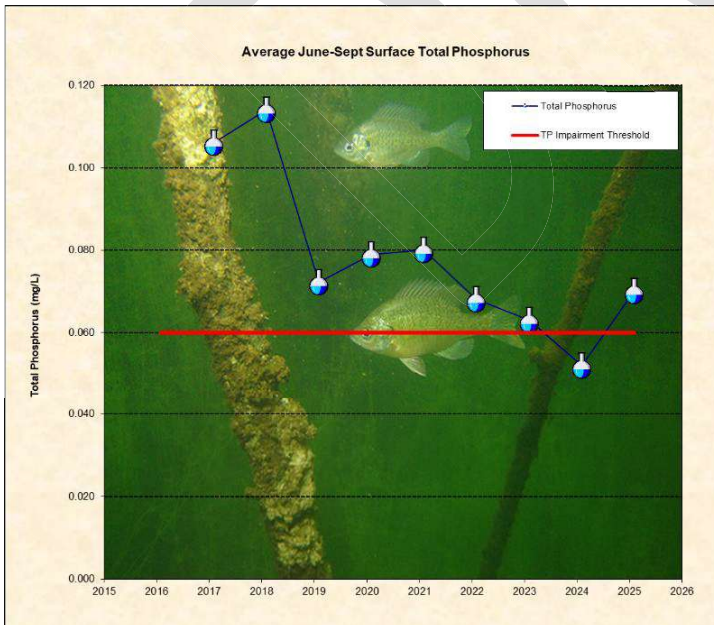
2025 Lake Grade: D-

- DNR ID #: 820485
 - Municipality: City of Stillwater
 - Location: NW^{1/4} Section 20, T30N-R20W
 - Lake Size: 6 Acres
 - Maximum Depth (2025): 7.5 ft.
 - Ordinary High Water Mark: 883.9 ft.
 - 100-Year High Water Level: 887.40 ft.
 - 100% Littoral
- Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.



Summary Points

- Based on chlorophyll- α data, the lake is classified as eutrophic according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ($p < 0.05$) there is a statistically significant **improving** trend for average total phosphorus and average Secchi transparency, and no trend for the average chlorophyll- α .
- The major land use is urban/residential.
- The lake did not stratify in 2025.
- This lake is categorized as shallow according to the Minnesota Pollution Control Agency's standards.

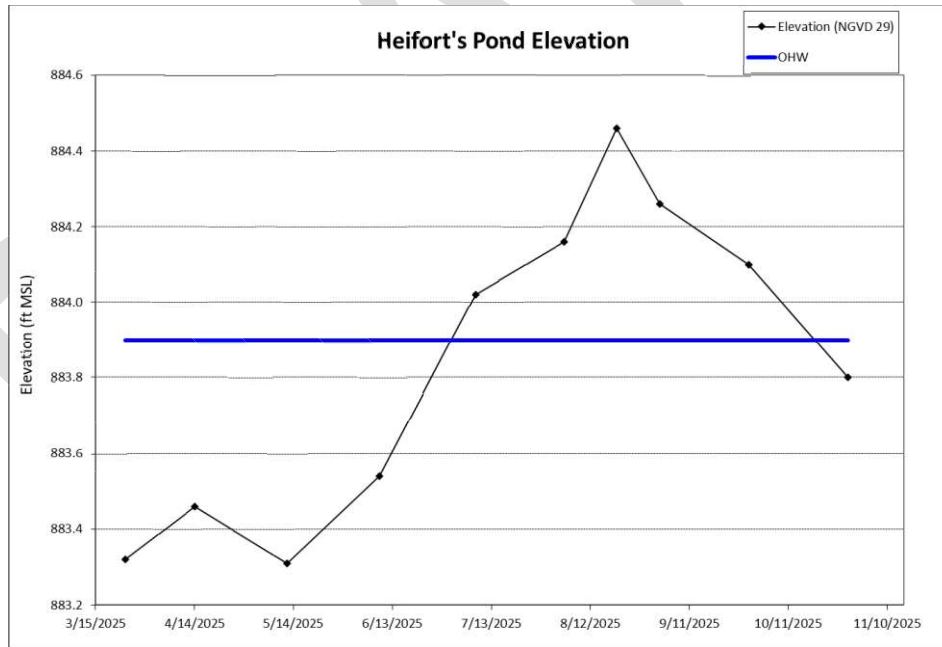


Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/14/25 13:30	0.053	25.0	23.0	1.40	0.91	10.9	11.88
4/30/25 14:45	0.060	24.0	21.0	1.23	0.90	16.8	NA
5/12/25 11:31	0.066	25.0	25.0	1.48	0.61	21.5	10.12
5/29/25 11:14	0.073	24.0	22.0	1.44	0.80	18.0	NA
6/9/25 14:03	0.066	23.0	22.0	1.49	0.91	20.6	10.18
6/24/25 11:36	0.058	38.0	36.0	1.70	0.80	27.2	NA
7/8/25 12:36	0.072	82.0	81.0	2.14	0.61	28.7	11.44
7/24/25 11:34	0.057	65.0	63.0	2.01	0.60	26.5	NA
8/4/25 13:58	0.103	110.0	100.0	2.58	0.30	24.9	12.50
8/20/25 11:31	0.068	110.0	100.0	2.43	0.30	26.9	NA
9/2/25 11:01	0.079	120.0	120.0	2.68	0.46	21.5	10.84
9/17/25 12:36	0.063	59.0	59.0	2.06	0.50	25.4	NA
9/29/25 13:29	0.055	41.0	41.0	2.17	0.46	20.8	9.16
10/13/25 12:50	0.054	36.0	35.0	1.66	1.10	15.9	NA
2025 Average	0.066	55.9	53.4	1.89	0.66	21.8	10.87
2025 Summer Average	0.069	72.0	69.1	2.14	0.55	24.7	10.82

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*
 Samples collected by a volunteer

	High	High Date	Low	Low Date	Average
2025 Elevation (ft)	884.46	8/20/2025	883.31	5/12/2025	883.84

*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."



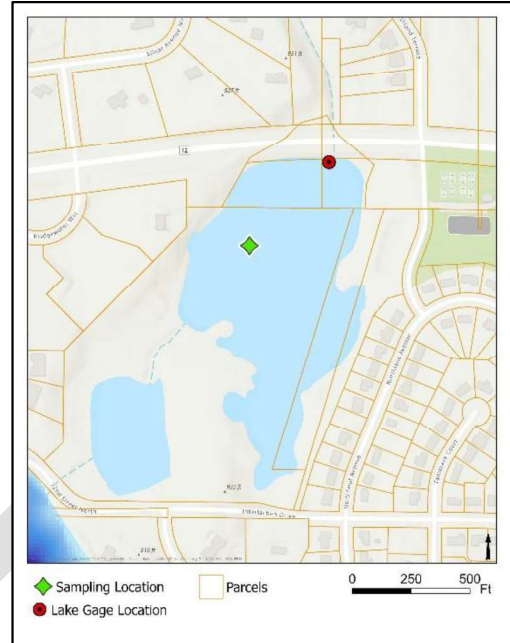
Lake Water Quality Summary										
	Lake Grades (May-Sept)									
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016
Total Phosphorus (mg/l)	D	C	C	D	D	D	D	D	D	NA
Chlorophyll-a (ug/l)	D	C	D	D	F	D	D	F	F	NA
Secchi depth (ft)	F	F	F	F	F	F	F	F	F	NA
Overall	D-	D+	D	D-	F+	D-	D-	F+	F+	NA

Jackson WMA (Sinnits) Pond

2025 Lake Grade: B

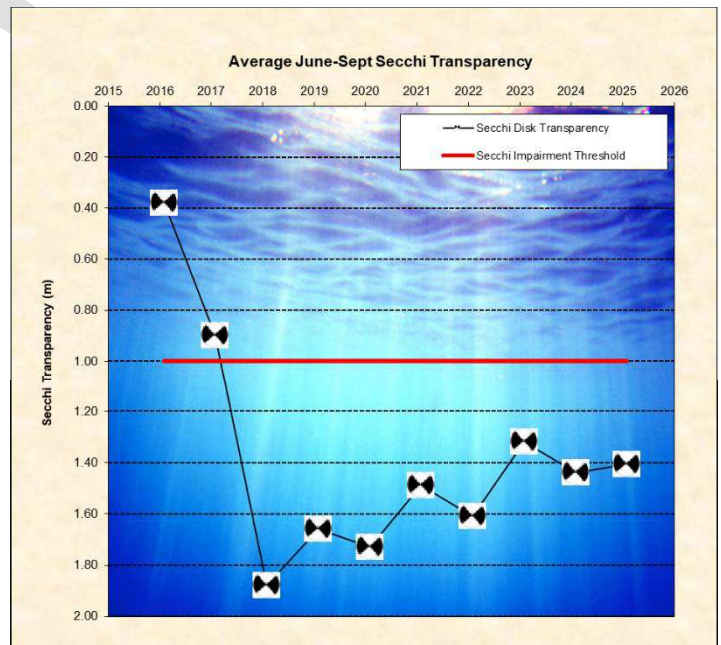
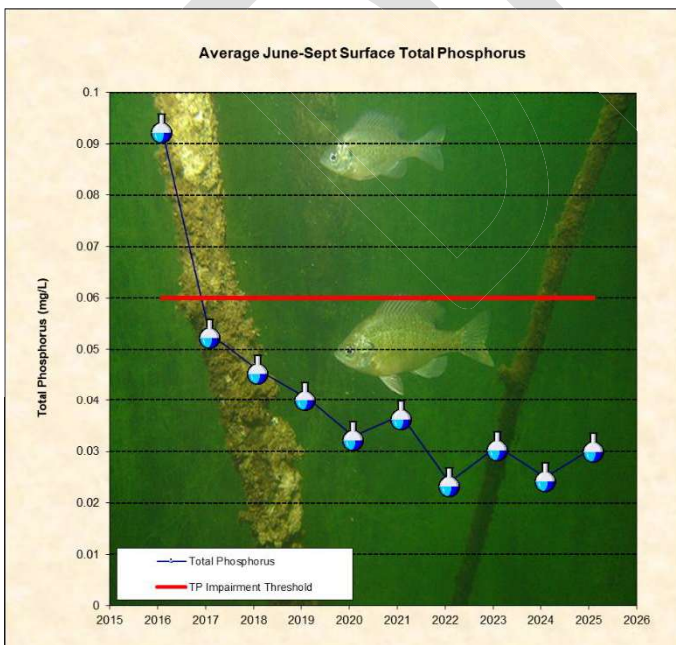
- DNR ID #: 820305
- Municipality: City of Stillwater
- Location: SE^{1/4} Section 30, T30N-R20W
- Lake Size: 14.3 Acres
- Maximum Depth (2025): 8.5 ft.
- Ordinary High Water Mark: NA
- 100-Year High Water Level: 894.94 ft.
- 100% Littoral

Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.



Summary Points

- Based on chlorophyll- α data, the lake is classified as eutrophic according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ($p < 0.05$) there is a statistically significant **improving** trend for average total phosphorus and for average chlorophyll- α , and the trend for the average Secchi transparency is skewed due to vegetation limiting the transparency.
- The major land use is urban/residential.
- The lake did not stratify in 2025.
- This lake is categorized as shallow according to the Minnesota Pollution Control Agency's standards.
- Lab methodology was changed for 2023 total phosphorus sample analysis, as such no results were reported < 0.022 mg/L (April-mid September).
- The lake is likely infested with Eurasian watermilfoil, as upstream Long Lake is infested.

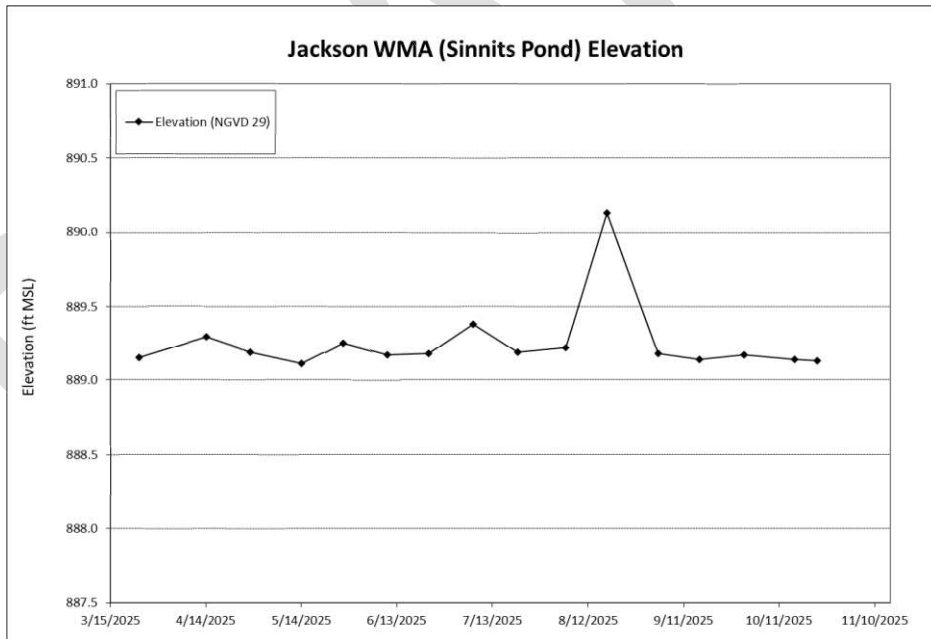


Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/14/2025 15:22	0.035	8.4	7.2	0.61	1.83	11.5	12.10
4/28/2025 14:46	0.032	6.1	5.1	0.54	1.83	15.0	9.70
5/14/2025 14:17	0.031	4.3	3.2	0.67	1.52	25.4	8.89
5/27/2025 14:43	0.026	5.8	5.6	0.60	1.98	18.7	10.36
6/10/2025 13:02	0.034	7.3	5.9	0.67	1.98	21.2	8.06
6/23/2025 15:34	0.030	4.0	3.2	0.63	1.83	28.5	9.19
7/7/2025 15:31	0.033	2.3	2.1	0.55	1.83	29.5	9.81
7/21/2025 15:41	0.042	1.6	1.3	0.54	1.07	25.3	11.82
8/5/2025 13:04	0.022	4.9	4.3	0.59	0.76	25.6	11.19
8/18/2025 15:14	0.028	3.4	3.2	0.58	1.52	24.5	6.40
9/3/2025 7:55	0.028	3.5	3.2	0.60	1.07	20.9	5.69
9/16/2025 11:28	0.032	5.3	4.8	0.57	1.22	23.5	9.84
9/30/2025 13:06	0.027	2.9	2.1	0.56	1.37	21.1	9.15
10/16/2025 11:16	0.021	5.2	3.7	0.51	1.22	13.5	7.14
2025 Average	0.030	4.6	3.9	0.59	1.50	21.7	9.24
2025 Summer Average	0.031	3.9	3.3	0.59	1.41	24.5	9.02

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
2025 Elevation (ft)	890.13	8/18/2025	889.11	5/14/2025	889.25

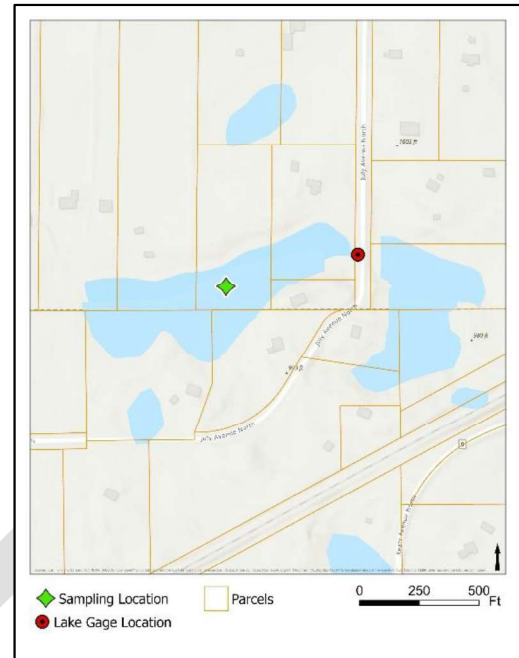
*Data requirements and determinations of use assessment according to the MPCA's Guidance Manual for Assessing the Quality of Minnesota Surface Waters: "Samples must be collected over a minimum of 2 years and data used for assessments must be collected from June to September. Typically, a minimum of 8 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										
	Lake Grades (May-Sept)									
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016
Total Phosphorus (mg/l)	B	B	B	B	C	C	C	C	C	D
Chlorophyll-a (ug/l)	A	A	A	A	A	A	C	A	B	F
Secchi depth (ft)	C	C	C	C	C	C	C	C	D	F
Overall	B	B	B	B	B-	B-	C	B-	C	F+

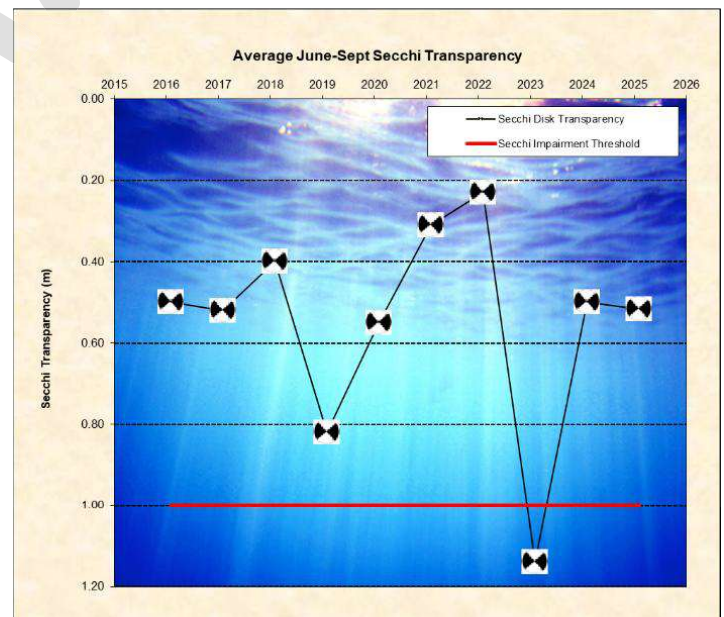
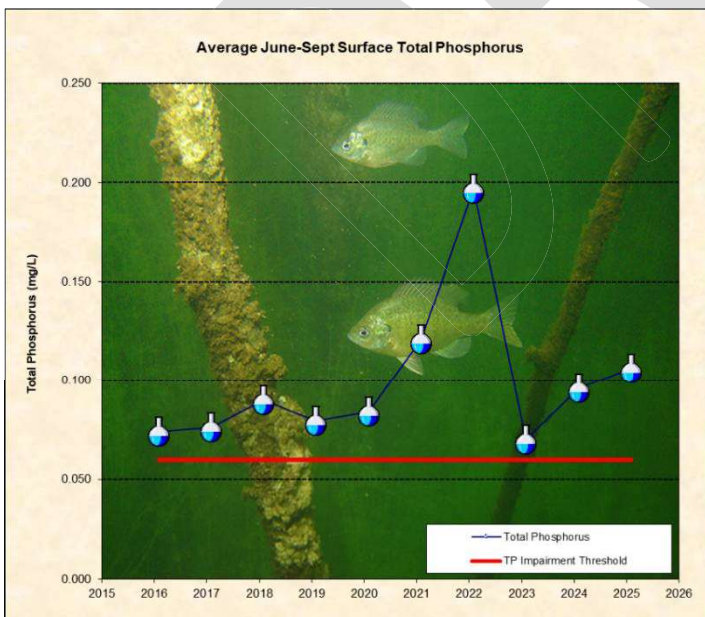
July Ave Wetland 2025 Lake Grade: F+

- DNR ID #: 820318
 - Municipality: City of Grant
 - Location: Section 3, T30N-R21W
 - Lake Size: 12 Acres
 - Maximum Depth (2025): 8.5 ft.
 - Ordinary High Water Mark: NA
 - 100-Year High Water Level: 980.66 ft.
 - 100% Littoral
- Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.



Summary Points

- Based on chlorophyll- α data, the lake is classified as hypereutrophic according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ($p < 0.05$) there is a statistically significant **declining** trend for the average Secchi transparency, and no trend for average total phosphorus and average chlorophyll- α .
- The major land use is rural/agricultural.
- The lake did not stratify in 2025.
- This lake is categorized as shallow according to the Minnesota Pollution Control Agency's standards.



Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/14/2025 12:00	0.077	27.0	24.0	1.33	0.91	11.2	10.50
5/12/2025 12:51	0.103	48.0	40.0	1.65	0.76	22.3	8.96
6/9/2025 11:24	0.108	44.0	36.0	1.72	0.61	19.3	7.63
7/7/2025 13:17	0.113	96.0	90.0	2.04	0.30	30.0	13.83
8/4/2025 13:21	0.128	180.0	170.0	3.53	0.30	24.3	10.91
9/2/2025 11:42	0.113	110.0	110.0	2.94	0.61	22.3	8.11
9/29/2025 11:58	0.069	33.0	30.0	2.07	0.76	20.8	7.78
2025 Average	0.102	76.9	71.4	2.18	0.61	21.5	9.67
2025 Summer Average	0.106	92.6	87.2	2.46	0.52	23.3	9.65

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
2025 Elevation (ft)	974.17	9/2/2025	972.20	3/27/2025	973.28

*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."

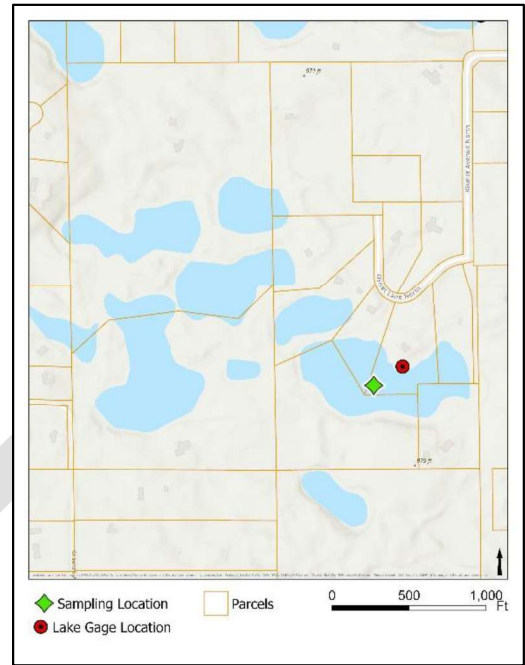


Lake Water Quality Summary										
	Lake Grades (May-Sept)									
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016
Total Phosphorus (mg/l)	D	D	C	F	D	D	D	D	C	D
Chlorophyll-a (ug/l)	F	D	C	F	F	D	D	D	D	D
Secchi depth (ft)	F	D	C	F	F	F	D	F	F	F
Overall	F+	D	C	F	F+	D-	D	D-	D	D-

Kismet Basin 2025 Lake Grade: B

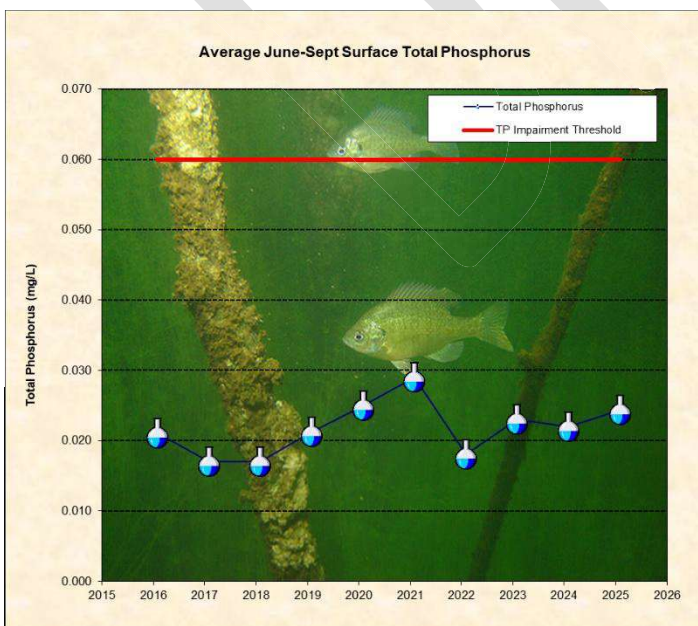
- DNR ID #: 820334
- Municipality: City of Grant
- Location: S^{1/2} Section 11, T30N-R21W
- Lake Size: 70 Acres
- Maximum Depth (2025): 11 ft.
- Ordinary High Water Mark: 943.50 ft.
- 100-Year High Water Level: 946.81 ft.
- 100% Littoral

Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.

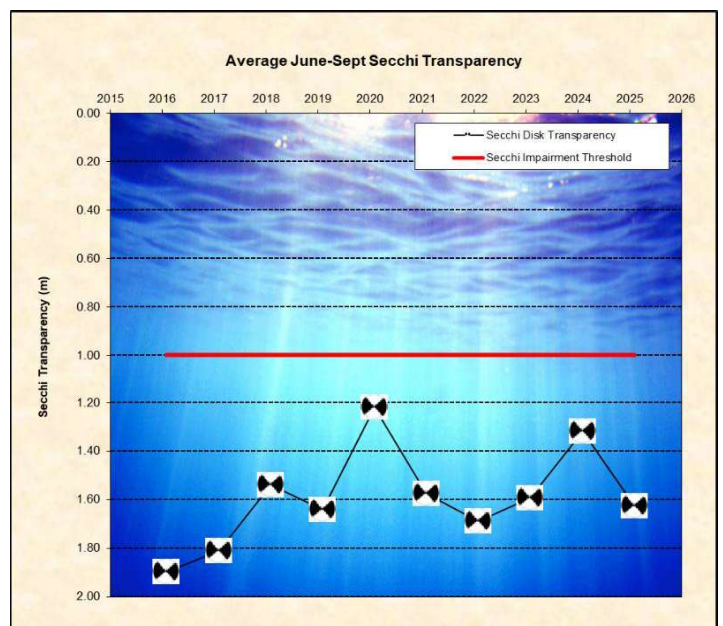


Summary Points

- Based on chlorophyll- α data, the lake is classified as mesotrophic according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ($p < 0.05$) there is a statistically significant **improving** trend for the average total phosphorus and the average chlorophyll- α , and the trend for the average Secchi transparency is skewed due to vegetation limiting the transparency.
- The major land use is rural/agricultural.
- The lake did not stratify in 2025.
- This lake is categorized as shallow according to the Minnesota Pollution Control Agency's standards.
- Lab methodology was changed for 2023 total phosphorus sample analysis, as such no results were reported <0.022 mg/L (April-mid September).



2025 Water Monitoring Summary - BCWD



A19

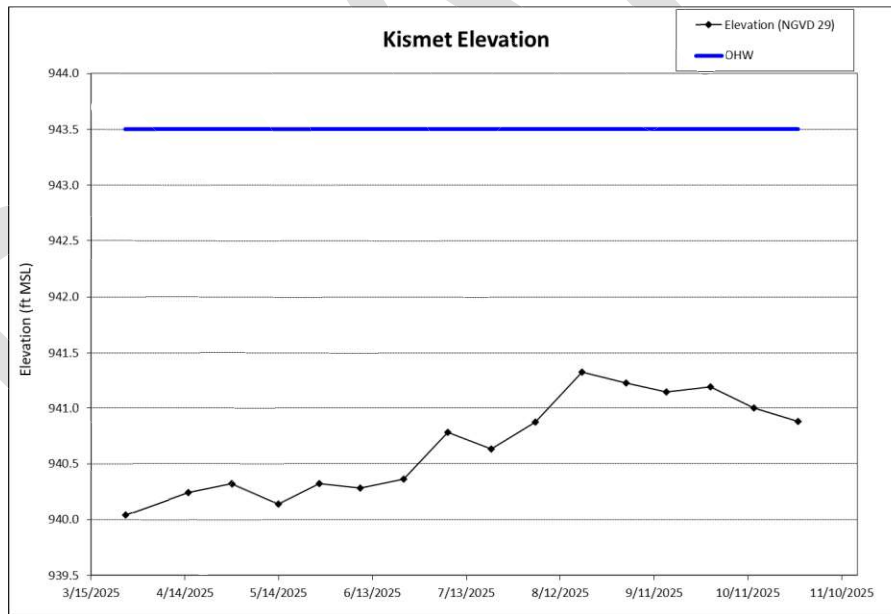
Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/15/2025 14:37	0.023	5.9	5.1	0.58	1.68	10.5	10.29
4/29/2025 11:13	0.026	7.5	5.6	0.60	1.83	14.1	6.38
5/14/2025 11:11	0.022	3.2	2.7	0.65	1.83	24.2	6.91
5/27/2025 10:53	0.026	6.1	5.3	0.66	1.98	18.6	10.96
6/9/2025 9:39	0.030	14.0	12.0	0.71	1.52	20.1	7.23
6/23/2025 14:53	0.029	8.2	5.1	0.78	1.37	28.3	8.24
7/7/2025 9:47	0.019	4.6	3.7	0.59	1.83	26.5	8.08
7/21/2025 12:11	0.030	12.0	10.0	0.65	1.22	23.3	5.43
8/4/2025 9:39	0.028	13.0	10.0	0.61	1.83	23.5	5.65
8/19/2025 10:00	0.024	11.0	9.9	0.60	1.68	23.6	3.35
9/2/2025 10:37	0.021	6.1	5.6	0.55	1.68	21.3	5.86
9/15/2025 11:38	0.018	4.0	3.2	0.52	1.68	22.6	7.60
9/29/2025 9:32	0.020	4.3	3.5	0.50	1.83	19.2	4.17
10/13/2025 11:01	0.013	2.5	2.4	0.46	1.98	14.4	5.52
2025 Average	0.024	7.3	6.0	0.60	1.71	20.7	6.83
2025 Summer Average	0.024	8.6	7.0	0.61	1.63	23.2	6.18

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
2025 Elevation (ft)	941.32	8/19/2025	940.04	3/26/2025	940.67

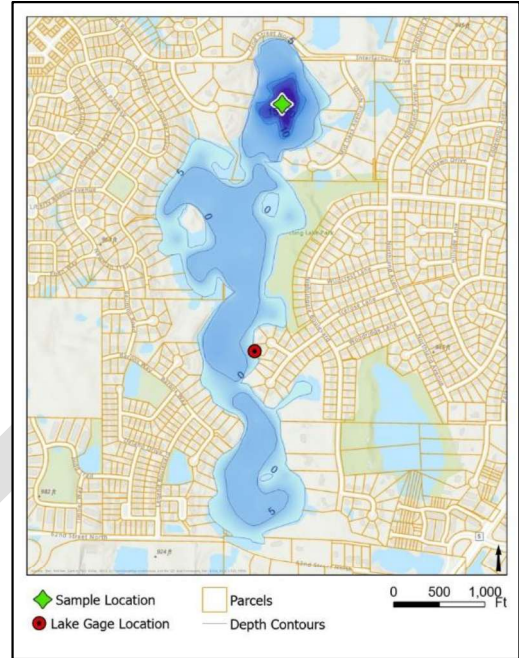
*Data requirements and determinations of use assessment according to the MPCA's Guidance Manual for Assessing the Quality of Minnesota Surface Waters: "Samples must be collected over a minimum of 2 years and data used for assessments must be collected from June to September. Typically, a minimum of 8 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										
	Lake Grades (May-Sept)									
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016
Total Phosphorus (mg/l)	B	A	B	A	B	B	A	A	A	B
Chlorophyll-a (ug/l)	A	A	A	A	C	A	A	A	A	A
Secchi depth (ft)	C	C	C	C	C	C	C	C	C	C
Overall	B	B+	B	B+	C+	B	B+	B+	B+	B

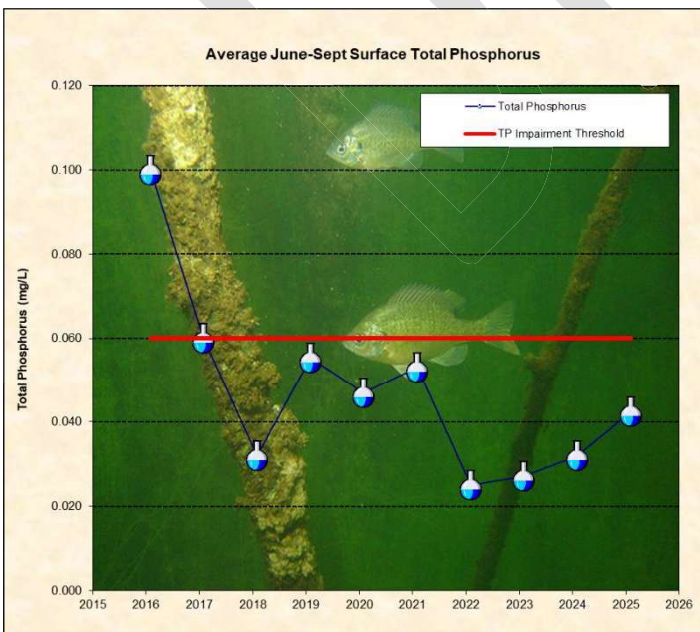
Long Lake 2025 Lake Grade: B

- DNR ID #: 820021
 - Municipality: City of Stillwater
 - Location: Section 30, T30N-R20W
 - Lake Size: 110 Acres
 - Maximum Basin Depth (2025): 20 ft.
 - Ordinary High Water Mark: 891.50 ft.
 - 100-Year High Water Level: 895.10 ft.
 - 95% Littoral
- Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.

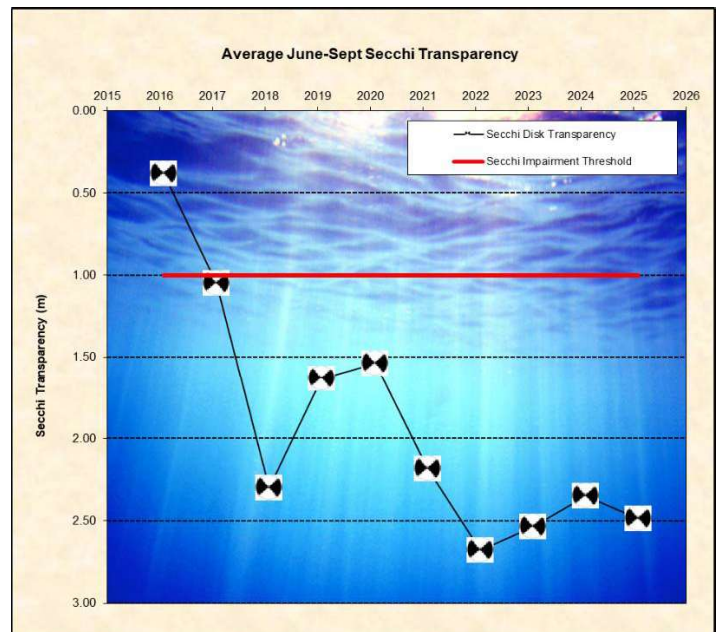


Summary Points

- Based on chlorophyll- α data, the lake is classified as eutrophic according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ($p < 0.05$) there is a statistically significant **improving** trend for the average Secchi transparency, average chlorophyll- α , and average total phosphorus.
- The major land use is urban/residential.
- The lake stratified in 2025 with a thermocline around 3 meters.
- This lake is categorized as shallow according to the Minnesota Pollution Control Agency's standards.
- Long Lake is listed as impaired for nutrients on the Minnesota Pollution Control Agency's Impaired Waters List.
- The lake is listed as infested with Eurasian watermilfoil.



2025 Water Monitoring Summary - BCWD



A21

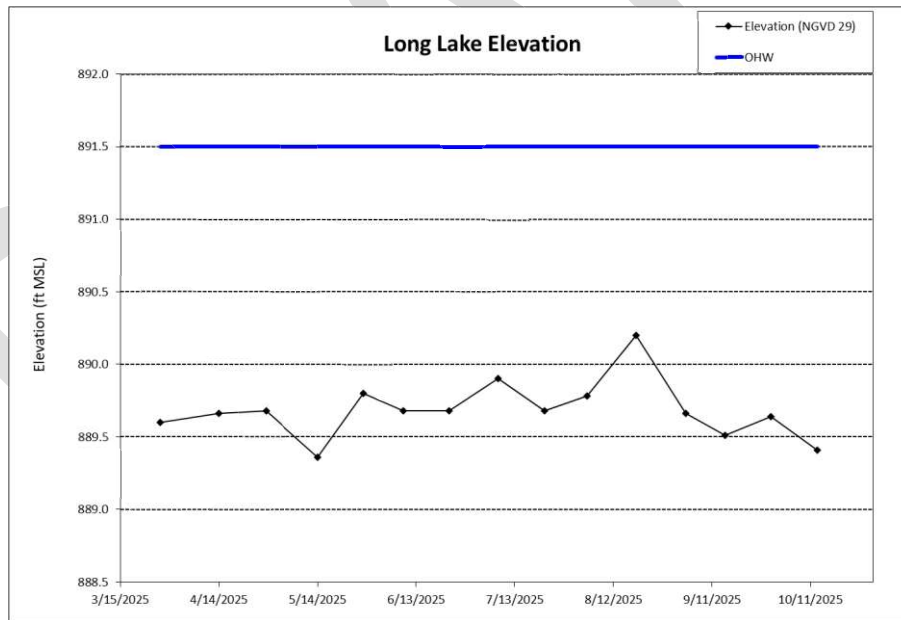
Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/14/2025 14:47	0.028	7.7	6.7	0.51	2.44	10.6	13.56
4/28/2025 14:12	0.032	6.1	5.3	0.46	3.20	14.3	11.05
5/14/2025 13:45	0.032	3.7	3.5	0.06	2.59	24.0	9.77
5/28/2025 12:29	0.032	5.8	5.6	0.51	2.90	17.7	11.05
6/9/2025 15:15	0.033	4.7	4.3	0.63	3.05	21.2	9.12
6/23/2025 16:12	0.044	5.0	4.5	0.62	2.74	28.2	8.17
7/8/2025 13:46	0.042	3.9	2.9	0.62	2.74	29.0	9.85
7/22/2025 13:38	0.037	7.7	7.2	0.59	2.44	26.7	10.34
8/4/2025 15:06	0.046	15.0	13.0	0.69	2.13	25.6	8.14
8/19/2025 14:27	0.044	17.0	16.0	0.72	2.44	27.2	7.75
9/3/2025 8:29	0.059	22.0	19.0	0.77	1.83	21.8	5.38
9/15/2025 15:21	0.036	7.0	6.4	0.61	2.90	24.1	10.32
9/29/2025 14:44	0.040	8.8	9.3	0.58	2.13	22.4	8.35
10/13/2025 15:09	0.040	60.0	58.0	0.66	1.83	16.4	8.80
2025 Average	0.039	12.5	11.6	0.57	2.53	22.1	9.40
2025 Summer Average	0.042	10.1	9.2	0.65	2.49	25.1	8.60

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

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

	High	High Date	Low	Low Date	Average
2025 Elevation (ft)	890.2	8/19/2025	889.36	5/14/2025	889.68

*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."

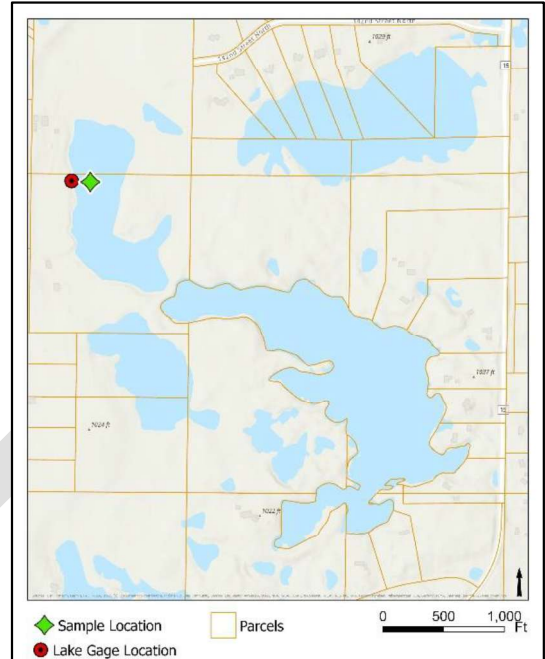


Lake Water Quality Summary										
	Lake Grades (May-Sept)									
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016
Total Phosphorus (mg/l)	C	C	B	B	C	C	C	C	C	D
Chlorophyll-a (ug/l)	A	A	A	A	A	B	C	A	B	F
Secchi depth (ft)	B	B	B	B	B	C	C	B	D	F
Overall	B	B	B+	B+	B	C+	C	B	C	F+

Lynch Lake – North Basin

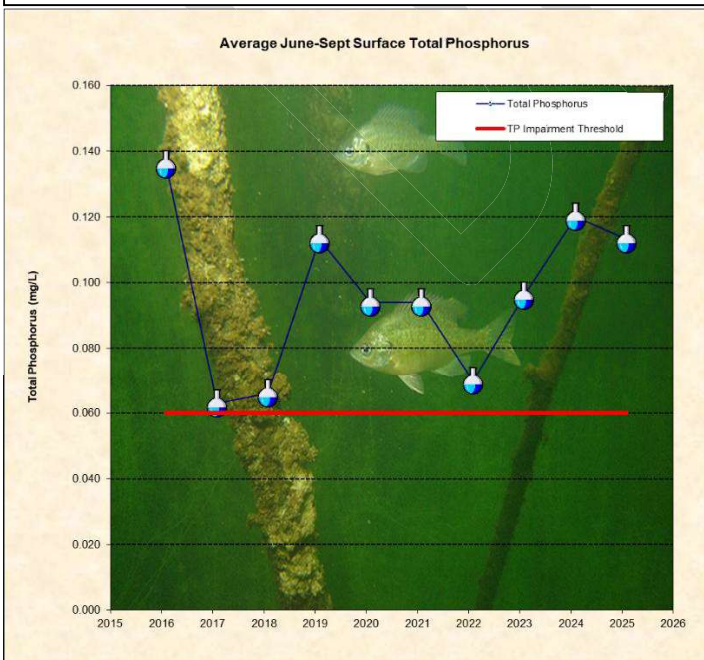
2025 Lake Grade: D

- DNR ID #: 820042
 - Municipality: May Township
 - Location: Section 30, T31N-R20W
 - Lake Size: 87 Acres
 - Maximum Depth (2025): 5 ft.
 - Ordinary High Water Mark: 1005.30 ft.
 - 100-Year High Water Level: 1008.65 ft.
 - 100% Littoral
- Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.

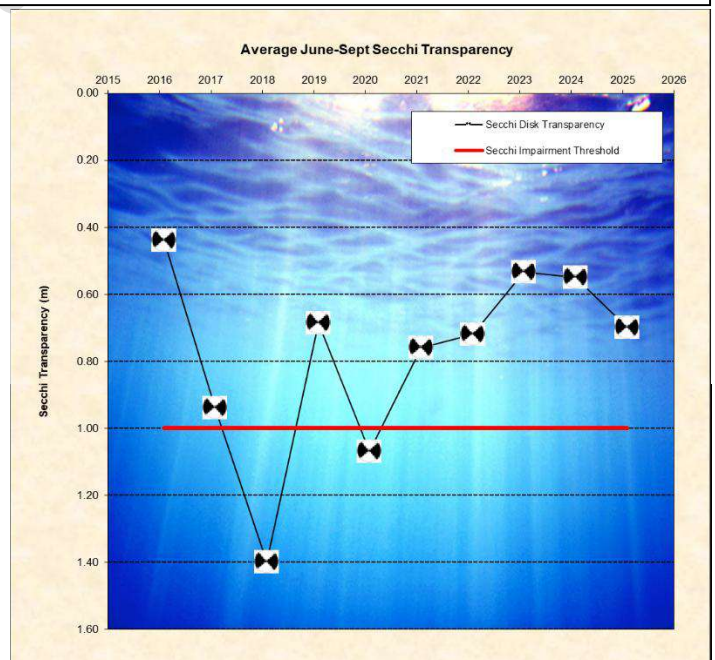


Summary Points

- Based on chlorophyll- α data, the lake is classified as eutrophic according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ($p < 0.05$) there is a statistically significant **improving** trend for the average Secchi transparency, average chlorophyll- α , and average total phosphorus.
- The major land use is rural/agricultural.
- The lake did not stratify in 2025.
- This lake is categorized as shallow according to the Minnesota Pollution Control Agency's standards.
- Lynch Lake is listed as impaired for nutrients on the Minnesota Pollution Control Agency's Impaired Waters List.



2025 Water Monitoring Summary - BCWD



A23

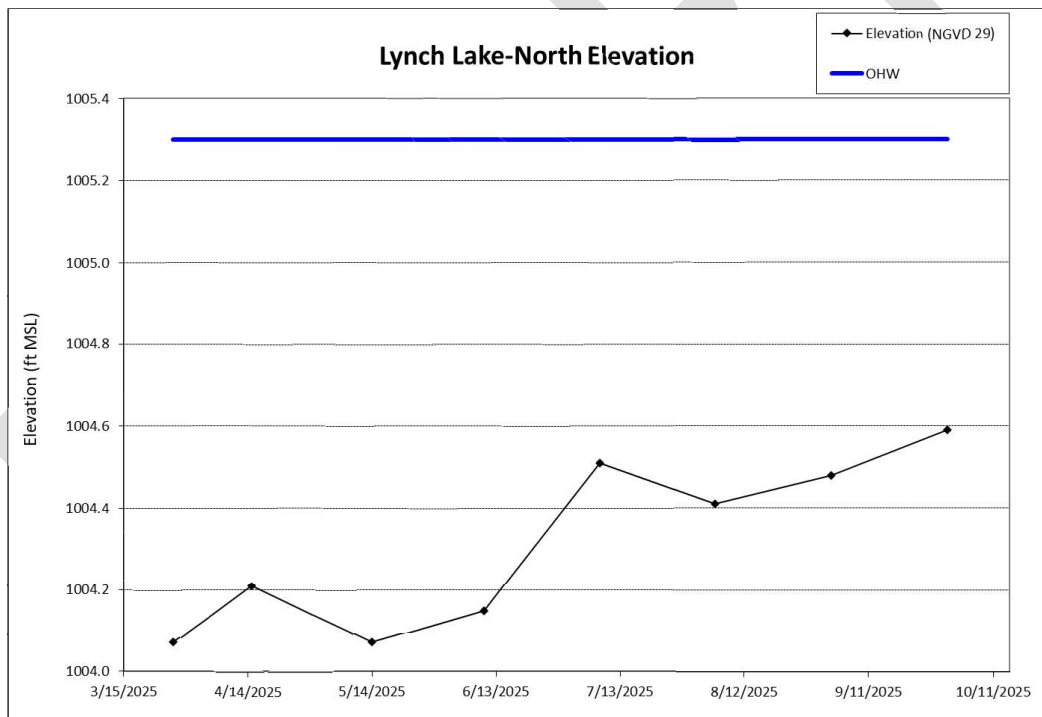
Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/15/2025 10:08	0.101	35.0	30.0	1.36	0.61	9.3	10.76
5/14/2025 9:03	0.227	71.0	42.0	2.96	0.91	22.7	8.49
6/10/2025 9:26	0.109	65.0	54.0	1.62	0.76	18.7	7.64
7/8/2025 10:19	0.095	45.0	38.0	1.47	0.61	27.1	7.33
8/5/2025 9:12	0.115	36.0	29.0	1.49	0.61	23.4	2.66
9/2/2025 13:38	0.128	32.0	27.0	1.32	0.91	22.1	4.84
9/30/2025 9:37	0.119	40.0	34.0	1.32	0.61	20.0	6.61
2025 Average	0.128	46.3	36.3	1.65	0.72	20.5	6.90
2025 Summer Average	0.113	43.6	36.4	1.44	0.70	22.3	5.82

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
2025 Elevation (ft)	1004.59	9/30/2025	1004.07	5/14/2025	1004.31

*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."

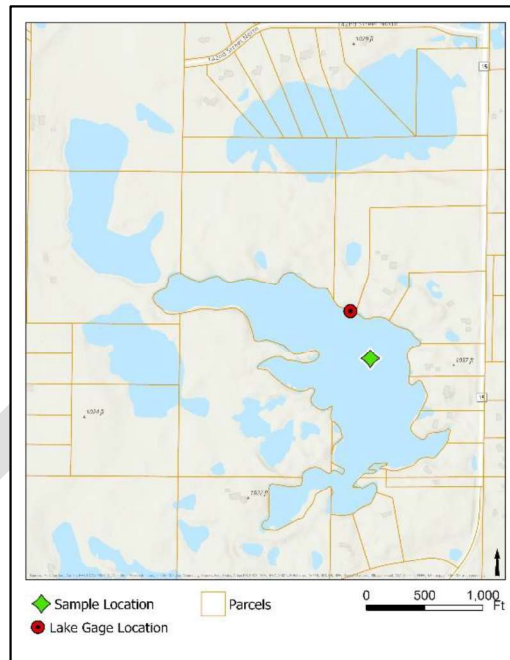


Lake Water Quality Summary										
	Lake Grades (May-Sept)									
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016
Total Phosphorus (mg/l)	D	D	D	D	D	D	D	C	C	D
Chlorophyll-a (ug/l)	D	C	D	C	C	C	D	B	C	D
Secchi depth (ft)	D	F	D	D	D	D	D	C	D	F
Overall	D	D	D	D+	D+	D+	D	C+	C-	D-

Lynch Lake – South Basin

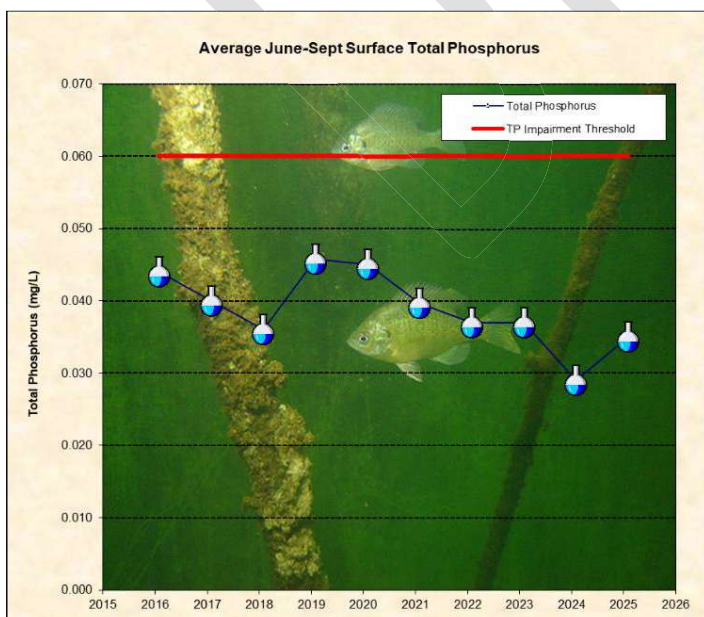
2025 Lake Grade: B-

- DNR ID #: 820042
 - Municipality: May Township
 - Location: Section 30, T31N-R20W
 - Lake Size: 87 Acres
 - Maximum Depth (2025): 17.5 ft.
 - Ordinary High Water Mark: 1005.30 ft.
 - 100-Year High Water Level: 1008.65 ft.
 - 99% Littoral
- Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.

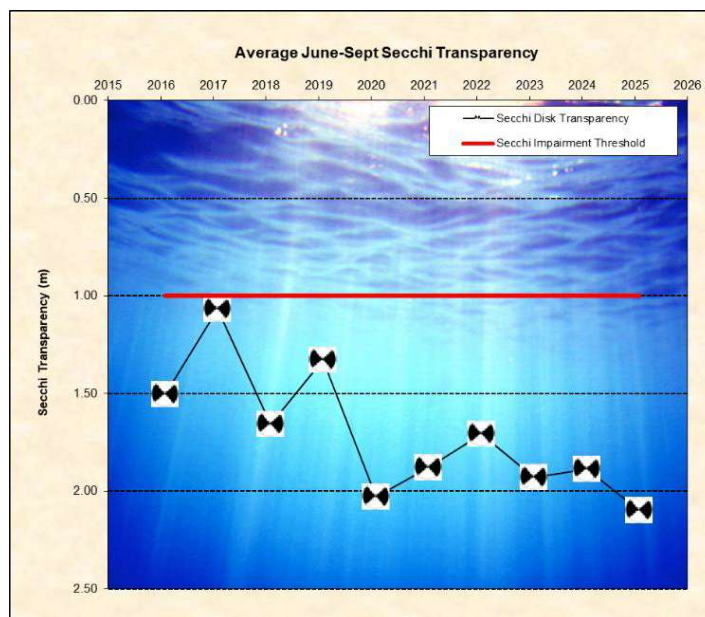


Summary Points

- Based on chlorophyll- α data, the lake is classified as eutrophic according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ($p < 0.05$) there is a statistically significant **improving** trend for the average Secchi transparency, average chlorophyll- α , and average total phosphorus.
- The major land use is rural/agricultural.
- The lake stratified in 2025 with the thermocline around 3 meters.
- This lake is categorized as shallow according to the Minnesota Pollution Control Agency's standards.
- Lynch Lake is listed as impaired for nutrients on the Minnesota Pollution Control Agency's Impaired Waters List.



2025 Water Monitoring Summary - BCWD



A25

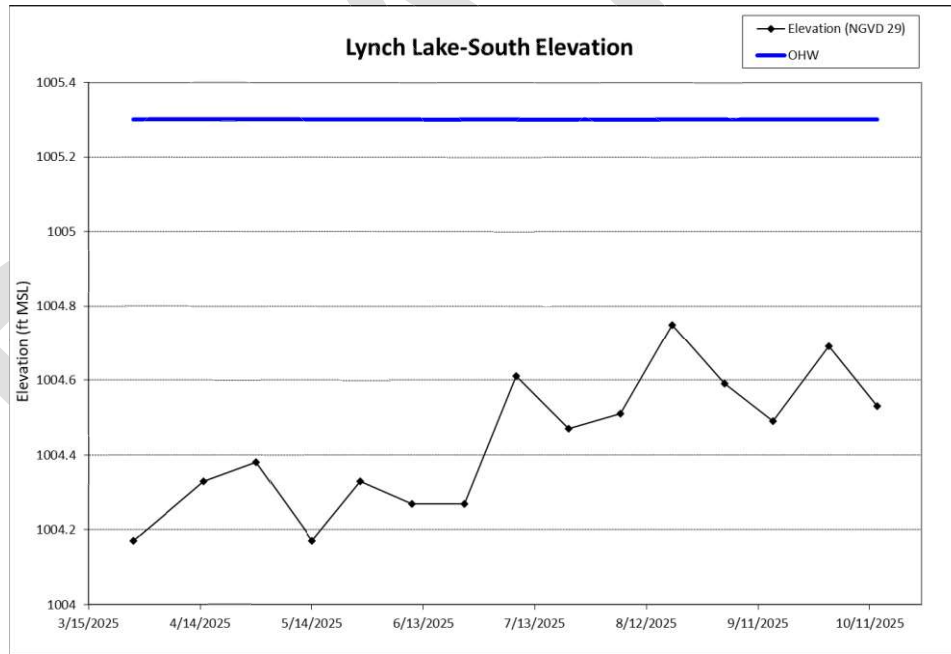
Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/15/2025 10:47	0.036	9.6	8.8	0.80	1.83	9.3	11.70
4/29/2025 11:58	0.036	5.4	4.3	0.96	2.59	13.5	9.06
5/14/2025 9:40	0.038	5.9	4.3	0.91	2.13	22.2	8.53
5/27/2025 11:41	0.038	5.4	4.5	0.93	1.83	18.5	9.63
6/10/2025 9:55	0.040	7.9	6.4	0.87	1.83	19.4	8.13
6/24/2025 10:34	0.032	5.6	4.5	0.96	2.44	26.0	7.43
7/8/2025 10:55	0.028	6.2	4.8	0.82	2.59	27.8	7.77
7/22/2025 9:18	0.029	7.4	6.1	0.81	2.29	24.7	6.96
8/5/2025 9:41	0.035	13.0	10.0	0.78	1.98	24.9	6.21
8/19/2025 10:43	0.044	22.0	20.0	0.89	1.68	24.5	6.74
9/2/2025 13:06	0.036	9.8	8.5	0.83	2.13	23.0	6.83
9/15/2025 12:54	0.035	9.9	8.8	0.86	2.13	21.9	7.75
9/30/2025 10:02	0.034	8.7	6.7	0.81	1.83	20.7	6.66
10/13/2025 12:17	0.034	9.9	8.3	0.77	2.29	15.7	7.26
2025 Average	0.035	9.1	7.6	0.86	2.11	20.9	7.90
2025 Summer Average	0.035	10.1	8.4	0.85	2.10	23.7	7.16

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
2025 Elevation (ft)	1004.75	8/19/2025	1004.17	5/14/2025	1004.44

*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."

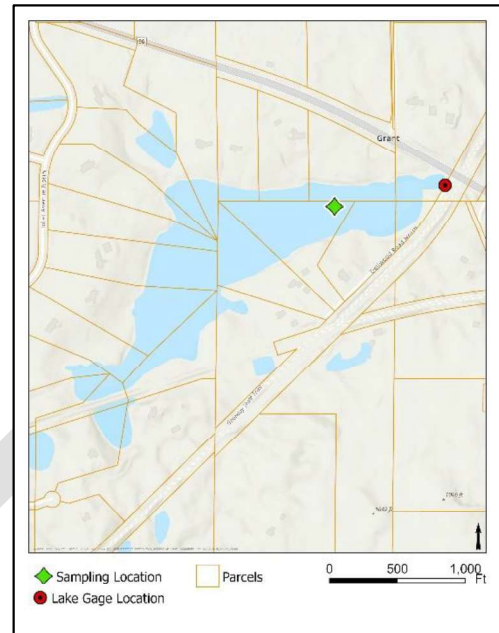


Lake Water Quality Summary										
	Lake Grades (May-Sept)									
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016
Total Phosphorus (mg/l)	C	B	C	C	C	C	C	C	C	C
Chlorophyll-a (ug/l)	A	A	B	B	B	A	C	B	B	C
Secchi depth (ft)	C	C	C	C	C	C	C	C	D	C
Overall	B-	B	C+	C+	C+	B-	C	C+	C	C

Masterman Lake 2025 Lake Grade: B

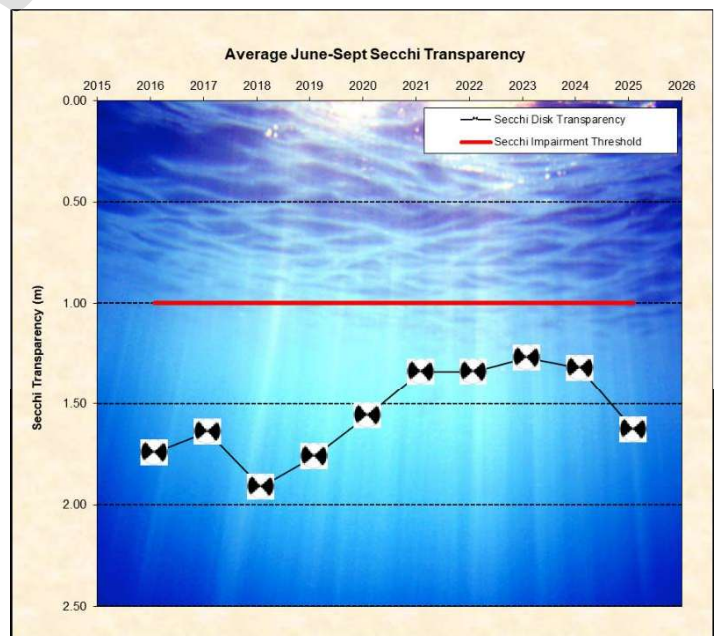
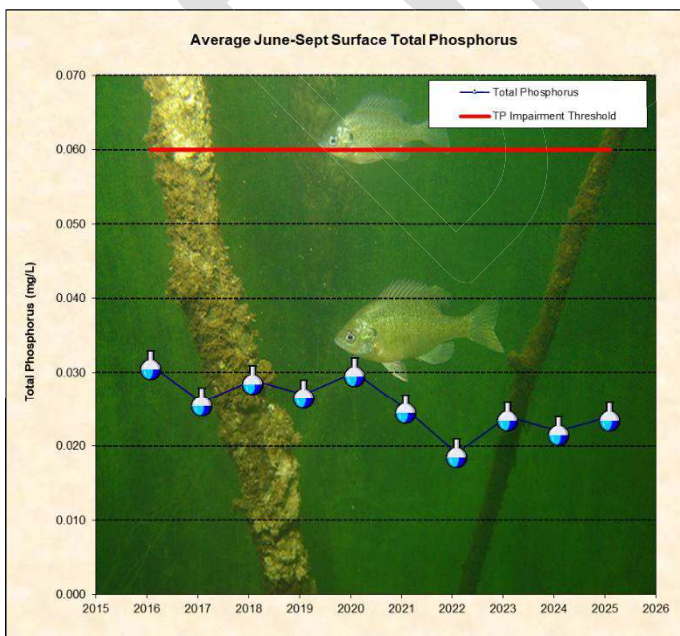
- DNR ID #: 820126
- Municipality: City of Grant
- Location: Section 23, T30N-R21W
- Lake Size: 40 Acres
- Maximum Depth (2025): 7.5 ft.
- Ordinary High Water Mark: 955.70 ft.
- 100-Year High Water Level: 958.29 ft.
- 100% Littoral

Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.



Summary Points

- Based on chlorophyll- α data, the lake is classified as eutrophic according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ($p < 0.05$) there is a statistically significant **improving** trend for the average total phosphorus and average chlorophyll- α , and the trend for the average Secchi transparency is skewed due to vegetation limiting the transparency.
- The major land use is rural/agricultural.
- The lake did not stratify in 2025.
- This lake is categorized as shallow according to the Minnesota Pollution Control Agency's standards.
- Lab methodology was changed for 2023 total phosphorus sample analysis, as such no results were reported < 0.022 mg/L (April-mid September).

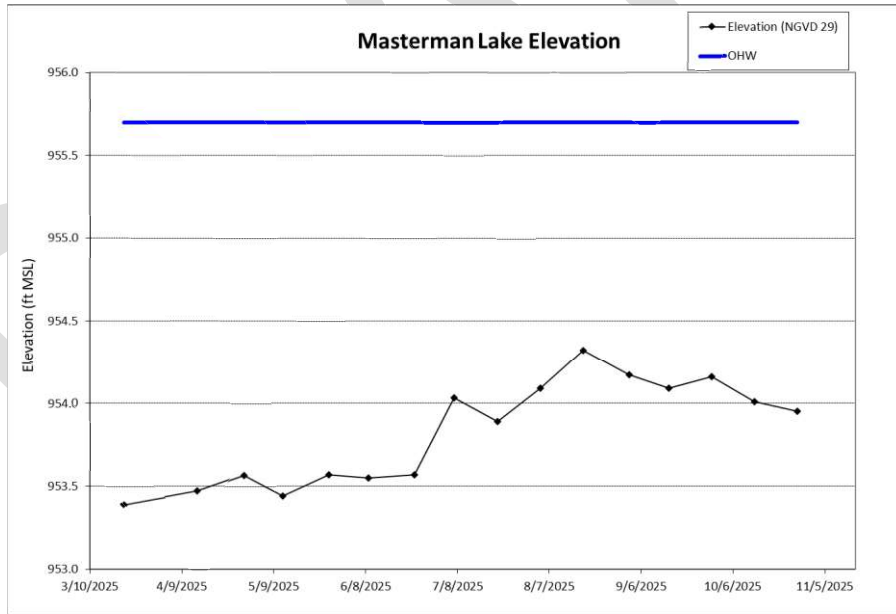


Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/14/2025 9:47	0.028	26.0	24.0	0.80	1.83	11.2	11.03
4/29/2025 9:02	0.041	6.8	5.6	0.87	1.68	13.5	7.89
5/12/2025 9:35	0.036	5.6	4.5	0.78	1.68	20.9	8.41
5/27/2025 8:46	0.020	3.2	2.7	0.64	1.83	17.7	10.77
6/9/2025 9:01	0.020	3.3	2.4	0.59	1.68	19.6	7.84
6/24/2025 8:58	0.021	4.5	3.5	0.65	1.68	25.9	7.83
7/7/2025 9:13	0.032	12.0	9.6	0.64	1.52	26.3	6.04
7/21/2025 9:23	0.022	2.8	2.9	0.58	1.83	23.6	5.47
8/4/2025 8:53	0.024	6.9	5.1	0.59	1.37	24.0	5.03
8/18/2025 11:34	0.024	8.5	6.9	0.61	1.52	23.2	3.72
9/2/2025 9:55	0.019	4.4	3.2	0.58	1.68	21.9	6.92
9/15/2025 9:20	0.034	11.0	10.0	0.66	1.83	21.9	8.10
9/29/2025 9:01	0.019	5.9	3.7	0.48	1.52	19.4	5.32
10/13/2025 9:06	0.016	3.7	3.2	0.43	1.83	14.6	4.51
2025 Average	0.025	7.5	6.2	0.64	1.68	20.3	7.06
2025 Summer Average	0.024	6.6	5.3	0.60	1.63	22.9	6.25

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
2025 Elevation (ft)	954.32	8/18/2025	953.39	3/21/2025	953.83

*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."

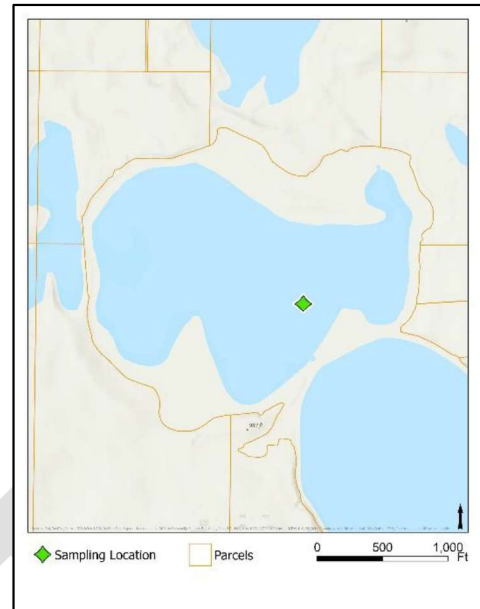


Lake Water Quality Summary										
	Lake Grades (May-Sept)									
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016
Total Phosphorus (mg/l)	B	A	B	A	A	B	B	B	B	B
Chlorophyll-a (ug/l)	A	A	A	A	A	B	A	A	B	B
Secchi depth (ft)	C	C	C	C	C	C	C	C	C	C
Overall	B	B+	B	B+	B+	B-	B	B	B-	B-

North School Section Lake

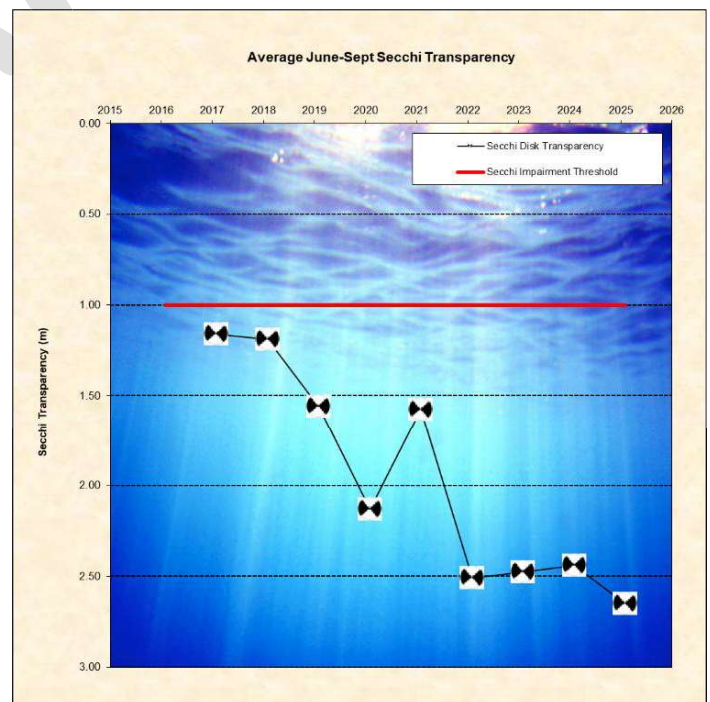
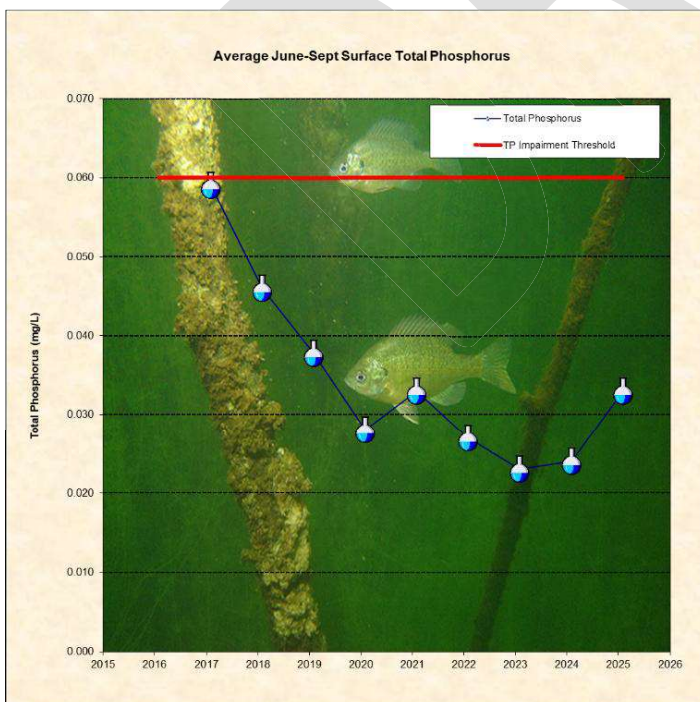
2025 Lake Grade: B

- DNR ID #: 820149
 - Municipality: City of Hugo
 - Location: SW ¼ Section 25, T31N-R21W
 - Lake Size: 40 Acres
 - Maximum Depth (2025): 12 ft.
 - Ordinary High Water Mark: 963.2 ft.
 - 100-Year High Water Level: 974.50 ft.
 - 100% Littoral
- Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.



Summary Points

- Based on chlorophyll- α data, the lake is classified as eutrophic according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ($p < 0.05$) there is a statistically significant **improving** trend for the average Secchi transparency, average chlorophyll- α , and average total phosphorus.
- The major land use is rural/agricultural.
- The North and South School Section basins were connected in 2025.
- The lake did not stratify in 2025.
- This lake is categorized as shallow according to the Minnesota Pollution Control Agency's standards.
- Lab methodology was changed for 2023 total phosphorus sample analysis, as such no results were reported <0.022 mg/L (April-mid September).



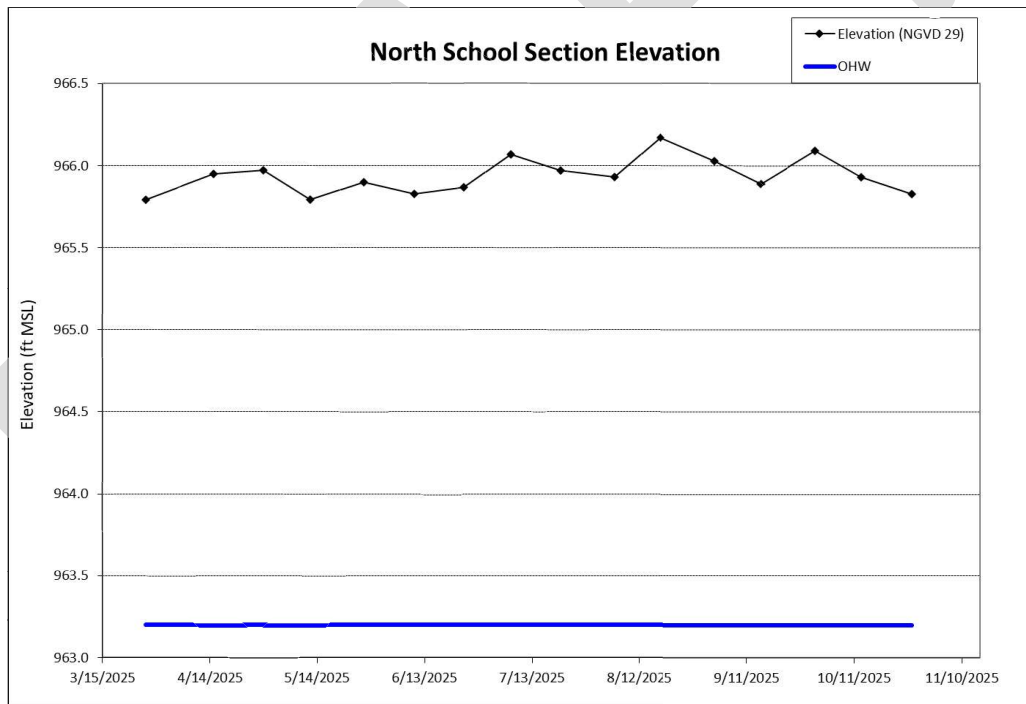
Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/15/2025 12:20	0.024	2.5	1.9	0.60	2.44	9.4	11.79
5/12/2025 14:33	0.031	3.3	2.9	0.68	2.90	20.5	10.68
6/10/2025 11:16	0.035	4.5	4.0	0.72	3.20	19.2	8.93
7/7/2025 13:59	0.028	8.0	7.5	0.77	2.90	28.6	9.13
8/5/2025 10:57	0.042	23.0	22.0	1.16	1.52	24.2	7.93
9/2/2025 15:03	0.030	7.0	7.2	0.73	2.44	22.6	9.06
9/30/2025 11:08	0.030	3.2	2.9	0.59	3.20	20.8	9.14
2025 Average	0.031	7.4	6.9	0.75	2.66	20.8	9.52
2025 Summer Average	0.033	9.1	8.7	0.79	2.65	23.1	8.84

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
2025 Elevation (ft)	966.17	8/18/2025	965.79	5/12/2025	965.94

*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."



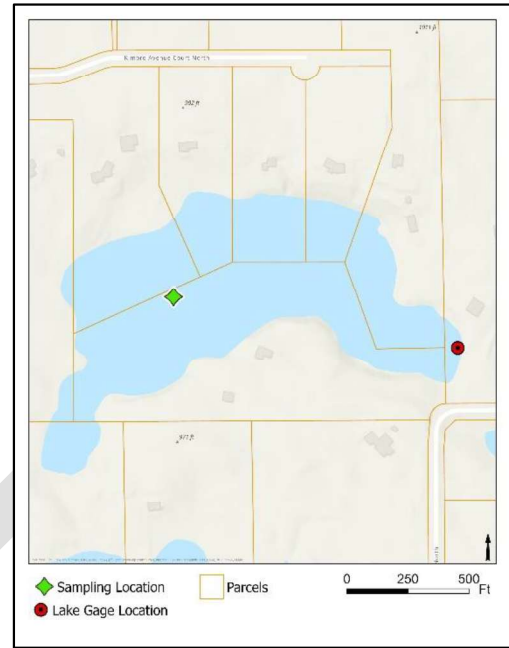
Lake Water Quality Summary										
	Lake Grades (May-Sept)									
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016
Total Phosphorus (mg/l)	C	B	A	B	B	C	C	C	C	NA
Chlorophyll-a (ug/l)	A	A	A	A	B	A	C	C	C	NA
Secchi depth (ft)	B	B	B	B	C	B	C	C	C	NA
Overall	B	B+	B+	B+	B-	B	C	C	C	NA

Pat Lake

2025 Lake Grade: B

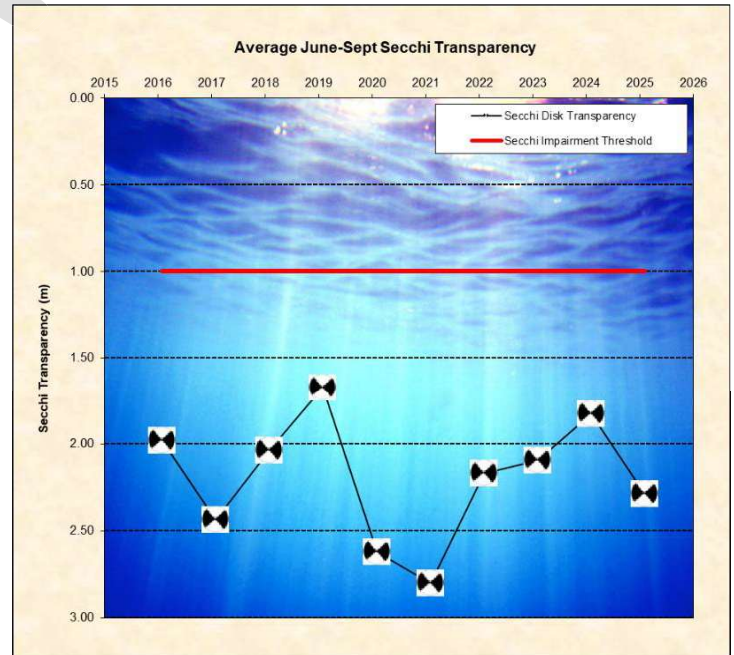
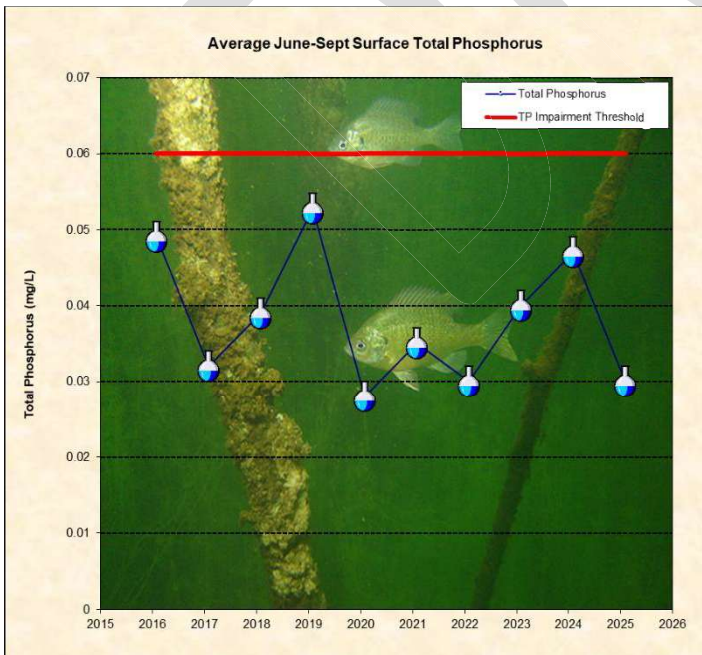
- DNR ID #: 820125
- Municipality: City of Grant
- Location: Section 11, T30N-R21W
- Lake Size: 20 Acres
- Maximum Depth (2025): 16 ft.
- Ordinary High Water Mark: 941.80 ft.
- 100-Year High Water Level: 948.61 ft.
- 99% Littoral

Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.



Summary Points

- Based on chlorophyll- α data, the lake is classified as mesotrophic according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ($p < 0.05$) there is a statistically significant **improving** trend for the average total phosphorus and average chlorophyll- α , and no trend for average Secchi transparency at this time.
- The major land use is rural/agricultural.
- The lake stratified in 2025 with the thermocline between 2 and 3 meters.
- This lake is categorized as shallow according to the Minnesota Pollution Control Agency's standards.
- Lab methodology was changed for 2023 total phosphorus sample analysis, as such no results were reported < 0.022 mg/L (April-mid September).



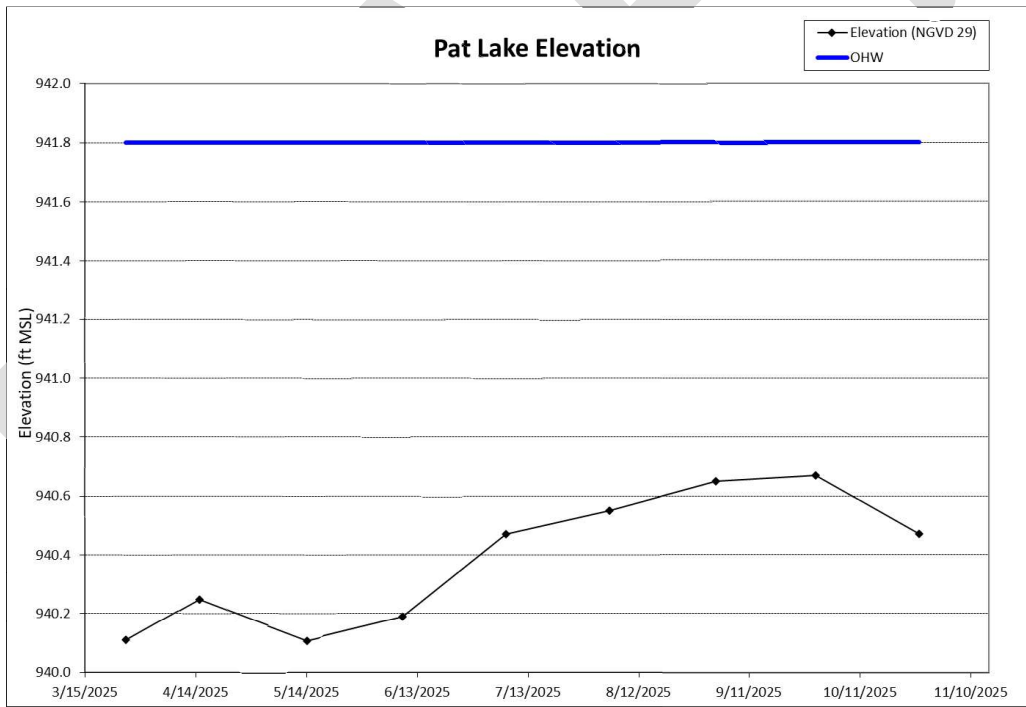
Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/15/2025 14:08	0.031	8.9	7.7	0.62	2.13	10.6	11.80
5/14/2025 10:45	0.038	3.1	2.7	0.65	2.74	24.1	9.82
6/9/2025 10:19	0.037	6.5	5.9	0.68	2.44	20.2	8.93
7/7/2025 10:16	0.034	7.6	6.4	0.59	2.44	27.7	9.39
8/4/2025 10:11	0.030	5.9	5.3	0.62	1.68	25.0	6.42
9/2/2025 11:16	0.030	4.5	4.0	0.63	2.13	22.9	8.61
9/29/2025 10:01	0.021	3.4	2.7	0.52	2.74	20.4	7.57
2025 Average	0.032	5.7	5.0	0.62	2.33	21.6	8.93
2025 Summer Average	0.030	5.6	4.9	0.61	2.29	23.2	8.18

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
2025 Elevation (ft)	940.67	9/29/2025	940.11	5/14/2025	940.39

*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."

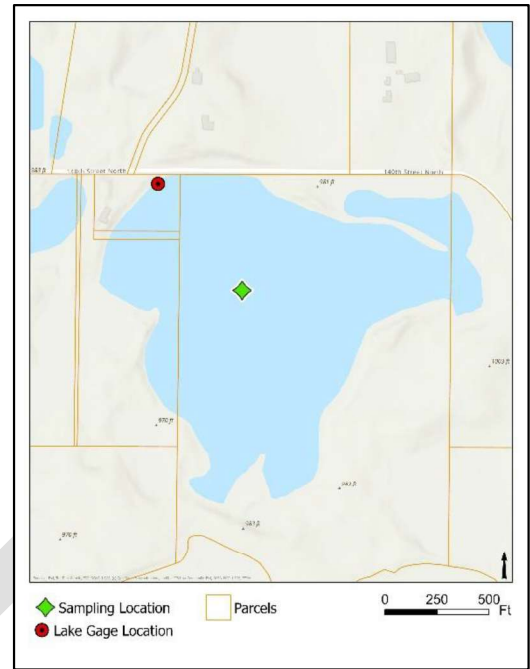


Lake Water Quality Summary										
	Lake Grades (May-Sept)									
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016
Total Phosphorus (mg/l)	C	C	C	B	C	B	C	C	B	C
Chlorophyll-a (ug/l)	A	A	A	A	A	A	B	B	A	B
Secchi depth (ft)	B	C	C	B	B	B	C	C	B	C
Overall	B	B-	B-	B+	B	B+	C+	C+	B+	C+

Plaisted Lake

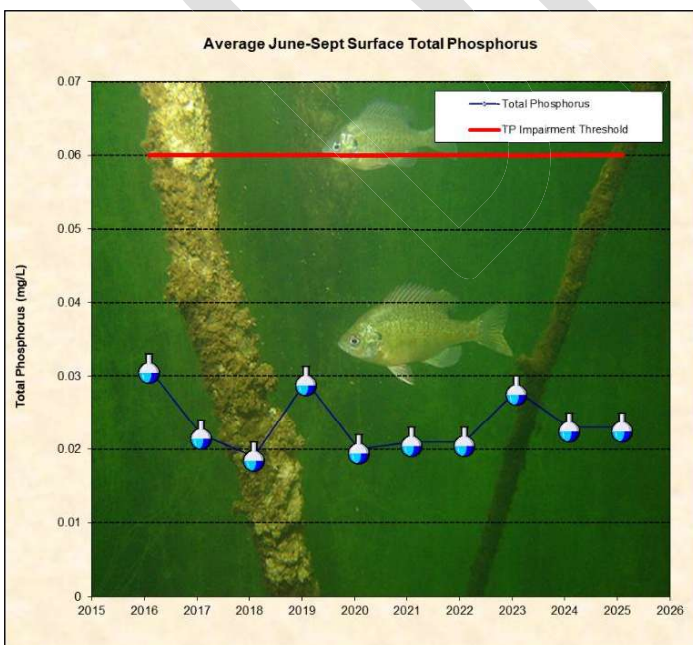
2025 Lake Grade: B+

- DNR ID #: 820148
 - Municipality: City of Hugo
 - Location: Section 25, T31N-R21W
 - Lake Size: 70 Acres
 - Maximum Depth (2025): 12 ft.
 - Ordinary High Water Mark: 966.00 ft.
 - 100-Year High Water Level: 974.50 ft.
 - 100% Littoral
- Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.

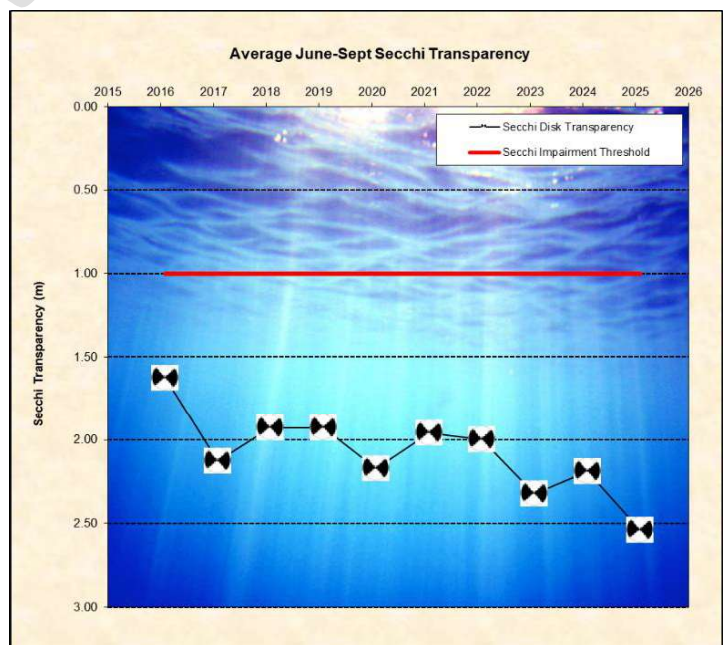


Summary Points

- Based on chlorophyll- α data, the lake is classified as mesotrophic according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ($p < 0.05$) there is a statistically significant **improving** trend for the average total phosphorus and average chlorophyll- α , and the trend for the average Secchi transparency is skewed due to vegetation limiting the transparency.
- The major land use is rural/agricultural.
- The lake did not stratify in 2025.
- This lake is categorized as shallow according to the Minnesota Pollution Control Agency's standards.
- Plaisted Lake is listed as impaired for nutrients on the Minnesota Pollution Control Agency's Impaired Waters List, and is listed as infested with Eurasian watermilfoil.
- Lab methodology was changed for 2023 total phosphorus sample analysis, as such no results were reported < 0.022 mg/L (April-mid September).



2025 Water Monitoring Summary - BCWD



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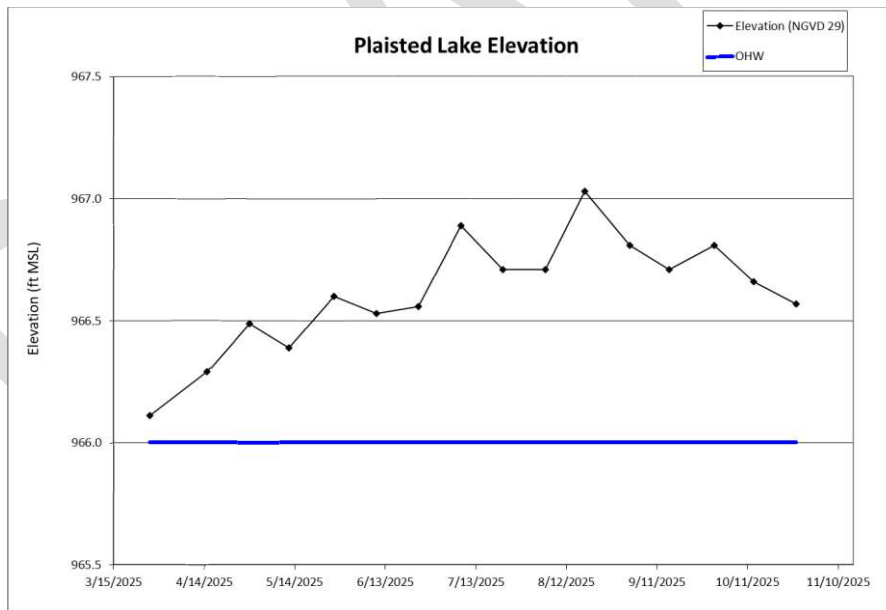
Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/15/2025 9:38	0.019	3.1	2.7	0.51	2.59	9.6	11.17
4/29/2025 13:24	0.023	3.8	2.7	0.47	2.44	14.5	9.57
5/12/2025 13:36	0.026	2.4	1.6	0.57	2.74	21.0	9.95
5/27/2025 13:03	0.024	2.6	2.1	0.61	2.90	18.4	10.68
6/10/2025 9:00	0.035	10.0	8.8	0.60	2.74	20.1	9.06
6/24/2025 9:49	0.023	4.5	4.0	0.64	2.59	25.7	9.03
7/8/2025 9:42	0.021	5.8	4.8	0.61	2.44	27.7	8.92
7/22/2025 9:57	0.024	3.4	2.9	0.52	2.29	24.9	7.34
8/5/2025 10:20	0.023	2.6	1.9	0.58	2.59	24.5	6.75
8/18/2025 13:27	0.022	2.5	2.4	0.52	2.74	23.6	4.94
9/2/2025 14:09	0.020	3.1	3.5	0.52	2.44	22.7	7.10
9/15/2025 13:28	0.018	3.1	2.7	0.50	2.44	22.6	8.37
9/30/2025 10:34	0.022	2.0	1.3	0.47	2.59	21.1	7.19
10/13/2025 12:53	0.019	2.7	2.4	0.44	2.59	15.8	6.95
2025 Average	0.023	3.7	3.1	0.54	2.58	20.9	8.36
2025 Summer Average	0.023	4.1	3.6	0.55	2.54	23.7	7.63

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
2025 Elevation (ft)	967.03	8/18/2025	966.11	3/27/2025	966.62

*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."

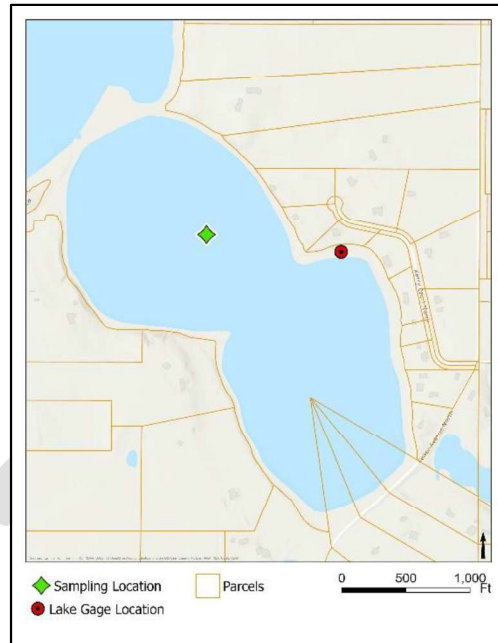


Lake Water Quality Summary										
	Lake Grades (May-Sept)									
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016
Total Phosphorus (mg/l)	B	B	B	A	A	A	B	A	A	B
Chlorophyll-a (ug/l)	A	A	A	A	A	A	A	A	A	B
Secchi depth (ft)	B	B	B	C	B	B	C	C	C	C
Overall	B+	B+	B+	B+	A-	A-	B	B+	B+	B-

South School Section Lake

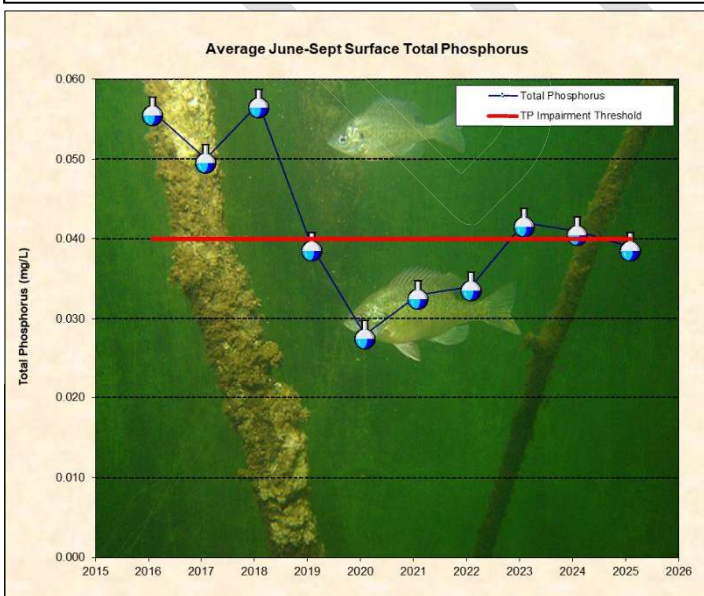
2025 Lake Grade: C+

- DNR ID #: 820151
 - Municipality: City of Hugo
 - Location: S ½ Section 25, T31N-R21W
 - Lake Size: 115 Acres
 - Maximum Depth (2025): 21 ft.
 - Ordinary High Water Mark: 965.30 ft.
 - 100-Year High Water Level: 974.50 ft.
 - 41% Littoral
- Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.

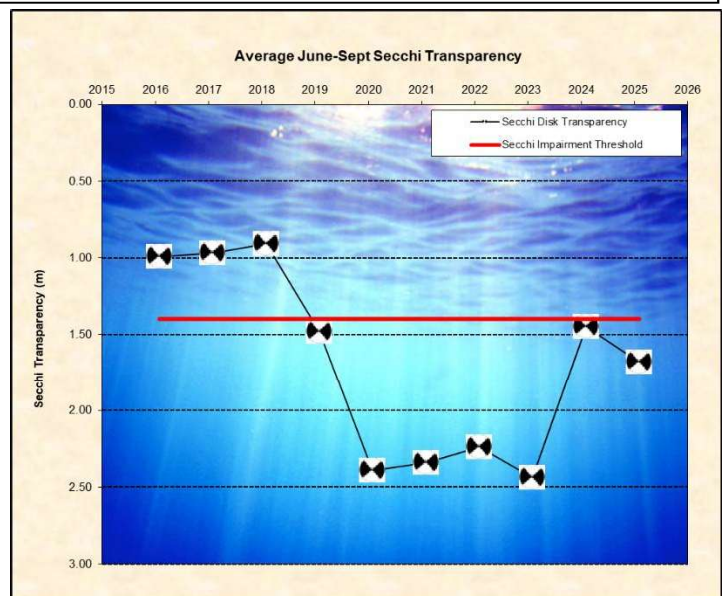


Summary Points

- Based on chlorophyll- α data, the lake is classified as eutrophic according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ($p < 0.05$) there is a statistically significant **improving** trend for the average total phosphorus, and no trend for average Secchi transparency and average chlorophyll- α at this time.
- The major land use is rural/agricultural.
- The lake stratified in 2025 with the thermocline around 4 meters.
- The North and South School Section basins were connected in 2025.
- This lake is categorized as a deep lake according to the Minnesota Pollution Control Agency's standards.
- South School Section Lake is listed as impaired for nutrients on the Minnesota Pollution Control Agency's Impaired Waters List.
- Lab methodology was changed for 2023 total phosphorus sample analysis, as such no results were reported <0.022 mg/L (April-mid September).



2025 Water Monitoring Summary - BCWD



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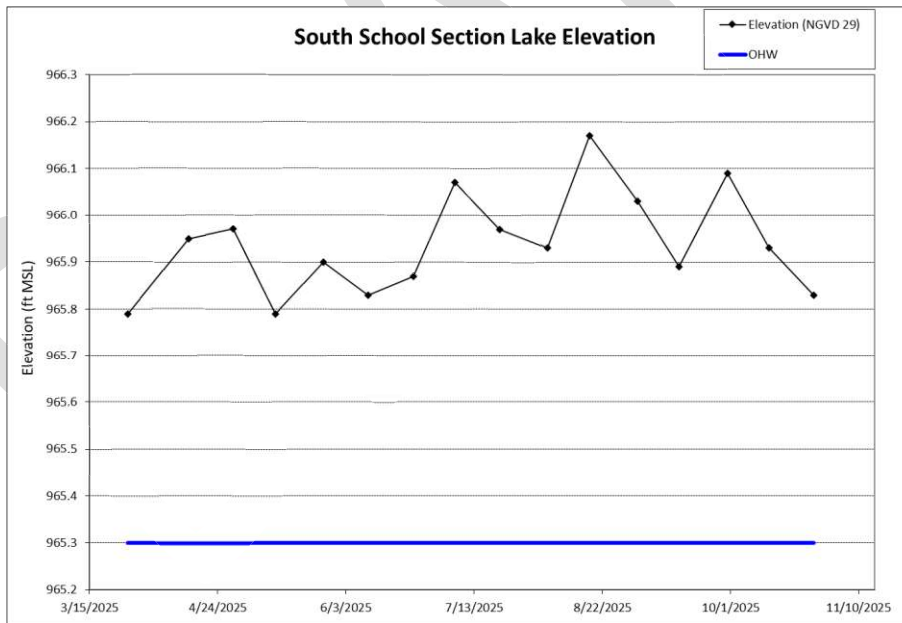
Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/15/2025 12:30	0.028	1.8	1.6	0.74	4.42	8.4	12.19
4/29/2025 13:57	0.023	1.5	1.3	0.77	5.64	12.7	10.60
5/12/2025 14:12	0.024	1.6	1.0	0.79	5.64	19.2	10.55
5/27/2025 13:32	0.024	5.4	4.8	0.82	4.72	18.1	10.60
6/10/2025 11:31	0.028	6.4	5.3	0.88	3.66	19.2	8.16
6/24/2025 12:41	0.026	8.5	8.0	1.05	2.44	28.0	8.04
7/7/2025 14:12	0.029	12.0	12.0	0.89	2.13	29.1	8.77
7/21/2025 14:20	0.036	38.0	37.0	1.09	1.22	24.5	8.64
8/5/2025 11:10	0.042	72.0	70.0	1.52	0.91	24.9	9.03
8/18/2025 14:00	0.045	66.0	65.0	1.53	0.91	24.0	5.88
9/2/2025 15:17	0.049	44.0	43.0	1.33	1.37	23.3	8.55
9/15/2025 14:03	0.046	48.0	46.0	1.27	1.22	21.8	10.62
9/30/2025 11:19	0.047	30.0	28.0	1.20	1.22	21.4	7.86
10/13/2025 13:24	0.053	22.0	21.0	1.26	1.98	16.4	7.69
2025 Average	0.036	25.5	24.6	1.08	2.68	20.8	9.08
2025 Summer Average	0.039	36.1	34.9	1.20	1.68	24.0	8.39

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
2025 Elevation (ft)	966.17	8/18/2025	965.79	5/12/2025	965.94

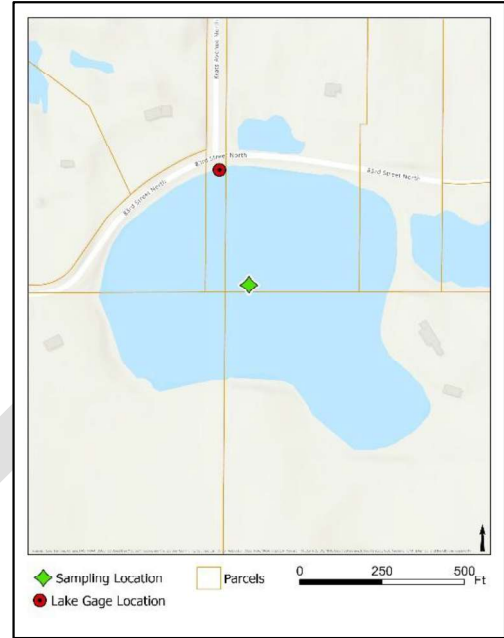
*Data requirements and determinations of use assessment according to the MPCA's Guidance Manual for Assessing the Quality of Minnesota Surface Waters: "Samples must be collected over a minimum of 2 years and data used for assessments must be collected from June to September. Typically, a minimum of 8 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										
	Lake Grades (May-Sept)									
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016
Total Phosphorus (mg/l)	C	C	C	B	B	B	C	C	C	C
Chlorophyll-a (ug/l)	C	C	B	B	B	B	C	D	C	C
Secchi depth (ft)	B	C	B	B	B	B	C	D	D	C
Overall	C+	C	B-	B	B	B	C	D+	C-	C

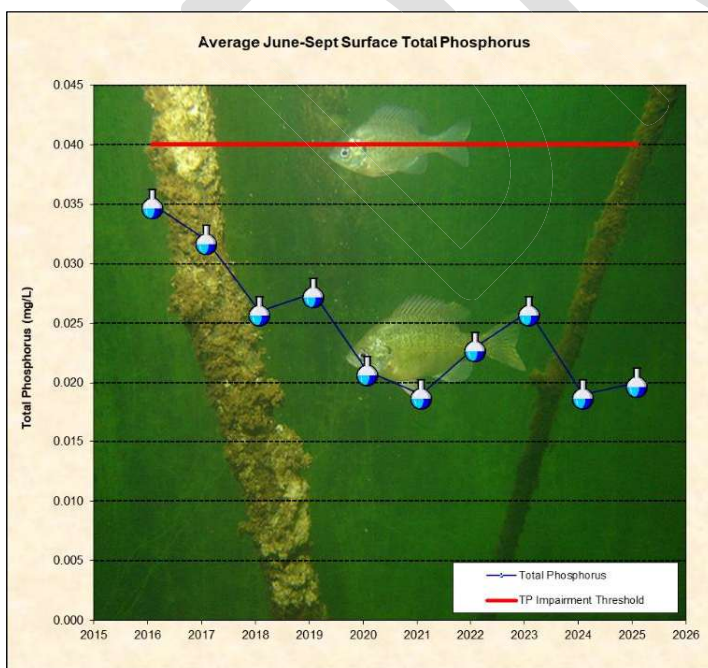
Woodpile Lake 2025 Lake Grade: A

- DNR ID #: 820132
 - Municipality: City of Grant
 - Location: Section 23, T30N-R21W
 - Lake Size: 15 Acres
 - Maximum Depth (2025): 26 ft.
 - Ordinary High Water Mark: 968.50 ft.
 - 100-Year High Water Level: 972.50 ft.
 - 8% Littoral
- Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.

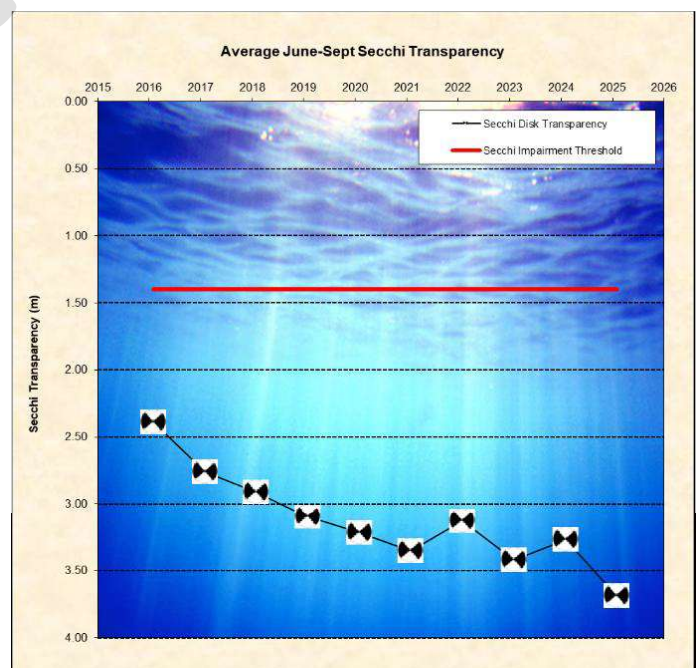


Summary Points

- Based on chlorophyll- α data, the lake is classified as mesotrophic according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ($p < 0.05$) there is a statistically significant **improving** trend for the average Secchi transparency, average chlorophyll- α , and average total phosphorus.
- The major land use is rural/agricultural.
- The lake stratified in 2025 with the thermocline around 3 meters.
- This lake is categorized as a deep lake according to the Minnesota Pollution Control Agency's standards.
- Lab methodology was changed for 2023 total phosphorus sample analysis, as such no results were reported <0.022 mg/L (April-mid September).



2025 Water Monitoring Summary - BCWD



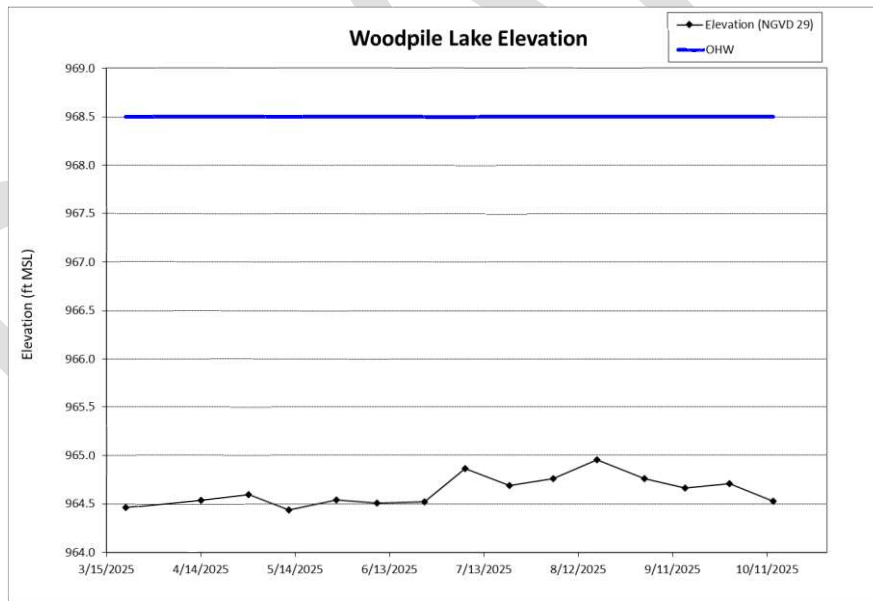
A37

Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (ug/L)	Pheophytin-Corrected Chlorophyll-a (ug/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/14/2025 9:00	0.018	2.6	2.9	0.82	3.66	10.0	13.55
4/29/2025 8:26	0.020	4.3	4.0	0.65	4.27	13.5	10.20
5/12/2025 8:48	0.023	2.3	1.6	0.66	4.42	19.8	10.80
5/27/2025 8:19	0.020	2.3	2.1	0.67	4.27	18.2	10.60
6/9/2025 8:31	0.020	3.0	2.4	0.64	4.27	20.5	10.34
6/24/2025 8:15	0.021	2.5	2.1	0.67	3.96	26.2	7.95
7/7/2025 8:44	0.023			0.68	3.96	27.4	9.41
7/21/2025 8:55	0.024	9.6	9.3	0.76	2.74	25.2	9.36
8/4/2025 8:21	0.023	8.1	7.5	0.66	3.20	25.5	7.13
8/18/2025 11:09	0.025	6.6	6.7	0.67	3.51	24.2	6.32
9/2/2025 9:10	0.017	4.7	4.5	0.68	3.51	23.2	7.98
9/15/2025 8:51	0.014	2.7	2.7	0.56	4.27	22.8	9.78
9/29/2025 8:34	0.016	2.2	1.9	0.55	3.81	20.5	8.72
10/13/2025 8:37	0.015	2.0	1.1	0.53	4.27	15.9	6.96
2025 Average	0.020	4.1	3.8	0.66	3.87	20.9	9.22
2025 Summer Average	0.020	4.9	4.6	0.65	3.69	23.9	8.55

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
2025 Elevation (ft)	964.95	8/18/2025	964.44	5/12/2025	964.64

*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										
	Lake Grades (May-Sept)									
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016
Total Phosphorus (mg/l)	A	A	B	A	A	A	B	B	B	C
Chlorophyll-a (ug/l)	A	A	A	A	A	A	A	A	A	A
Secchi depth (ft)	A	A	A	A	A	A	A	B	B	B
Overall	A	A	A-	A	A	A	A-	B+	B+	B

APPENDIX B –STREAM DATA

Total Phosphorus and Total Suspended Solids Loading Tables

- Table 1. Brown’s Creek at Highway 15 2025 Total Suspended Solids (TSS) and Total Phosphorus (TP) Loading**
- Table 2. Brown’s Creek at McKusick Road 2025 Total Suspended Solids (TSS) and Total Phosphorus (TP) Loading**
- Table 3. Brown’s Creek at Stonebridge Trail 2025 Total Suspended Solids (TSS) and Total Phosphorus (TP) Loading**
- Table 4. Brown’s Creek Diversion Structure Drainage 2025 Total Suspended Solids (TSS) and Total Phosphorus (TP) Loading**
- Table 5. Tributary to Long Lake at Marketplace Pond 2025 Total Suspended Solids (TSS) and Total Phosphorus (TP) Loading**
- Table 6. Tributary to Long Lake at 62nd Street 2025 Total Suspended Solids (TSS) and Total Phosphorus (TP) Loading**

Field Water Quality Data Tables

- Table 7. Brown’s Creek at Highway 15 2025 Field Water Quality Results**
- Table 8. Brown’s Creek at McKusick Road 2025 Field Water Quality Results**
- Table 9. Brown’s Creek at Stonebridge Trail 2025 Field Water Quality Results**
- Table 10. Brown’s Creek Outlet 2025 Field Water Quality Results**
- Table 11. Brown’s Creek Diversion Structure Drainage 2025 Field Water Quality Results**
- Table 12. Tributary to Long Lake at 62nd St. 2025 Field Water Quality Results**

Table 1. Brown's Creek at Highway 15 2025 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*			6	0.110	1/1/2025 0:00	3/9/2025 13:00	16,047,900	368.60	6.011	110.20
Snowmelt*			144	0.382	3/9/2025 13:00	3/11/2025 15:00	945,000	21.71	8.495	22.54
Base*			6	0.110	3/11/2025 15:00	3/29/2025 17:00	5,859,000	134.57	2.195	40.23
Storm*			305	0.700	3/29/2025 17:00	3/30/2025 17:00	1,555,200	35.72	29.611	67.96
Base*			6	0.110	3/30/2025 17:00	4/2/2025 11:00	1,425,600	32.74	534	9.79
Storm*			305	0.700	4/2/2025 11:00	4/3/2025 1:00	453,600	10.42	8.637	19.82
Base*			6	0.110	4/3/2025 1:00	4/16/2025 10:30	4,629,600	106.34	1.734	31.79
Base			6	0.110	4/16/2025 10:30	4/17/2025 16:30	408,240	9.38	153	2.80
Storm			305	0.700	4/17/2025 16:30	4/18/2025 9:30	421,809	9.69	8.031	18.43
Base			6	0.110	4/18/2025 9:30	4/21/2025 0:30	1,194,370	27.43	447	8.20
Storm			305	0.700	4/21/2025 0:30	4/21/2025 19:30	605,407	13.91	11,527	26.46
Base			6	0.110	4/21/2025 19:30	4/28/2025 8:30	3,088,780	70.95	1,157	21.21
Base Grab	4/29/2025 8:21	4/29/2025 8:21	4	0.069	4/28/2025 8:30	4/30/2025 8:30	733,044	16.84	183	3.16
Base			6	0.110	4/30/2025 8:30	5/13/2025 14:30	4,713,320	108.26	1.765	32.37
Base Grab	5/14/2025 14:09	5/14/2025 14:09	9	0.102	5/13/2025 14:30	5/15/2025 14:30	556,776	12.79	313	3.55
Base			6	0.110	5/15/2025 14:30	5/19/2025 21:30	1,376,920	31.63	516	9.46
Storm			305	0.700	5/19/2025 21:30	5/20/2025 9:30	277,951	6.38	5,292	12.15
Storm Composite	5/20/2025 10:19	5/21/2025 13:16	169	0.407	5/20/2025 9:30	5/21/2025 13:30	2,073,210	47.62	21,872	52.67
Base			6	0.110	5/21/2025 13:30	6/3/2025 8:30	5,675,320	130.36	2,126	38.97
Storm			305	0.700	6/3/2025 8:30	6/4/2025 2:30	384,674	8.84	7,324	16.81
Base			6	0.110	6/4/2025 2:30	6/10/2025 8:30	1,944,890	44.67	728	13.36
Base Grab	6/11/2025 8:10	6/11/2025 8:10	5	0.119	6/10/2025 8:30	6/13/2025 0:30	677,366	15.56	211	5.03
Storm Composite	6/13/2025 7:55	6/14/2025 10:14	294	0.218	6/13/2025 0:30	6/14/2025 10:30	1,321,570	30.35	24,255	17.99
Base			6	0.110	6/14/2025 10:30	6/25/2025 13:30	3,790,860	87.07	1,420	26.03
Storm Composite	6/25/2025 15:23	6/26/2025 13:03	165	0.449	6/25/2025 13:30	6/26/2025 13:30	1,556,370	35.75	16,031	43.62
Base			6	0.110	6/26/2025 13:30	7/9/2025 10:30	6,639,740	152.51	2,487	45.59
Base Grab	7/10/2025 10:26	7/10/2025 10:26	8	0.189	7/9/2025 10:30	7/11/2025 10:30	526,795	12.10	263	6.22
Base			6	0.110	7/11/2025 10:30	7/27/2025 20:30	4,309,640	98.99	1,614	29.59
Storm Composite	7/27/2025 20:58	7/28/2025 7:38	331	0.699	7/27/2025 20:30	7/28/2025 8:30	696,533	16.00	14,392	30.39
Base			6	0.110	7/28/2025 8:30	7/28/2025 21:30	843,858	19.38	316	5.79
Storm			305	0.700	7/28/2025 21:30	7/29/2025 0:30	172,165	3.95	3,278	7.52
Base			6	0.110	7/29/2025 0:30	8/4/2025 9:30	2,937,710	67.48	1,100	20.17
Base Grab	8/5/2025 9:11	8/5/2025 9:11	5	0.122	8/4/2025 9:30	8/6/2025 9:30	476,285	10.94	149	3.63
Base			6	0.110	8/6/2025 9:30	8/9/2025 4:30	630,694	14.49	236	4.33
Storm			305	0.700	8/9/2025 4:30	8/9/2025 13:30	174,174	4.00	3,316	7.61
Storm Composite	8/9/2025 14:13	8/10/2025 12:59	168	0.797	8/9/2025 13:30	8/10/2025 13:30	541,013	12.43	5,674	26.92
Base			6	0.110	8/10/2025 13:30	8/15/2025 17:30	1,456,620	33.46	546	10.00
Storm			305	0.700	8/15/2025 17:30	8/16/2025 10:30	434,689	9.98	8,276	19.00
Storm Composite	8/16/2025 11:01	8/17/2025 2:36	702	1.630	8/16/2025 10:30	8/17/2025 3:30	704,978	16.19	30,894	71.73
Base			6	0.110	8/17/2025 3:30	9/7/2025 14:30	7,779,400	178.68	2,914	53.42
Base Grab	9/8/2025 14:26	9/8/2025 14:26	6	0.080	9/7/2025 14:30	9/9/2025 14:30	532,562	12.23	199	2.66
Base			6	0.110	9/9/2025 14:30	9/19/2025 18:30	3,052,770	70.12	1,143	20.96
Storm			305	0.700	9/19/2025 18:30	9/21/2025 16:30	1,113,900	25.58	21,209	48.68
Base			6	0.110	9/21/2025 16:30	9/22/2025 0:30	136,268	3.13	51	0.94
Storm			305	0.700	9/22/2025 0:30	9/23/2025 11:30	883,095	20.28	16,814	38.59
Base			6	0.110	9/23/2025 11:30	10/7/2025 10:30	3,189,600	73.26	1,195	21.90
Base Grab	10/8/2025 10:28	10/8/2025 10:28	6	0.088	10/7/2025 10:30	10/9/2025 10:30	409,631	9.41	153	2.25
Base			6	0.110	10/9/2025 10:30	10/28/2025 10:30	4,516,180	103.73	1,692	31.01
Base*			6	0.110	10/28/2025 10:30	11/25/2025 16:00	6,707,250	154.06	2,512	46.06
Storm*			305	0.700	11/25/2025 16:00	11/26/2025 2:00	252,000	5.79	4,798	11.01
Base*			6	0.110	11/26/2025 2:00	1/1/2026 0:00	8,533,800	196.01	3,196	58.60
Storm Average			305	0.700						
Base Average			6	0.110						
All Average			144	0.382						
Total							119,368,127	2,742	288,988	1,279
Brown's Creek Major Subwatershed Total Acres							3,532			
Total TSS/TP(lb/ac/yr)									81.82	0.362
Total TSS/TP (kg/ha/yr)									91.71	0.406

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

*Interval volumes were estimated using similar flow conditions.

Table 2. Brown's Creek at McKusick Road 2025 Total Suspended Solids (TSS) and Total Phosphorus (TP) Loading

Sample Type	Sample Collection Time		Loading Interval		Interval Volume (cf)	Interval Volume (ac-ft)	Interval TSS (lb)	Interval TP (lb)		
	Start	End	TSS (mg/L)	TP (mg/L)					Start	End
Base*			7	0.127	1/1/2025 0:00	2/24/2025 12:00	18,835,200	432.62	8,231	149.33
Snowmelt*			323	0.525	2/24/2025 12:00	2/25/2025 9:00	491,400	11.29	9,908	16.11
Base*			7	0.127	2/25/2025 9:00	3/9/2025 13:00	4,204,800	96.58	1,837	33.34
Snowmelt*			323	0.525	3/9/2025 13:00	3/11/2025 15:00	1,350,000	31.01	27,221	44.24
Base*			7	0.127	3/11/2025 15:00	3/29/2025 18:00	7,830,000	179.85	3,422	62.08
Storm*			523	0.713	3/29/2025 18:00	3/30/2025 20:00	2,152,800	49.45	70,286	95.82
Base*			7	0.127	3/30/2025 20:00	4/2/2025 12:00	1,843,200	42.34	805	14.61
Storm*			523	0.713	4/2/2025 12:00	4/3/2025 3:00	702,000	16.12	22,920	31.25
Base*			7	0.127	4/3/2025 3:00	4/10/2025 14:45	4,367,925	100.33	1,909	34.63
Base			7	0.127	4/10/2025 14:45	4/17/2025 16:45	3,912,020	89.85	1,709	31.01
Storm			523	0.713	4/17/2025 16:45	4/18/2025 0:45	257,529	5.92	8,408	11.46
Base			7	0.127	4/18/2025 0:45	4/21/2025 1:45	2,129,960	48.92	931	16.89
Storm Composite ^X	4/21/2025 3:50	4/21/2025 11:05	3,470	1,650	4/21/2025 1:45	4/21/2025 11:45	465,815	10.70	100,904	47.98
Base			7	0.127	4/21/2025 11:45	4/28/2025 8:45	4,807,710	110.43	2,101	38.12
Base Grab	4/29/2025 8:48	4/29/2025 8:48	4	0.072	4/28/2025 8:45	4/30/2025 8:45	1,074,020	24.67	268	4.83
Base			7	0.127	4/30/2025 8:45	5/13/2025 14:45	5,997,320	137.75	2,621	47.55
Base Grab	5/14/2025 14:22	5/14/2025 14:22	6	0.093	5/13/2025 14:45	5/15/2025 14:45	627,854	14.42	235	3.65
Storm			523	0.713	5/15/2025 14:45	5/15/2025 19:45	135,773	3.12	4,433	6.04
Base			7	0.127	5/15/2025 19:45	5/19/2025 22:45	1,858,300	42.68	812	14.73
Storm Composite	5/19/2025 23:11	5/21/2025 3:51	1,220	1,460	5/19/2025 22:45	5/21/2025 4:45	2,774,420	63.73	211,300	252.87
Storm			523	0.713	5/21/2025 4:45	5/21/2025 17:45	1,569,820	36.06	51,253	69.87
Base			7	0.127	5/21/2025 17:45	6/3/2025 7:45	9,423,770	216.45	4,118	74.71
Storm			523	0.713	6/3/2025 7:45	6/4/2025 3:45	645,018	14.82	21,059	28.71
Base			7	0.127	6/4/2025 3:45	6/10/2025 8:45	3,052,400	70.11	1,334	24.20
Base Grab	6/11/2025 8:24	6/11/2025 8:24	10	0.132	6/10/2025 8:45	6/12/2025 23:45	1,032,350	23.71	644	8.51
Storm Composite	6/13/2025 0:57	6/13/2025 9:32	1,500	1,290	6/12/2025 23:45	6/13/2025 13:45	838,663	19.26	78,532	67.54
Base			7	0.127	6/13/2025 13:45	6/25/2025 11:45	7,261,420	166.79	3,173	57.57
Storm Composite ^{XV}	6/25/2025 12:25	6/25/2025 18:01	3,220	2,060	6/25/2025 11:45	6/25/2025 18:45	667,094	15.32	134,094	85.79
Storm			523	0.713	6/25/2025 18:45	6/26/2025 18:45	3,586,860	82.39	117,107	159.65
Base			7	0.127	6/26/2025 18:45	6/29/2025 1:45	6,572,900	150.97	2,872	52.11
Storm			523	0.713	6/29/2025 1:45	6/29/2025 3:45	192,686	4.43	6,291	8.58
Base			7	0.127	6/29/2025 3:45	7/5/2025 21:45	9,017,840	207.13	3,941	71.49
Storm			523	0.713	7/5/2025 21:45	7/6/2025 3:45	255,403	5.87	8,339	11.37
Base			7	0.127	7/6/2025 3:45	7/9/2025 9:45	2,170,500	49.85	948	17.21
Base Grab	7/10/2025 9:46	7/10/2025 9:46	11	0.234	7/9/2025 9:45	7/11/2025 9:45	805,367	18.50	553	11.76
Base			7	0.127	7/11/2025 9:45	7/16/2025 0:45	1,292,300	29.68	565	10.25
Storm			523	0.713	7/16/2025 0:45	7/16/2025 11:45	196,406	4.51	6,412	8.74
Base			7	0.127	7/16/2025 11:45	7/23/2025 13:45	2,452,600	56.33	1,072	19.44
Storm			523	0.713	7/23/2025 13:45	7/23/2025 20:45	143,406	3.29	4,682	6.38
Base			7	0.127	7/23/2025 20:45	7/27/2025 19:45	1,494,450	34.33	653	11.85
Storm Composite	7/27/2025 20:35	7/28/2025 1:17	867	0.791	7/27/2025 19:45	7/28/2025 1:45	837,890	19.25	45,350	41.37
Base			7	0.127	7/28/2025 1:45	7/28/2025 21:45	2,552,750	58.63	1,116	20.24
Storm			523	0.713	7/28/2025 21:45	7/29/2025 0:45	407,595	9.36	13,308	18.14
Base			7	0.127	7/29/2025 0:45	8/4/2025 8:45	7,254,250	166.62	3,170	57.51
Base Grab	8/5/2025 8:19	8/5/2025 8:19	8	0.203	8/4/2025 8:45	8/6/2025 8:45	794,047	18.24	397	10.06
Base			7	0.127	8/6/2025 8:45	8/9/2025 3:45	926,159	21.27	405	7.34
Storm Composite	8/9/2025 5:06	8/9/2025 12:56	172	0.490	8/9/2025 3:45	8/9/2025 13:45	474,358	10.90	5,093	14.51
Base			7	0.127	8/9/2025 13:45	8/15/2025 17:45	3,463,350	79.55	1,513	27.46
Storm Composite	8/15/2025 19:12	8/17/2025 10:26	61	0.256	8/15/2025 17:45	8/17/2025 10:45	2,659,830	61.09	10,129	42.51
Base			7	0.127	8/17/2025 10:45	8/17/2025 22:45	842,313	19.35	368	6.68
Storm			346	0.525	8/17/2025 22:45	8/18/2025 3:45	462,444	10.62	9,989	15.16
Base			7	0.127	8/18/2025 3:45	8/29/2025 2:45	9,387,930	215.63	4,102	74.43
Storm			346	0.525	8/29/2025 2:45	8/29/2025 7:45	74,380	1.71	1,607	2.44
Base			7	0.127	8/29/2025 7:45	9/7/2025 14:45	2,662,310	61.15	1,163	21.11
Base Grab	9/8/2025 15:08	9/8/2025 15:08	7	0.074	9/7/2025 14:45	9/9/2025 14:45	507,936	11.67	222	2.35
Base			7	0.127	9/9/2025 14:45	9/19/2025 19:45	2,952,380	67.81	1,290	23.41
Storm			346	0.525	9/19/2025 19:45	9/20/2025 12:45	537,776	12.35	11,616	17.62
Base			7	0.127	9/20/2025 12:45	9/22/2025 0:45	1,122,270	25.78	490	8.90
Storm			346	0.525	9/22/2025 0:45	9/22/2025 6:45	296,154	6.80	6,397	9.71
Base			7	0.127	9/22/2025 6:45	10/7/2025 9:45	5,195,330	119.33	2,270	41.19
Base Grab	10/8/2025 10:06	10/8/2025 10:06	6	0.081	10/7/2025 9:45	10/9/2025 9:45	538,013	12.36	202	2.72
Base			7	0.127	10/9/2025 9:45	10/28/2025 11:45	6,906,850	158.64	3,018	54.76
Base*			7	0.127	10/28/2025 11:45	11/25/2025 16:00	9,738,000	223.67	4,255	77.20
Storm*			346	0.525	11/25/2025 16:00	11/26/2025 9:00	535,500	12.30	11,567	17.55
Base*			7	0.127	11/26/2025 9:00	1/1/2026 0:00	12,312,000	282.79	5,380	97.61
Storm Average (Jan 1 - July 31, 2021-2025 Average)			523	0.713						
Storm Average (Aug 1 - Dec 31, 2021-2025 Average)			346	0.525						
Base Average			7	0.127						
All Average			323	0.525						
Total							191,931,114	4,408	1,072,318	2,474
Brown's Creek Major Subwatershed Total Acres							3,999			
Total TSS/TP (lb/ac/yr)									268.15	0.619
Total TSS/TP (kg/ha/yr)									300.55	0.693

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

*Interval volumes were estimated using similar flow conditions.

^XTSS result excluded from averages.

^VTP result excluded from averages.

Table 3. Brown's Creek at Stonebridge Trail 2025 Total Suspended Solids (TSS) and Total Phosphorus (TP) Loading

Sample Type	Sample Collection Time				Loading Interval		Interval Volume (cf)	Interval Volume (ac-ft)	Interval TSS (lb)	Interval TP (lb)
	Start	End	TSS (mg/L)	TP (mg/L)	Start	End				
Base*			6	0.099	1/1/2025 0:00	2/24/2025 12:00	21,189,600	486.70	7,937	130.96
Snowmelt*			105	0.254	2/24/2025 12:00	2/25/2025 9:00	642,600	14.76	4,212	10.19
Base*			6	0.099	2/25/2025 9:00	3/9/2025 13:00	4,730,400	108.65	1,772	29.23
Snowmelt*			105	0.254	3/9/2025 13:00	3/11/2025 15:00	1,620,000	37.21	10,619	25.69
Base*			6	0.099	3/11/2025 15:00	3/29/2025 18:00	9,396,000	215.82	3,519	58.07
Storm*			247	0.520	3/29/2025 18:00	3/30/2025 20:00	2,340,000	53.75	36,081	75.96
Base*			6	0.099	3/30/2025 20:00	4/2/2025 12:00	1,958,400	44.98	734	12.10
Storm*			247	0.520	4/2/2025 12:00	4/3/2025 3:00	810,000	18.60	12,490	26.29
Base*			6	0.099	4/3/2025 3:00	4/8/2025 12:45	3,269,700	75.10	1,225	20.21
Base			6	0.099	4/8/2025 12:45	4/17/2025 17:45	4,853,790	111.49	1,818	30.00
Storm			247	0.520	4/17/2025 17:45	4/18/2025 4:45	387,825	8.91	5,980	12.59
Base			6	0.099	4/18/2025 4:45	4/21/2025 0:45	1,987,490	45.65	744	12.28
Storm Composite	4/21/2025 3:59	4/21/2025 5:58	85	0.248	4/21/2025 0:45	4/21/2025 9:45	469,372	10.78	2,491	7.27
Base			6	0.099	4/21/2025 9:45	4/28/2025 8:45	5,532,610	127.08	2,072	34.19
Base Grab	4/29/2025 8:36	4/29/2025 8:36	4	0.071	4/28/2025 8:45	4/30/2025 8:45	1,214,240	27.89	303	5.38
Base			6	0.099	4/30/2025 8:45	5/13/2025 14:45	6,073,260	139.50	2,275	37.53
Base Grab	5/14/2025 14:42	5/14/2025 14:42	9	0.098	5/13/2025 14:45	5/15/2025 14:45	710,006	16.31	399	4.34
Storm			247	0.520	5/15/2025 14:45	5/15/2025 20:45	173,401	3.98	2,674	5.63
Base			6	0.099	5/15/2025 20:45	5/19/2025 22:45	1,733,610	39.82	649	10.71
Storm Composite	5/19/2025 23:21	5/20/2025 11:52	183	0.422	5/19/2025 22:45	5/21/2025 9:45	4,180,240	96.02	47,755	110.12
Base			6	0.099	5/21/2025 9:45	6/3/2025 8:45	11,284,600	259.19	4,227	69.74
Storm			247	0.520	6/3/2025 8:45	6/4/2025 3:45	490,524	11.27	7,564	15.92
Base			6	0.099	6/4/2025 3:45	6/10/2025 8:45	2,324,980	53.40	871	14.37
Base Grab	6/11/2025 8:38	6/11/2025 8:38	3	0.078	6/10/2025 8:45	6/12/2025 22:45	872,661	20.04	163	4.25
Storm			247	0.520	6/12/2025 22:45	6/14/2025 5:45	1,996,830	45.86	30,790	64.82
Base			6	0.099	6/14/2025 5:45	6/25/2025 11:45	5,185,460	119.10	1,942	32.05
Storm			247	0.520	6/25/2025 11:45	6/26/2025 20:45	5,379,870	123.57	82,954	174.64
Base			6	0.099	6/26/2025 20:45	6/29/2025 1:45	7,264,370	166.85	2,721	44.90
Storm			247	0.520	6/29/2025 1:45	6/29/2025 4:45	353,115	8.11	5,445	11.46
Base			6	0.099	6/29/2025 4:45	7/5/2025 21:45	10,138,400	232.87	3,797	62.66
Storm			247	0.520	7/5/2025 21:45	7/6/2025 5:45	359,886	8.27	5,549	11.68
Base			6	0.099	7/6/2025 5:45	7/10/2025 8:45	2,303,410	52.91	863	14.24
Base Grab	7/10/2025 9:24	7/10/2025 9:24	113	0.406	7/10/2025 8:45	7/10/2025 9:45	15,428	0.35	109	0.39
Base			6	0.099	7/10/2025 9:45	7/16/2025 0:45	1,874,770	43.06	702	11.59
Storm			247	0.520	7/16/2025 0:45	7/16/2025 12:45	211,373	4.85	3,259	6.86
Base			6	0.099	7/16/2025 12:45	7/23/2025 12:45	2,591,840	59.53	971	16.02
Storm			247	0.520	7/23/2025 12:45	7/23/2025 18:45	112,569	2.59	1,736	3.65
Base			6	0.099	7/23/2025 18:45	7/27/2025 19:45	1,549,600	35.59	580	9.58
Storm Composite	7/27/2025 20:50	7/28/2025 1:01	626	0.866	7/27/2025 19:45	7/28/2025 1:45	1,189,470	27.32	46,483	64.30
Storm			247	0.520	7/28/2025 1:45	7/28/2025 11:45	1,696,010	38.96	26,151	55.06
Base			6	0.099	7/28/2025 11:45	8/4/2025 8:45	10,208,500	234.48	3,824	63.09
Base Grab	8/5/2025 9:12	8/5/2025 9:12	6	0.178	8/4/2025 8:45	8/6/2025 8:45	736,793	16.92	276	8.19
Base			6	0.099	8/6/2025 8:45	8/9/2025 4:45	965,184	22.17	362	5.97
Storm			247	0.520	8/9/2025 4:45	8/9/2025 11:45	427,563	9.82	6,593	13.88
Base			6	0.099	8/9/2025 11:45	8/15/2025 18:45	3,214,680	73.84	1,204	19.87
Storm			247	0.520	8/15/2025 18:45	8/16/2025 12:45	996,074	22.88	15,359	32.33
Base			6	0.099	8/16/2025 12:45	8/17/2025 22:45	2,995,310	68.80	1,122	18.51
Storm			247	0.520	8/17/2025 22:45	8/18/2025 5:45	810,889	18.63	12,503	26.32
Base			6	0.099	8/18/2025 5:45	8/29/2025 3:45	10,088,000	231.71	3,779	62.35
Storm			247	0.520	8/29/2025 3:45	8/29/2025 8:45	83,819	1.93	1,292	2.72
Base			6	0.099	8/29/2025 8:45	9/7/2025 14:45	3,404,620	78.20	1,275	21.04
Base Grab	9/8/2025 14:52	9/8/2025 14:52	8	0.085	9/7/2025 14:45	9/9/2025 14:45	702,860	16.14	351	3.73
Base			6	0.099	9/9/2025 14:45	9/19/2025 20:45	3,211,310	73.76	1,203	19.85
Storm			247	0.520	9/19/2025 20:45	9/20/2025 20:45	989,971	22.74	15,265	32.14
Base			6	0.099	9/20/2025 20:45	9/22/2025 0:45	1,028,000	23.61	385	6.35
Storm			247	0.520	9/22/2025 0:45	9/22/2025 14:45	954,658	21.93	14,720	30.99
Base			6	0.099	9/22/2025 14:45	10/7/2025 9:45	5,765,950	132.44	2,160	35.63
Base Grab	10/8/2025 9:46	10/8/2025 9:46	8	0.086	10/7/2025 9:45	10/9/2025 9:45	545,618	12.53	272	2.93
Base			6	0.099	10/9/2025 9:45	10/28/2025 10:45	6,325,420	145.29	2,369	39.09
Base*			6	0.099	10/28/2025 10:45	11/25/2025 16:00	10,361,925	238.00	3,881	64.04
Storm*			247	0.520	11/25/2025 16:00	11/26/2025 11:00	752,400	17.28	11,601	24.42
Base*			6	0.099	11/26/2025 11:00	1/1/2026 0:00	13,818,600	317.40	5,176	85.40
Storm Average (2021-2025 Average)			247	0.520						
Base Average			6	0.099						
All Average			105	0.254						
Total							208,855,854	4,797	477,596	1,966
Brown's Creek Major Subwatershed Total Acres							4,189			
Total TSS/TP (lb/ac/yr)									114.01	0.469
Total TSS/TP (kg/ha/yr)									127.79	0.526

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

*Interval volumes were estimated using similar flow conditions.

Table 4. Brown's Creek Diversion Structure Drainage 2025 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	TSS	TP	Start	End						
Base*			4	0.077	1/1/2025 0:00	3/9/2025 10:00	4,077,360	93.65	1,018	19.60		
Snowmelt*			64	0.204	3/9/2025 10:00	3/10/2025 18:00	172,800	3.97	690	2.20		
Base*			4	0.077	3/10/2025 18:00	3/29/2025 18:00	1,231,200	28.28	307	5.92		
Storm*			134	0.352	3/29/2025 18:00	3/30/2025 15:00	945,000	21.71	7,905	20.77		
Base*			4	0.077	3/30/2025 15:00	4/2/2025 12:00	1,242,000	28.53	310	5.97		
Storm*			134	0.352	4/2/2025 12:00	4/2/2025 20:00	158,400	3.64	1,325	3.48		
Base*			4	0.077	4/2/2025 20:00	4/17/2025 16:00	3,204,000	73.59	800	15.40		
Storm*			134	0.352	4/17/2025 16:00	4/18/2025 1:00	105,300	2.42	881	2.31		
Base*			4	0.077	4/18/2025 1:00	4/21/2025 0:00	511,200	11.74	128	2.46		
Storm*			134	0.352	4/21/2025 0:00	4/21/2025 9:00	178,200	4.09	1,491	3.92		
Base*			4	0.077	4/21/2025 9:00	4/30/2025 14:30	1,594,800	36.63	398	7.67		
Base Grab	5/1/2025 14:09	5/1/2025 14:09	3	0.051	4/30/2025 14:30	5/2/2025 14:30	260,772	5.99	49	0.83		
Base			4	0.077	5/2/2025 14:30	5/11/2025 14:30	818,730	18.81	204	3.94		
Base Grab	5/12/2025 14:28	5/12/2025 14:28	3	0.074	5/11/2025 14:30	5/15/2025 15:30	238,053	5.47	45	1.10		
Storm			134	0.352	5/15/2025 15:30	5/15/2025 19:30	21,141	0.49	177	0.46		
Base			4	0.077	5/15/2025 19:30	5/19/2025 22:30	286,922	6.59	72	1.38		
Storm			134	0.352	5/19/2025 22:30	5/20/2025 6:30	66,862	1.54	559	1.47		
Storm Composite	5/20/2025 6:52	5/21/2025 0:40	94	0.280	5/20/2025 6:30	5/21/2025 1:30	816,166	18.75	4,789	14.27		
Base			4	0.077	5/21/2025 1:30	6/3/2025 7:30	4,227,090	97.09	1,056	20.32		
Storm			134	0.352	6/3/2025 7:30	6/3/2025 19:30	137,867	3.17	1,153	3.03		
Base Grab	6/10/2025 13:32	6/10/2025 13:32	10	0.128	6/3/2025 19:30	6/11/2025 13:30	1,173,070	26.94	732	9.37		
Base			4	0.077	6/11/2025 13:30	6/12/2025 22:30	156,920	3.60	39	0.75		
Storm Composite	6/13/2025 0:52	6/13/2025 8:32	30	0.176	6/12/2025 22:30	6/13/2025 9:30	235,592	5.41	441	2.59		
Base			4	0.077	6/13/2025 9:30	6/25/2025 11:30	3,553,120	81.61	887	17.08		
Storm Composite	6/25/2025 13:29	6/25/2025 22:20	70	0.281	6/25/2025 11:30	6/25/2025 22:30	702,322	16.13	3,069	12.32		
Base			4	0.077	6/25/2025 22:30	6/26/2025 13:30	1,098,100	25.22	274	5.28		
Storm			134	0.352	6/26/2025 13:30	6/26/2025 20:30	559,238	12.85	4,678	12.29		
Base			4	0.077	6/26/2025 20:30	6/29/2025 1:30	3,297,020	75.73	823	15.85		
Storm			134	0.352	6/29/2025 1:30	6/29/2025 5:30	214,526	4.93	1,795	4.71		
Base			4	0.077	6/29/2025 5:30	7/5/2025 21:30	3,248,560	74.62	811	15.62		
Storm			134	0.352	7/5/2025 21:30	7/6/2025 1:30	90,997	2.09	761	2.00		
Base			4	0.077	7/6/2025 1:30	7/9/2025 9:30	956,806	21.98	239	4.60		
Base Grab	7/10/2025 10:03	7/10/2025 10:03	3	0.084	7/9/2025 9:30	7/11/2025 9:30	340,733	7.83	64	1.79		
Base			4	0.077	7/11/2025 9:30	7/16/2025 0:30	517,968	11.90	129	2.49		
Storm			134	0.352	7/16/2025 0:30	7/16/2025 10:30	66,825	1.53	559	1.47		
Base			4	0.077	7/16/2025 10:30	7/23/2025 13:30	898,709	20.64	224	4.32		
Storm			134	0.352	7/23/2025 13:30	7/23/2025 17:30	28,133	0.65	235	0.62		
Base			4	0.077	7/23/2025 17:30	7/27/2025 20:30	561,913	12.91	140	2.70		
Storm Composite	7/27/2025 20:46	7/28/2025 4:47	161	0.470	7/27/2025 20:30	7/28/2025 5:30	681,789	15.66	6,852	20.00		
Base			4	0.077	7/28/2025 5:30	7/28/2025 21:30	652,523	14.99	163	3.14		
Storm			134	0.352	7/28/2025 21:30	7/29/2025 1:30	176,443	4.05	1,476	3.88		
Base			4	0.077	7/29/2025 1:30	8/3/2025 14:30	2,660,380	61.11	664	12.79		
Base Grab	8/4/2025 14:36	8/4/2025 14:36	3	0.064	8/3/2025 14:30	8/5/2025 14:30	263,509	6.05	49	1.05		
Base			4	0.077	8/5/2025 14:30	8/9/2025 4:30	362,105	8.32	90	1.74		
Storm Composite	8/9/2025 5:30	8/9/2025 9:20	283	0.546	8/9/2025 4:30	8/9/2025 10:30	137,881	3.17	2,436	4.70		
Base			4	0.077	8/9/2025 10:30	8/15/2025 18:30	1,697,900	39.00	424	8.16		
Storm			134	0.352	8/15/2025 18:30	8/15/2025 22:30	54,414	1.25	455	1.20		
Base			4	0.077	8/15/2025 22:30	8/16/2025 7:30	116,524	2.68	29	0.56		
Storm Composite	8/16/2025 7:29	8/17/2025 23:58	166	0.361	8/16/2025 7:30	8/17/2025 23:30	1,444,420	33.18	14,968	32.55		
Storm			134	0.352	8/17/2025 23:30	8/18/2025 5:30	257,261	5.91	2,152	5.65		
Base			4	0.077	8/18/2025 5:30	9/3/2025 10:30	4,623,020	106.19	1,154	22.22		
Base Grab	9/4/2025 10:38	9/4/2025 10:38	3	0.057	9/3/2025 10:30	9/5/2025 10:30	248,613	5.71	47	0.88		
Base			4	0.077	9/5/2025 10:30	9/21/2025 23:30	1,659,290	38.11	414	7.98		
Storm			134	0.352	9/21/2025 23:30	9/22/2025 4:30	66,439	1.53	556	1.46		
Base			4	0.077	9/22/2025 4:30	10/7/2025 9:30	1,722,870	39.57	430	8.28		
Base Grab	10/8/2025 9:33	10/8/2025 9:33	5	0.078	10/7/2025 9:30	10/9/2025 9:30	132,089	3.03	41	0.64		
Base			4	0.077	10/9/2025 9:30	10/28/2025 15:30	1,420,880	32.64	355	6.83		
Base*			4	0.077	10/28/2025 15:30	11/25/2025 15:00	1,692,180	38.87	423	8.13		
Storm*			134	0.352	11/25/2025 15:00	11/25/2025 22:00	57,960	1.33	485	1.27		
Base*			4	0.077	11/25/2025 22:00	1/1/2026 0:00	2,182,320	50.13	545	10.49		
Storm Average			134	0.352								
Base Average			4	0.077								
All Average			64	0.204								
Total							60,305,225	1,385	73,469	416		
Brown's Creek Major Subwatershed Total Acres							3,855					
Total TSS/TP(lb/ha/yr)									19.06	0.108		
Total TSS/TP (kg/ha/yr)									21.36	0.121		

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

*Interval volumes

Table 5. Tributary to Long Lake at Marketplace Pond 2025 Total Suspended Solids (TSS) and Total Phosphorus (TP) Loading

Sample Type	Sample Collection Time		Loading Interval		Interval Volume (cf)	Interval Volume (ac-ft)	Interval TSS (lb)	Interval TP (lb)		
	Start	End	TSS (mg/L)	TP (mg/L)					Start	End
Intermittent Flow*			4	0.117	1/1/2025 0:00	2/24/2025 11:00	4,705	0.11	1	0.03
Snowmelt*			16	0.127	2/24/2025 11:00	2/27/2025 10:00	511,200	11.74	511	4.05
Intermittent Flow*			4	0.117	2/27/2025 10:00	3/8/2025 12:00	785	0.02	0	0.01
Snowmelt*			16	0.127	3/8/2025 12:00	3/11/2025 15:00	810,000	18.60	809	6.42
Base*			4	0.117	3/11/2025 15:00	3/29/2025 18:00	234,900	5.40	59	1.72
Storm*			19	0.130	3/29/2025 18:00	3/30/2025 4:00	576,000	13.23	683	4.67
Base*			4	0.117	3/30/2025 4:00	4/2/2025 11:00	355,500	8.17	89	2.60
Storm*			19	0.130	4/2/2025 11:00	4/2/2025 19:00	122,400	2.81	145	0.99
Base*			4	0.117	4/2/2025 19:00	4/17/2025 17:00	386,640	8.88	97	2.82
Storm*			19	0.130	4/17/2025 17:00	4/17/2025 22:00	54,000	1.24	64	0.44
Base*			4	0.117	4/17/2025 22:00	4/20/2025 17:00	241,200	5.54	60	1.76
Storm*			19	0.130	4/20/2025 17:00	4/21/2025 22:00	626,400	14.39	743	5.08
Base*			4	0.117	4/21/2025 22:00	5/15/2025 14:00	613,440	14.09	153	4.48
Storm*			19	0.130	5/15/2025 14:00	5/15/2025 18:00	25,200	0.58	30	0.20
Base*			4	0.117	5/15/2025 18:00	5/19/2025 19:00	139,680	3.21	35	1.02
Storm*			19	0.130	5/19/2025 19:00	5/20/2025 13:00	583,200	13.40	692	4.73
Base*			4	0.117	5/20/2025 13:00	6/2/2025 15:30	566,100	13.00	141	4.13
Base*			4	0.117	6/2/2025 15:30	6/2/2025 18:30	54	0.00	0	0.00
Storm*			19	0.130	6/2/2025 18:30	6/2/2025 21:30	4,374	0.10	5	0.04
Base*			4	0.117	6/2/2025 21:30	6/3/2025 7:30	3,876	0.09	1	0.03
Storm Composite	6/3/2025 8:55	6/3/2025 14:51	17	0.120	6/3/2025 7:30	6/3/2025 15:30	119,180	2.74	126	0.89
Base*			4	0.117	6/3/2025 15:30	6/12/2025 16:30	312,994	7.19	78	2.29
Storm*			19	0.130	6/12/2025 16:30	6/12/2025 21:30	19,048	0.44	23	0.15
Storm Composite	6/12/2025 23:28	6/13/2025 2:11	14	0.132	6/12/2025 21:30	6/13/2025 2:30	156,593	3.60	137	1.29
Base*			4	0.117	6/13/2025 2:30	6/13/2025 5:30	92,027	2.11	23	0.67
Storm*			19	0.130	6/13/2025 5:30	6/13/2025 9:30	137,532	3.16	163	1.12
Base*			4	0.117	6/13/2025 9:30	6/16/2025 20:30	480,024	11.03	120	3.51
Storm*			19	0.130	6/16/2025 20:30	6/17/2025 0:30	16,501	0.38	20	0.13
Base*			4	0.117	6/17/2025 0:30	6/25/2025 11:30	126,656	2.91	32	0.93
Storm Composite	6/25/2025 11:55	6/25/2025 15:25	28	0.138	6/25/2025 11:30	6/25/2025 19:30	483,199	11.10	845	4.16
Base*			4	0.117	6/25/2025 19:30	6/26/2025 13:30	506,302	11.63	126	3.70
Storm*			19	0.130	6/26/2025 13:30	6/26/2025 18:30	177,899	4.09	211	1.44
Base*			4	0.117	6/26/2025 18:30	6/29/2025 0:30	513,168	11.79	128	3.75
Storm*			19	0.130	6/29/2025 0:30	6/29/2025 4:30	48,223	1.11	57	0.39
Base*			4	0.117	6/29/2025 4:30	7/5/2025 5:30	307,380	7.06	77	2.25
Storm*			19	0.130	7/5/2025 5:30	7/5/2025 14:30	35,337	0.81	42	0.29
Base*			4	0.117	7/5/2025 14:30	7/5/2025 21:30	44,683	1.03	11	0.33
Storm*			19	0.130	7/5/2025 21:30	7/6/2025 2:30	114,535	2.63	136	0.93
Base Grab	7/9/2025 9:50	7/9/2025 9:50	3	0.104	7/6/2025 2:30	7/10/2025 10:30	294,001	6.75	55	1.91
Base*			4	0.117	7/10/2025 10:30	7/16/2025 0:30	76,109	1.75	19	0.56
Storm*			19	0.130	7/16/2025 0:30	7/16/2025 4:30	25,259	0.58	30	0.20
Base*			4	0.117	7/16/2025 4:30	7/16/2025 6:30	13,500	0.31	3	0.10
Storm Composite	7/16/2025 7:46	7/16/2025 14:13	14	0.150	7/16/2025 6:30	7/16/2025 14:30	116,695	2.68	102	1.09
Base*			4	0.117	7/16/2025 14:30	7/21/2025 10:30	306,543	7.04	77	2.24
Storm*			19	0.130	7/21/2025 10:30	7/21/2025 13:30	14,929	0.34	18	0.12
Base*			4	0.117	7/21/2025 13:30	7/23/2025 9:30	91,734	2.11	23	0.67
Storm*			19	0.130	7/23/2025 9:30	7/23/2025 13:30	25,173	0.58	30	0.20
Storm Composite	7/23/2025 14:22	7/23/2025 17:45	19	0.121	7/23/2025 13:30	7/23/2025 18:30	93,195	2.14	111	0.70
Base*			4	0.117	7/23/2025 18:30	7/27/2025 20:30	342,071	7.86	85	2.50
Storm Composite	7/27/2025 20:37	7/27/2025 21:58	28	0.178	7/27/2025 20:30	7/28/2025 1:30	229,497	5.27	401	2.55
Base*			4	0.117	7/28/2025 1:30	7/28/2025 21:30	292,416	6.72	73	2.14
Storm*			19	0.130	7/28/2025 21:30	7/29/2025 0:30	81,716	1.88	97	0.66
Base*			4	0.117	7/29/2025 0:30	8/3/2025 13:30	432,761	9.94	108	3.16
Base Grab	8/4/2025 13:48	8/4/2025 13:48	5	0.129	8/3/2025 13:30	8/5/2025 13:30	15,365	0.35	5	0.12
Base*			4	0.117	8/5/2025 13:30	8/9/2025 4:30	4,251	0.10	1	0.03
Storm Composite	8/9/2025 4:51	8/9/2025 7:34	17	0.104	8/9/2025 4:30	8/9/2025 10:30	320,327	7.36	340	2.08
Base*			4	0.117	8/9/2025 10:30	8/15/2025 16:30	685,939	15.76	171	5.01
Storm Composite	8/15/2025 12:11	8/15/2025 21:49	14	0.093	8/15/2025 16:30	8/15/2025 21:30	204,571	4.70	179	1.19
Base*			4	0.117	8/15/2025 21:30	8/16/2025 6:30	298,358	6.85	75	2.18
Storm*			19	0.130	8/16/2025 6:30	8/16/2025 10:30	225,644	5.18	268	1.83
Base*			4	0.117	8/16/2025 10:30	8/17/2025 22:30	523,942	12.03	131	3.83
Storm*			19	0.130	8/17/2025 22:30	8/18/2025 2:30	107,510	2.47	128	0.87
Base*			4	0.117	8/18/2025 2:30	8/29/2025 2:30	483,634	11.11	121	3.53
Storm*			19	0.130	8/29/2025 2:30	8/29/2025 5:30	18,079	0.42	21	0.15
Base*			4	0.117	8/29/2025 5:30	9/2/2025 9:30	142,841	3.28	36	1.04
Storm*			19	0.130	9/2/2025 9:30	9/2/2025 12:30	5,898	0.14	7	0.05
Base*			4	0.117	9/2/2025 12:30	9/4/2025 16:30	31,231	0.72	8	0.23
Storm*			19	0.130	9/4/2025 16:30	9/4/2025 21:30	18,093	0.42	21	0.15
Base*			4	0.117	9/4/2025 21:30	9/9/2025 15:30	115,444	2.65	29	0.84
Storm*			19	0.130	9/9/2025 15:30	9/9/2025 18:30	4,934	0.11	6	0.04
Base*			4	0.117	9/9/2025 18:30	9/19/2025 17:30	77,527	1.78	19	0.57
Storm*			19	0.130	9/19/2025 17:30	9/19/2025 22:30	23,822	0.55	28	0.19
Base*			4	0.117	9/19/2025 22:30	9/21/2025 23:30	90,443	2.08	23	0.66
Storm*			19	0.130	9/21/2025 23:30	9/22/2025 7:30	368,298	8.46	437	2.99
Base*			4	0.117	9/22/2025 7:30	10/9/2025 17:30	734,059	16.86	183	5.36
Storm*			19	0.130	10/9/2025 17:30	10/9/2025 21:30	3,904	0.09	5	0.03
Base*			4	0.117	10/9/2025 21:30	10/14/2025 14:30	41,693	0.96	10	0.30
Storm*			19	0.130	10/14/2025 14:30	10/14/2025 23:30	24,699	0.57	29	0.20
Base*			4	0.117	10/14/2025 23:30	10/25/2025 2:30	191,429	4.40	48	1.40
Storm*			19	0.130	10/25/2025 2:30	10/25/2025 8:30	6,944	0.16	8	0.06
Base*			4	0.117	10/25/2025 8:30	10/27/2025 12:30	32,361	0.74	8	0.24
Base*			4	0.117	10/27/2025 12:30	11/25/2025 15:00	125,730	2.89	31	0.92
Storm*			19	0.130	11/25/2025 15:00	11/25/2025 21:00	140,400	3.22	167	1.14
Intermittent Flow*			4	0.117	11/25/2025 21:00	1/1/2026 0:00	15,606	0.36	4	0.11
Storm Average			19	0.130						
Base Average			4	0.117						
All Average			16	0.127						
Total							17,069,510	392	10,449	130
Brown's Creek Major Subwatershed Total Acres							410			
Total TSS/TP(lb/ac/yr)									25.49	0.316
Total TSS/TP (kg/ha/yr)									28.57	0.354

Intermittent Flow indicates estimated concentrations based on average base and storm flow concentrations.

*Interval volumes were estimated using similar flow conditions.

Table 6. Tributary to Long Lake at 62nd Street 2025 Total Suspended Solids (TSS) and Total Phosphorus (TP) Loading

Sample Type	Sample Collection Time		Loading Interval		Interval Volume (cf)	Interval Volume (ac-ft)	Interval TSS (lb)	Interval TP (lb)		
	Start	End	TSS (mg/L)	TP (mg/L)					Start	End
Intermittent Flow*			24	0.254	1/1/2025 0:00	3/9/2025 10:00	5,825	0.13	8.73	0.09
Snowmelt*			46	0.371	3/9/2025 10:00	3/10/2025 18:00	57,600	1.32	165.40	1.33
Base*			24	0.254	3/10/2025 18:00	3/29/2025 18:00	32,832	0.75	49.19	0.52
Storm*			74	0.513	3/29/2025 18:00	3/30/2025 13:00	64,260	1.48	296.85	2.06
Base*			24	0.254	3/30/2025 13:00	4/2/2025 12:00	12,420	0.29	18.61	0.20
Storm*			74	0.513	4/2/2025 12:00	4/2/2025 20:00	43,200	0.99	199.56	1.38
Base*			24	0.254	4/2/2025 20:00	4/8/2025 11:00	24,300	0.56	36.41	0.39
Base			24	0.254	4/8/2025 11:00	5/19/2025 20:00	68,143	1.57	102.09	1.08
Storm			74	0.513	5/19/2025 20:00	5/20/2025 18:00	64,374	1.48	297.38	2.06
Base	5/21/2025 13:36	5/21/2025 13:36	24	0.254	5/20/2025 18:00	6/3/2025 8:00	97,901	2.25	146.68	1.55
Storm	6/3/2025 10:17	6/3/2025 10:17	74	0.513	6/3/2025 8:00	6/3/2025 16:00	5,263	0.12	24.31	0.17
Base	6/10/2025 13:05	6/10/2025 13:05	24	0.254	6/3/2025 16:00	6/12/2025 22:00	14,307	0.33	21.44	0.23
Storm	6/13/2025 8:05	6/13/2025 8:05	74	0.513	6/12/2025 22:00	6/13/2025 12:00	47,357	1.09	218.77	1.52
Base			24	0.254	6/13/2025 12:00	6/25/2025 12:00	51,487	1.18	77.14	0.82
Storm	6/25/2025 13:50	6/25/2025 13:50	74	0.513	6/25/2025 12:00	6/25/2025 21:00	241,678	5.55	1,116.44	7.74
Base			24	0.254	6/25/2025 21:00	6/26/2025 13:00	91,226	2.10	136.68	1.45
Storm			74	0.513	6/26/2025 13:00	6/26/2025 20:00	63,660	1.46	294.08	2.04
Base			24	0.254	6/26/2025 20:00	6/29/2025 1:00	111,615	2.56	167.22	1.77
Storm			74	0.513	6/29/2025 1:00	6/29/2025 9:00	20,953	0.48	96.79	0.67
Base			24	0.254	6/29/2025 9:00	7/5/2025 21:00	33,026	0.76	49.48	0.52
Storm			74	0.513	7/5/2025 21:00	7/6/2025 1:00	9,490	0.22	43.84	0.30
Base	7/9/2025 9:32	7/9/2025 9:32	24	0.254	7/6/2025 1:00	7/16/2025 1:00	16,733	0.38	25.07	0.27
Storm	7/16/2025 8:57	7/16/2025 8:57	74	0.513	7/16/2025 1:00	7/16/2025 12:00	8,164	0.19	37.71	0.26
Base			24	0.254	7/16/2025 12:00	7/23/2025 10:00	11,489	0.26	17.21	0.18
Storm			74	0.513	7/23/2025 10:00	7/23/2025 23:00	9,981	0.23	46.11	0.32
Base			24	0.254	7/23/2025 23:00	7/27/2025 20:00	6,704	0.15	10.04	0.11
Storm			74	0.513	7/27/2025 20:00	7/28/2025 1:00	46,616	1.07	215.34	1.49
Base			24	0.254	7/28/2025 1:00	7/28/2025 22:00	28,053	0.64	42.03	0.44
Storm	7/29/2025 14:30	7/29/2025 14:30	74	0.513	7/28/2025 22:00	7/29/2025 15:00	35,221	0.81	162.70	1.13
Base	8/4/2025 14:12	8/4/2025 14:12	24	0.254	7/29/2025 15:00	8/9/2025 4:00	25,576	0.59	38.32	0.41
Storm			74	0.513	8/9/2025 4:00	8/9/2025 10:00	30,277	0.70	139.87	0.97
Base			24	0.254	8/9/2025 10:00	8/15/2025 16:00	23,312	0.54	34.93	0.37
Storm			74	0.513	8/15/2025 16:00	8/16/2025 14:00	118,151	2.71	545.80	3.78
Base			24	0.254	8/16/2025 14:00	8/17/2025 23:00	96,549	2.22	144.65	1.53
Storm			74	0.513	8/17/2025 23:00	8/18/2025 8:00	55,017	1.26	254.15	1.76
Base	8/18/2025 9:39	8/18/2025 9:39	24	0.254	8/18/2025 8:00	8/21/2025 7:00	93,192	2.14	139.62	1.48
Event			24	0.254	8/21/2025 7:00	8/22/2025 1:00	16,044	0.37	24.04	0.25
Base			24	0.254	8/22/2025 1:00	8/22/2025 7:00	536	0.01	0.80	0.01
Event			24	0.254	8/22/2025 7:00	8/22/2025 22:00	40,786	0.94	61.11	0.65
Base			24	0.254	8/22/2025 22:00	8/25/2025 8:00	7,037	0.16	10.54	0.11
Event			24	0.254	8/25/2025 8:00	8/26/2025 21:00	133,965	3.08	200.71	2.12
Base	9/4/2025 9:46	9/4/2025 9:46	24	0.254	8/26/2025 21:00	9/21/2025 23:00	32,443	0.75	48.61	0.51
Storm			74	0.513	9/21/2025 23:00	9/22/2025 6:00	23,213	0.53	107.23	0.74
Base	10/6/2025 13:44	10/6/2025 13:44	24	0.254	9/22/2025 6:00	10/28/2025 10:00	64,008	1.47	95.90	1.01
Base*			24	0.254	10/28/2025 10:00	11/25/2025 15:00	24,372	0.56	36.51	0.39
Storm*			74	0.513	11/25/2025 15:00	11/26/2025 0:00	55,080	1.27	254.44	1.76
Intermittent Flow*			24	0.254	11/26/2025 0:00	1/1/2026 0:00	3,110	0.07	4.66	0.05
Storm Average			74	0.513						
Base Average			24	0.254						
All Average			46	0.371						
Total							2,166,546	50	6,265	50
Brown's Creek Major Subwatershed Total Acres							575			
Total TSS/TP(lb/ae/yr)									10.90	0.087
Total TSS/TP (kg/ha/yr)									12.21	0.097

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

*Interval volumes were estimated using similar flow conditions.

Table 7. Brown's Creek at Highway 15 2025 Field Water Quality Results

Date/Time	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity (umhos/cm)	pH
4/29/2025 8:21	7.7	8.13	332	7.35
5/14/2025 14:09	20.1	6.12	402	7.60
6/11/2025 8:10	15.4	4.94	370	7.36
7/10/2025 10:26	18.5	4.24	371	7.24
8/5/2025 9:11	16.1	3.74	384	7.38
9/8/2025 14:26	14.0	3.91	394	7.31
10/8/2025 10:28	8.9	3.63	406	7.50
Exceeds Water Quality Standard				

Table 8. Brown's Creek at McKusick Road 2025 Field Water Quality Results

Date/Time	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity (umhos/cm)	pH
4/29/2025 8:48	8.5	10.94	362	7.94
5/14/2025 14:22	20.3	8.22	435	8.13
6/11/2025 8:24	15.5	8.75	408	7.95
7/10/2025 9:46	18.7	7.71	412	7.79
8/5/2025 8:19	16.1	6.79	393	7.47
9/8/2025 15:08	14.7	9.10	433	7.98
10/8/2025 10:06	8.5	9.90	446	8.04
Exceeds Water Quality Standard				

Table 9. Brown's Creek at Stonebridge Trail 2025 Field Water Quality Results

Date/Time	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity (umhos/cm)	pH
4/29/2025 8:36	8.7	11.29	364	8.07
5/14/2025 14:42	20.1	8.20	441	8.13
6/11/2025 8:38	15.9	9.16	404	8.04
7/10/2025 9:24	19.0	8.03	408	7.90
8/5/2025 9:12	16.6	7.48	416	7.79
9/8/2025 14:52	14.5	9.36	436	8.10
10/8/2025 9:46	8.5	9.98	446	8.17
Exceeds Water Quality Standard				

Table 10. Brown's Creek Outlet 2025 Field Water Quality Results

Date/Time	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity (umhos/cm)	pH
1/15/2025 14:15	-0.2	14.12	472	8.56
1/29/2025 10:20	1.8	12.90	460	8.55
2/25/2025 10:08	1.9	15.04	467	8.26
3/12/2025 10:10	2.3	14.10	297	8.30
3/25/2025 9:55	2.9	14.02	457	8.45
4/9/2025 10:40	5.2	13.41	410	8.35
4/23/2025 9:12	8.1	12.72	370	8.30
5/6/2025 9:47	13.0	11.46	422	8.46
5/21/2025 14:02	8.1	11.80	278	7.88
6/4/2025 13:48	15.7	9.85	383	8.32
6/18/2025 9:28	15.9	9.30	427	8.16
7/2/2025 9:43	20.1	8.58	393	7.98
7/16/2025 10:10	18.6	8.35	444	8.21
7/30/2025 8:46	20.8	8.88	319	8.07
8/13/2025 9:29	16.4	9.02	393	8.25
8/18/2025 10:46	19.4	7.84	280	8.04
8/27/2025 9:07	13.8	9.75	453	8.31
9/10/2025 8:32	13.6	9.81	470	8.15
9/24/2025 8:46	14.1	9.26	424	8.18
10/7/2025 14:23	12.5	9.76	481	8.38
10/22/2025 9:10	7.9		458	
11/5/2025 11:20	7.3		472	8.26
11/19/2025 11:21	4.8	12.76	475	8.10
12/3/2025 9:25	1.1	14.53	527	8.21
12/17/2025 10:20	1.3	13.91	477	8.12
12/31/2025 10:02	1.8	14.28	472	8.29
Exceeds Water Quality Standard				

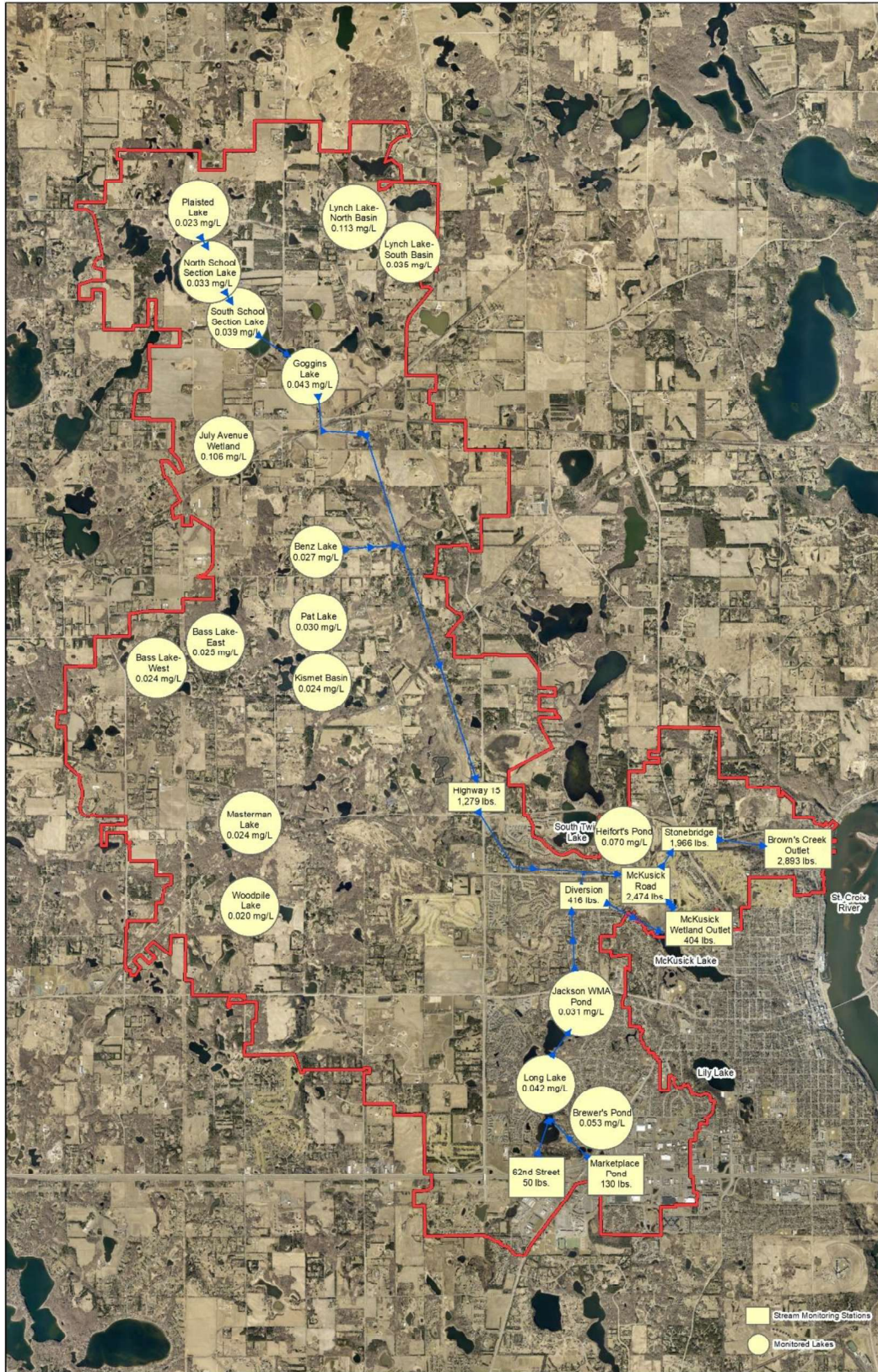
Table 11. Brown's Creek Diversion 2025 Field Water Quality Results

Date/Time	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity (umhos/cm)	pH
5/1/2025 14:09	14.5	9.90	402	7.56
5/12/2025 14:28	20.9	7.86	513	7.51
6/10/2025 13:32	19.2	7.05	393	7.44
7/10/2025 10:03	22.7	4.91	413	7.28
8/4/2025 14:36	22.0	5.15	396	7.38
9/4/2025 10:38	14.6	6.44	401	7.49
10/8/2025 9:33	9.6	6.95	479	7.61
Exceeds Water Quality Standard				

Table 12. Tributary to Long Lake at 62nd Street 2025 Field Water Quality Results

Date/Time	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity (umhos/cm)	pH
6/3/2025 10:17	14.9	6.33	644	7.23
6/10/2025 13:05	16.1	5.97	951	7.22
7/9/2025 9:32	18.6	4.30	780	7.11
8/4/2025 14:12	18.9	5.13	845	7.19
8/18/2025 9:39	20.8	5.62	233	6.95
9/4/2025 9:46	12.7	4.68	938	7.36
10/6/2025 13:44	14.8	4.94	448	7.33
Exceeds Water Quality Standard				

APPENDIX C – 2025 BROWN’S CREEK TOTAL PHOSPHORUS FLOW CHART



GLOSSARY

2A Waters- Waters of the state designated by the Minnesota Pollution Control Agency as Class 2 for aquatic life and recreation beneficial uses, and Subclass A for cold water habitat lakes and streams.

2B Waters- Waters of the state designated by the Minnesota Pollution Control Agency as Class 2 for aquatic life and recreation beneficial uses, and Subclass A for warm water habitat lakes and streams.

Anoxic- Lacking oxygen.

Best Management Practice (BMP)- Any practice or constructed feature designed to reduce pollution, erosion, or other environmental degradation such as silt fence, rain gardens, storm water pollution prevention plans, buffer strips, etc.

Biota- Living organisms such as plants, animals, and bacteria.

Chronic Standard- The highest water concentration or fish tissue concentration of a toxicant or effluent to which aquatic life, humans, or wildlife can be exposed indefinitely without causing chronic toxicity.

Composite Sample- A collection of individual samples taken over the course of a storm and combined into a single sample to represent conditions throughout the entire storm event.

Discharge- The amount of water moving past a given point in a stream, usually measured in cubic feet per second, but may also be discussed as the total volume of water that flowed through a site in a year, measured in cubic feet.

Eutrophic- Bodies of water with high levels of biological productivity characterized by high amounts of aquatic vegetation with clear water, or minimal vegetation with green water due to algal growth shading out larger plants. These waters are often shallow, have excessive nutrients, and may experience severe algal blooms resulting in anoxic conditions and potential fish kills. Most district lakes fall within this classification.

External Load- Nutrients or pollution contributed from outside a water body such as atmospheric deposition or inlets from streams or pipes.

Final Acute Value (FAV)- An estimate of the concentration of a pollutant corresponding to the cumulative probability of 0.05 in the distribution of all the acute toxicity values for the genera or species from the acceptable acute toxicity tests conducted on a pollutant. This concentration is

severe enough to rapidly induce a response, normally observed in 96 hours or less. Acute mortality can be expected above this concentration.

Gaining Stream- A stream which gains water through the stream bed from groundwater.

Hypereutrophic- Bodies of water with extremely high biological productivity and nutrients which often experience severe algal blooms, very low clarity, and limited aquatic life beyond algae and vegetation. Often have the appearance of “pea soup” in mid-summer.

Impaired Waters List/303(d) List- A section of the Clean Water Act which lists water bodies impaired by one or more pollutants for which a TMDL study should be completed.

Internal Load- Nutrients or pollution cycled within a lake from sediments, vegetation, or other sources within a water body.

Littoral- The area of a lake less than 15 feet deep dominated by aquatic vegetation.

Load/Loading- The amount of nutrients or pollutants from a source, usually expressed as pounds or pounds per acre.

Losing Stream- A stream which loses water through the stream bed to the groundwater.

Maximum Standard- The highest concentration of a toxicant in water to which aquatic organisms can be exposed for a brief time with zero or slight mortality. The max standard is half of the final acute value.

Mesotrophic- Bodies of water with an intermediate amount of biological productivity. These waters are typically clear water with healthy aquatic vegetation, some algal growth, and an intermediate amount of nutrients. When stratified, these waters may become anoxic near the bottom.

Non-point Source- A source of pollution from a undefined area such as runoff from a landscape.

Nutrients- Discussed in this report as total phosphorus (TP), total suspended solids (TSS) or sediment, and total Kjeldahl nitrogen (TKN).

Ordinary High Water Level (OHWL)- The boundary of public waters and wetlands determined by a level of water maintained with enough time to leave evidence upon the landscape, such as a change in natural vegetation from terrestrial to aquatic, or the top of the bank of a channel.

Oligotrophic- Bodies of water with low biological productivity characterized by clear water, low algal growth, low nutrient concentrations, minimal aquatic vegetation, and well-oxygenated water.

Point Source- A source of pollution from a single defined outlet such as a pipe.

Shallow Lake- A lake 50 acres or greater in size and less than 15 feet deep, or has greater than 80% littoral area.

Stratification- Separation of water within a lake based on density as a result of differences in water temperature from warm water near the surface and heavy, cold water near the bottom.

Thermocline/metalimnion- The boundary between warm and cold water within a stratified lake characterized by a sudden change in temperature and dissolved oxygen.

Total Maximum Daily Load (TMDL)- Defined by the Clean Water Act as the amount of a pollutant a water body can receive and still meet water quality standards. TMDL studies will often assign a point source load, non-point source load, internal load, and a margin of safety to each pollutant to guide management activities for load reductions from each source.



BROWN'S CREEK WATERSHED DISTRICT

Preserving the integrity of the watershed for future generations
www.bcwd.org | 455 Hayward Ave N, Oakdale, MN 55128 | 651-330-8220

MEMORANDUM

TO: Brown's Creek Watershed District Board
FROM: Hannah Peterson
RE: Brown's Creek Watershed District 2026 Educational Expenses
DATE: March 6, 2026

Background

In its management plan, BCWD has prioritized education and outreach to help share the mission of the district and the natural resources in the watershed. BCWD staff have been working with the Community Advisory Committee and partners to participate in and host a variety of educational events in 2026. They have also been working on developing and updating outreach materials including: updated Homeowner's Guide to Living by the Water, 2026 newsletter, updated CAC recruitment brochures, new branded tablecloths for events, and BCWD stickers.

Description & Estimated Costs

Painting Events

In January, we hosted a painting event in partnership with local artist, Denise Lau, and Lift Bridge Brewing to paint a winter scene of Brown's Creek and share more about BCWD. This event led to discussion on hosting seasonal painting events throughout 2026 to capture different views of the watershed throughout the year with staff present to educate attendees about the watershed. Staff have been looking into different locations to host and opportunities to do an event or two outdoors.



The cost for each painting event would be up to \$25 per person to cover materials and online payment fees, as well as \$10 per person for a non-alcoholic beverage and outside snacks. Each event will be open to a maximum of 15 community members. The total cost of each event would be approximately \$525. Participants would pay \$15-\$20 per event for materials.

Description	Quantity	Estimated Total Cost
Materials/refreshments for painting events	3	\$900

Managers:

Homeowner's Guide

BCWD staff and CAC have updated BCWD's Homeowner's Guide to Living by the Water and would like to print/mail to about 200 residents that have moved into the watershed in the past year.

Description	Quantity	Estimated Total Cost
Homeowner's Guide – 8 page booklet printing/mailing	200	\$600

Tablecloths

BCWD's branded tablecloth was damaged last year and needs replacement. Because BCWD sometimes has multiple tables at an event (e.g., the Community Watershed Celebration), staff is exploring either purchasing multiple branded tablecloths or one branded and multiple solid color tablecloths to match.

Description	Estimated Quantity	Estimated Total Cost
Branded/Dark Blue Tablecloths	3-4	\$300

Newsletter

BCWD staff and CAC are developing the 2026 newsletter to be printed and mailed in late April/early May. There are about 4,350 properties owned in the district, and staff would like to explore mailing to renters as well.

Description	Estimated Quantity	Estimated Total Cost
Printing/Mailing of 2026 Newsletters	5,000	\$5,000

BCWD Stickers

Branded stickers are a popular promotional item that can be used for water bottles, laptops, etc. Giving away branded stickers at events could be a great way to get BCWD's name out there and bring awareness to the watershed.

Description	Quantity	Estimated Total Cost
BCWD 2x2" Branded Vinyl Stickers	100-200	\$100

CAC Brochures

BCWD staff has updated these brochures to reflect the name change to Community Advisory Committee

Description	Quantity	Estimated Total Cost
CAC brochure printing	50	\$100

Requested Action

Approve the BCWD educational expenses not to exceed a total of \$7,000 from account 910-0000.

MEMORANDUM

TO: Brown's Creek Watershed District Board
FROM: Karen Kill
RE: Minnesota Stormwater Pond Research and Practice Symposium
DATE: March 3, 2026

Background

The University of Minnesota's Minnesota Stormwater Research Council (MSRC) is putting on its first Stormwater Pond Research and Practice Symposium from March 31, 2026 to April 1, 2026 in Saint Louis Park, MN. The focus will be wet stormwater pond use, operations, maintenance, management and retrofits to maintain and improve desired functions. A symposium agenda is included in this memo.

Costs

Registration is \$100 per person.

Requested Action

Approve registration and attendance of Karen Kill and Hannah Peterson from account 200-4265.



Minnesota Stormwater Pond Research and Practice Symposium Agenda

Draft - subject to changes. Check the [symposium website](#) for updates

About the symposium and agenda components

The symposium embraces the exchange of ideas, input, discussion, and prioritization of needs, not simply conference presentations. Therefore, the agenda offers a variety of interactive components to accomplish these ideals. More information on these components is found further below.

Tuesday, March 31st

Pond fundamentals, hydrology, pollutants, inspections, monitoring and diagnosis

7:45 - 8:30 am	Registration and light breakfast
8:30 - 8:45	Welcome
8:45 - 10:00	Part I. Ponds as a stormwater practice in Minnesota - <i>History, original genesis, extent of use, truths and myths</i> Presentations <ul style="list-style-type: none">• Ross Binter, City of Edina and MSRC Advisory Board• David Filipiak, retired, SRF Consulting and MSRC Advisory Board• Todd Smith, Minnesota Pollution Control Agency Audience Q&A (featuring a smartphone app)
10:00 - 10:15	Break
10:15 - 12:00	Part II. Pond hydrology and pollutants inputs and internal pond dynamics Presentations <ul style="list-style-type: none">• Brian Beck, Minnehaha Creek Watershed District• Ben Janke, UMN SAFL• Bill Herb, UMN SAFL• Michael McKinney, Barr Engineering Audience Q&A (featuring a smartphone app)
12:00 - 1:00	Lunch (<i>provided</i>)

1:00 - 2:15	Part III. Pond inspections, monitoring and diagnosis Presentations <ul style="list-style-type: none"> • Poornima Natajaran, UMN SAFL • John Chapman, UMN BBE • Audience Q&A (featuring a smartphone app)
2:15 - 2:45	Small group discussions on pond inspections and monitoring
2:45 - 3:00	Break
3:00 - 3:45	Panel discussion <ul style="list-style-type: none"> • Shahram Missaghi, City of Minneapolis • Carolyn Eckstein, Minneapolis Park & Recreation Board • Kristin Seaman, City of Woodbury • Audience Q&A (featuring a smartphone app)
3:45 - 5:30	Poster session Appetizers served and cash bar available.

Wednesday, April 1st

Pond maintenance, practices, techniques and retrofits

This session will focus on three areas of ponds; biota (plants, algae & fish), sediments and dredging, and pond treatments. There will be near-future programs, events and opportunities on other pond maintenance, practices, techniques and retrofits. Some of these are already scheduled and will be announced at the symposium. More information will be available on the symposium website.

7:45 - 8:30 am	Registration and light breakfast
8:30 - 8:45	Welcome
8:45 - 9:30	Part IV - Pond biota - plants, algae and fish Presentations <ul style="list-style-type: none"> • Jacques Finlay, UMN EBB • Dan Larkin, UMN • Audience Q&A (featuring a smartphone app)
9:30 - 10:00	Small group discussions plants and other biota management
10:00 - 10:15	Break
10:15 - 11:00	Panel discussion <ul style="list-style-type: none"> • Jack Distel, City of Bloomington & MSRC Advisory Board • Steve McComas, Blue Water Science

	<ul style="list-style-type: none"> • Matt Lasch, Resource Environmental Solutions (RES) • Audience Q&A (featuring a smartphone app)
11:00 - 12:15	<p>Part IV. Pond dredging and sediment management</p> <p>Case Study</p> <ul style="list-style-type: none"> • Dave Vlasin, Ramsey Washington Metro Watershed District • Gareth Becker, Barr Engineering <p>Presentations</p> <ul style="list-style-type: none"> • John Gulliver, UMN SAFL • Paula Kalinosky, Minnesota Pollution Control Agency
12:15 - 1:15	Lunch (<i>provided</i>)
1:15 - 2:00	<p>Part IV: Pond treatments - types, advantages and disadvantages</p> <p>Presentations</p> <ul style="list-style-type: none"> • Joe Bischoff, Barr Engineering • John Gulliver, UMN SAFL
2:00 - 2:30	Small group discussions on pond treatments
2:30 - 2:45	Break
2:45 - 3:30	<p>Panel discussion</p> <ul style="list-style-type: none"> • Anne Wilkinson, Emmons & Olivier Resources (EOR) • Greg Wilson, Barr Engineering • Jesse Carlson, City of Savage • Audience Q&A (featuring a smartphone app)
3:30 - 3:45	<p>Closing</p> <p>Summary of on-going research and future MSRC pond efforts</p> <p>Invitation to pond symposium follow-up events</p>
3:45 - 4:30	<p>Social</p> <p>Refreshments. Networking. Appetizers and cash bar available.</p>

Symposium components

Presentations

Each presentation will address a specific, well-thought out list of prescribed questions related to the topic. Don't expect typical research or demonstration project presentations. Rather, knowledge and skill building will be delivered by invited experts, practitioners, and researchers.

Practitioner panels

Following some of the presentations, there will be panel discussions featuring local practitioners and other experts who can share their experiences. A selection of panelists have been invited, who can offer diverse perspectives. Panelists will address several key introductory questions and then there will be time for audience Q&A.

Audience Q&A

Audience Q&A with presenters and panelists will be conducted using a smartphone app. Participants will be able submit questions and up-vote those asked by others.

Small group discussions

Participants will be able to offer their experiences, expertise, and input throughout the symposium. To accomplish this, round tables of 6-10 participants will be the seating arrangement throughout the two days. Each table will have a discussion host and recorder. Depending on the topic, responses received, and knowledge recorded, the information generated by these discussions will be shared with participants following the symposium.

Poster session

Posters will provide an opportunity for professionals, practitioners, researchers, and others to share specific pond demonstration projects, maintenance projects, or research. Since the symposium cannot provide time for a presentation on all of these, the poster session will allow participants to explore these themselves. In addition, all of the posters will be made available after the symposium through an electronic flipbook.

Posters about ponds are welcomed from practitioners and researchers who would like to showcase a pond project or story in one or more of these categories:

- **Pond story** - Present a story about a pond construction, maintenance, remediation, monitoring, prioritization/analysis, or retrofit project
- **Innovation project** - Showcase a pond demonstration project or pond innovations. Did you try something new and learn from it? Your colleagues want to know about it! Failures are just as instructive as successes.
- **Research*** - Summarize a current and past pond research project(s)

More information about submitting a poster proposal is available on the [symposium website](#) and you can submit a poster proposal [HERE](#).

Follow-up programs and events

The MSRC, WRC and partners are providing opportunities for follow-up pond programs and events in part to cover topics we are not able to at the symposium and continue the learning. Mark your calendar for these programs and events.

- April 9th [Minnesota Stormwater Seminar Series](#) - Stormwater ponds and PAHs in sediment, featuring Francine Kelly-Hooper
- May 21st [Minnesota Stormwater Seminar Series](#) - Adaptive level control systems for stormwater ponds, featuring the results of a MSRC funded project
- July 16th [MSRC Annual meeting and tour](#) with a focus on pond forebays, aeration, and other remediation efforts
- More coming soon

For more information

Visit the [symposium website](#) for updates on the agenda. Specific questions can be emailed to msrc@umn.edu

Sponsors and acknowledgements

The symposium is brought to you and sponsored by the [University of Minnesota Water Resources Center](#) and the [Minnesota Stormwater Research Council](#) (MSRC). Financial support is provided by the following:

- [Minnesota Clean Water Fund](#)
- Minnesota Stormwater Research Council member organizations, including
 - Barr Engineering Company
 - Bolton and Menk
 - Capitol Region Watershed District
 - City of Edina
 - Coon Creek Watershed District
 - Emmons & Olivier Resources, Inc.
 - Mississippi Watershed Management Organization
 - Nine Mile Creek Watershed District
 - Ramsey-Washington Metro Watershed District
 - Rice Creek Watershed District
 - Riley Purgatory Bluff Creek Watershed District
 - South Washington Watershed District
 - Stantec
 - Valley Branch Watershed District
 - WSB Engineering
- The [Minnesota Clean Water Fund](#)
- [Institute on the Environment](#)
- [Minnesota Sea Grant Program](#)
- [Cold Climate Stormwater Center of Excellence](#)

The Minnesota Stormwater Research Council (MSRC) is an organization of stormwater professionals, practitioners, managers, engineers, researchers and others that seeks to facilitate and complete research on urban stormwater management and transfer that knowledge to professionals that can use it to prevent, minimize and mitigate the impacts of runoff. The MSRC is administered by the University of Minnesota Water Resources Center (WRC).



MEMORANDUM

TO: BCWD Board of Managers and Karen Kill, District Administrator

FROM: Aaron DeRusha, Washington Conservation District (WCD)

DATE: 3/3/2026

RE: Stage Sensor Replacement Request

Winter testing of the watershed district's stage and velocity sensors identified one sensor for the McKusick Road monitoring station to be suspect for stage that will not hold calibration, which was sent to the manufacturer for evaluation. The manufacturer confirmed the sensor is faulty and is not repairable. The stage and velocity sensor is integral to the function and performance of the monitoring station, and pollutant load calculation method. I am requesting the BCWD board approve the replacement cost, including extended warranty, of one stage and velocity sensor for \$2,668 plus applicable shipping. Attached is a quote detailing these costs. The equipment will be purchased and installed by WCD, and will be reimbursed by BCWD. BCWD will retain ownership of the equipment.

Requested board action: Approve equipment replacement expenditures as described above, and payment not to exceed \$2,688 plus shipping to Washington Conservation District for reimbursement from account 300-4640.

Q U O T A T I O N

Page: 1

Quotation For:

Washington Conservation District
455 Hayward Ave N
Oakdale MN 55128
Ph: (651) 796-2231 Fx: (651) 330-7747

Quotation#: 2260272
Revision#:
Date: 03/02/26

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

Please Address Order To:

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

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

Item	Qty	Part#/Description	Unit Price	Total Price
1	2	603254021 Low Profile Area Velocity Sensor with 10' range and 25' cable.	2,401.20	4,802.40
2	2	Warranty Additional 1 year Warranty	266.80	533.60
			Quote Total:	5,336.00

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

By: _____
Travis DeGroot

BCWD- 1 Sensor and 1 Warranty: \$2,668 plus applicable shipping
SWWD- 1 Sensor and 1 Warranty: \$2,668 plus applicable shipping

Project Name	Settlers Glen Iron Enhanced Sand Filter	Date	3/5/2026
To / Contact info	BCWD Board of Managers		
Cc / Contact info	Karen Kill, District Administrator		
From / Contact info	John Sarafolean; Erik Megow, PE; Camilla Corell, PE / EOR		
Regarding	2026 Maintenance & Operations Scope of Services		

Background

The purpose of this memorandum is to outline maintenance and reporting tasks for operation of the Settlers Glen Iron Enhanced Sand Filter (IESF) in 2026. This was the first application of its kind using stream stage to control a pump that charges the filter (Stormwater “Pump-and-Treat”). The District has been operating and monitoring the project performance since installation in 2014.

For this year, we will continue to monitor, maintain, and sample at the pump, while trying to continue balancing the filter’s performance with changing hydrology and hydraulics from the local beaver community. Their activity is enhancing wetland hydrology, restoring the historic sedge meadow by raising water levels and removing early succession tree species. However, their dams have led to increases in water levels and inundation that negatively affect the filter and pump system flow meter components. To mitigate this, two Clemson beaver levelers were installed in 2025, which is a component of the system that we will continue to manage in 2026.

This year we are also including time and budget to complete a feasibility study to determine the cost and extent of the expected media replacement to occur in 2027. The feasibility will also include a possible partnership with the City to execute some pond dredging.

2026 Scope of Services

The on-going operation and maintenance of the project involves remote desktop monitoring and adjustment of the pump settings based on stream stage and weather conditions, site visits to check operation, vegetation, sediment accumulation, erosion, beaver activity, Clemson leveler operation, and filter surface condition. EOR will coordinate with WCD staff to maintain the filter surface with monthly raking and aeration as well as the expected installation of a third Clemson leveler to further manage beaver activity.

An end of year performance evaluation from the sampling results will be supplied as well as updating the project operation and maintenance manual based on the activities throughout the year (pump on/off or variable speed drive setting alterations, additional maintenance performed outside of the norm, etc.).

In 2024, BCWD collaborated with the Saint Anthony Falls Laboratory to conduct water and sediment sampling as part of the 2024-2025 *‘Iron Enhanced Sand Filters Performance and Maintenance Meta-Analysis’* research project. Per EOR’s May 1st, 2024 Memo, ‘Project Performance & Cost Summary’ for the Settler’s Glen IESF, we estimated that the filter media had approximately 80 lbs of total phosphorus capture capacity remaining. At an average removal of 25 pound/year of capture, this means that the filter media will likely be at the end of its lifespan at the end of 2026. Additionally, the MN Stormwater Manual recommends the replacement of IESF media if the total phosphorus of the treated effluent

exceeds 0.07 mg/L. Our 2022-23 monitoring showed that the effluent TP concentration ranged from <0.05 mg/L to 0.105 mg/L with an average of 0.075 mg/L. Although our average was at the threshold, we still saw good performance overall with an estimated 69%-90% TP removal. The estimated TP removal efficiency of an IESF filter is 75%.

With the filter likely at the end of its life-expectancy, we recommend replacement of the filter media in January-March of 2027 with the following schedule:

- Proposed 2026 schedule of work included in this budget:
 - Spring-Summer: Engage the City of Stillwater regarding timing of dredging of their adjacent stormwater basin.
 - Discuss collaboration of planning and cost sharing opportunities with the City of Stillwater.
 - Summer-Fall: Production of the feasibility report and cost estimate for IESF filter replacement and dredging, including any testing we may need.
 - Fall-Winter: Prepare RFQ for Pond/IESF Maintenance.
- Potential 2027 schedule (budget not included in this memo):
 - Complete the dredging of the stormwater basin and filter media replacement between February-March of 2027, during periods of low flow.

2026 Maintenance Tasks

Task 1: System Status - Remote and in-person pump operation, inspections, and reporting

It is recommended that a qualified technician inspect the pump station every two years, based on the mild conditions for the type of pump installed at the IESF (Intermittent pump duty cycle and relatively low abrasiveness of the water being pumped). The pump system was thoroughly inspected in 2025 by Tri-State Pump and Control, Inc., therefore this maintenance is not needed for 2026 and not included in this scope.

Task 2: Site Maintenance and Beaver Activity Mitigation

The filter surface has been aerated and raked monthly during the growing season to loosen the upper portion of the sand and encourage movement of water into, rather than across, the filter. It is recommended that the Washington Conservation District (WCD) seasonal BMP maintenance staff continue to conduct this maintenance at this frequency. In addition to this coordination, it is recommended to maintain two Clemson levelers installed in 2025, to maintain the dams that are interfering with the filter and pump components. We also expect that a third Clemson leveler will need to be installed in 2026 to mitigate additional beaver activity. The maintenance work for two Clemson levelers and installation of a third is included in the IESF 2026 Operation and Maintenance Scope of Services below.

Task 3: ISEF Media Replacement and Pond Dredging Planning

The third maintenance task we are planning for this year is the replacement of the iron-enhanced sand filter media that we expect is near the end of its life-expectancy. To replace the media we are expecting to provide a feasibility report, coordination with the City of Stillwater, and soil testing to determine the ultimate scope and timing of this work. For this task, we have planned for the feasibility memo, soil testing, coordination with the City, and the development of a Request for Quote

(RFQ) package to complete the media replacement and possible City pond dredging work in winter-spring 2026-27. The development of the RFQ package depends on the results of the feasibility study. At this time, we assume that the overall project cost will be less than \$175,000 and will not need to be publicly bid.

Scope

The following table outlines the cost and hours anticipated for 2026.

Task	Description	Hours	Cost*
1. System Status	Remote desktop monitoring & pump setting adjustments, Monthly site visits, operational inspections, special Clemson leveler/beaver visits, mileage, system operation, and documentation	47	\$8,647
2. Site Maintenance	Filter surface and Clemson leveler coordination and maintenance with the installation of a third Clemson leveler	15	\$3,193
3. Coordination, testing, feasibility memo, and RFQ package** for IESF media replacement and dredging	In 2026, EOR will coordinate with the City and BCWD to complete a feasibility memo on the replacement of IESF media within the filter and possibly pair and cost-share the testing and work with the dredging of a nearby/adjacent pond maintained and operated by the City of Stillwater. This budget also includes the development of an RFQ package to complete the work in winter-spring 2026-27	159	\$31,745
Total		221	\$43,585

* Given the weather-dependent nature of the work, the costs are estimates only. Additional project needs will be brought to the attention of the District Administrator and outlined in a separate scope of work. Vegetation maintenance of this project is included in a separate, District-wide vegetation maintenance scope.

** This assumes we will move ahead with the RFQ package in 2026, estimated at \$14,438. That estimate could change based upon the scope of work determined in working with the City of Stillwater and what conclusions are found from the feasibility study.

Requested Action

Consider approval of this scope of services for an estimated cost of \$43,585 from account 948-0000.

Project Name | NA

Date | 3/6/2026

To / Contact info | BCWD Board of Managers

Cc / Contact info | Karen Kill, District Administrator

From / Contact info | Camilla Correll, PE

Regarding | 2026 EOR Rates and Retainer

Background

EOR provides technical consulting services to the District through a series of two year contracts. The contract allows for an adjustment to billing rates at the midpoint of the contract.

Proposed Rate Increase

EOR is proposing to increase its rates by approximately 4% for 2026 which is in line with the information provided in the 2026 Budget Recommendations and 2026 budget approved by the Board of Managers in December 2025.

EOR continues to use our “Preferred Rates” that we reserve for long-term clients. Among other long-term clients, these Preferred Rates are being used for watershed districts like Comfort-Lake Forest-Lake Watershed District, Carnelian-Marine-St. Croix Watershed District, and Prior-Lake Spring-Lake Watershed District.

EOR continually monitors market trends and overall costs with the intention of providing our clients with the best possible value. To recruit and maintain top individuals in the field we must keep up with the market which currently has a very high demand for water resource professionals and engineers. Inflation and cost-of-living increases over the last few years have been significantly higher than historical averages. We do feel that our hourly rates are cost competitive with our peers and the best value when considering the quality and efficiency generated from our experienced team and integrated approach to water resources.

Attached is an updated version of Exhibit 2 Hourly Fee Schedule which demonstrates the proposed changes for the rest of 2026. The monthly retainer increase for the rest of 2026 reflects the increase contained in the 2026 budget approved by the Board (4%). The 2026 retainer amount would go from \$10,576/month to \$10,999/month.

Recommended Action

1. Authorize the administrator to amend, on advice of counsel, the agreement for engineering services to update the rates in accordance with the attached 2026 rate schedule for invoices beginning March 2026.

EOR 2026 Hourly Fee Schedule

<u>Classification</u>	<u>Hourly Rate (*)</u>
Professional 1 (Julia, Lau).....	\$134.00
Professional 2 (Jimmy Marty, Paul Nation, John Sarafolean).....	\$168.00
Professional 3 (Anne Wilkinson)	\$197.00
Professional 4 (Pat Conrad, Mike Majeski, Erik Megow)	\$227.00
Technician 1	\$97.00
Technician 2	\$116.00
Technician 3	\$142.00
Project Principal (Camilla Correll).....	\$249.00
Senior Principal (Brett Emmons)	\$276.00
Support Staff	\$93.00
Permit Inspector	\$101.00

Professionals:

Includes licensed and nonlicensed engineers, landscape architects, geologists, scientists, surveyors, field professionals, and geospatial professionals with bachelor's or advanced degrees.

Technicians:

Work requires a combination of basic scientific knowledge and manual skills which can be obtained through two years of post high school education, such as is offered in technical schools, community colleges, or through equivalent on-the-job training.

Principals:

Officers and senior technical managers at the highest level of EOR staff classification performing technical and quality control supervision.

Support Staff:

Non-manual clerical work performed by office administrators, administrative assistants, bookkeepers, messengers, office helpers, and clerks.

Additional Notes:

- *Reimbursable expenses (Reproduction, Printing, Duplicating, Mileage at current government rates, DGPS equipment, field supplies, use/rental of special equipment, etc.) will be billed at cost.*
- *Subcontracted services will be billed at cost plus 15% to cover overhead expenses.*
- *Expert witness trial and deposition testimony will be billed at the above hourly rates times 1.5.*
- *Payment is due upon receipt of invoice. If the invoice is not paid within thirty (30) days after invoice date, Client will also pay a finance charge thereon of 1.5 percent or the maximum rate allowed by law, whichever is less, for each month thereafter or portion thereof that an invoice remains unpaid.*

(*) Rates reviewed and adjusted on an annual basis.

Project Name	Weather Station Monitoring Program	Date	2/12/2026
To / Contact info	BCWD Board of Managers		
Cc / Contact info	Karen Kill, District Administrator		
From / Contact info	Mike Majeski, Conservation Biologist		
Regarding	2025 Weather Summary		

Background

The BCWD weather station has been in operation since 2012. Each season, the weather station is installed on top of the vegetated berm at the Stillwater Public Works Facility and collects the following data: precipitation, air temperature, relative humidity, dew point, solar radiation, wind speed, gust speed, and wind direction. The weather station is programmed to collect data from spring through fall each season and is removed during the winter months. This information is being collected to support a variety of District programs such as hydrologic and hydraulic model upgrades and calibration (which require 15-minute precipitation data), thermal modeling efforts, and other projects including the Settlers Glen iron-enhanced sand filter, THPP, and the Biological Monitoring Program. The weather station data is also routinely shared with the Washington Conservation District (WCD).

The objective of this memorandum is to summarize temperature and precipitation data recorded in 2025 and how the data relates to temperatures recorded in Brown’s Creek, particularly in the Brown’s Creek gorge where cool and coldwater dependent species occur including rainbow darter, brown trout, and several macroinvertebrate species that have specific thermal and dissolved oxygen requirements to survive (e.g., stoneflies).

2025 Weather Summary

The BCWD weather station was installed at the Stillwater Public Works Facility (latitude: 45°03'49.86", longitude: 92°51'21.05") on March 20, 2025, and was removed on November 24, 2025. During this timeframe, a total of 31.24” of precipitation was recorded, including seven rain events exceeding one inch (Figure 1). Above average monthly precipitation occurred in May (+0.62”, total of 4.20”), June (+3.44”, total of 8.20”), and July (+1.23”, total of 5.92”). Dry periods occurred in April, August, September, and October and resulted in below average precipitation totals for those months: April (-0.32”, total of 2.55”), August (-0.24”, total of 4.68”), September (-0.98”, total of 2.60”), and October (-1.38”, total of 1.22”). Notable dry periods over the course of the monitoring season included: Apr 3-16 (0.10” in 14 days), Sept. 23-Oct. 11 (0.21” in 19 days), and Oct. 26-Nov 24 (0.02” in 30 days).

Air temperatures recorded at the weather station fluctuated above and below the average high and low temperatures throughout the monitoring season, and there were 12 days when the maximum air temperature exceeded 90°F (Table 1 and Figure 2). Since 2017, there have been five monitoring seasons when air temperatures have exceeded 90°F for 12 or more days, which resulted in WOMP water

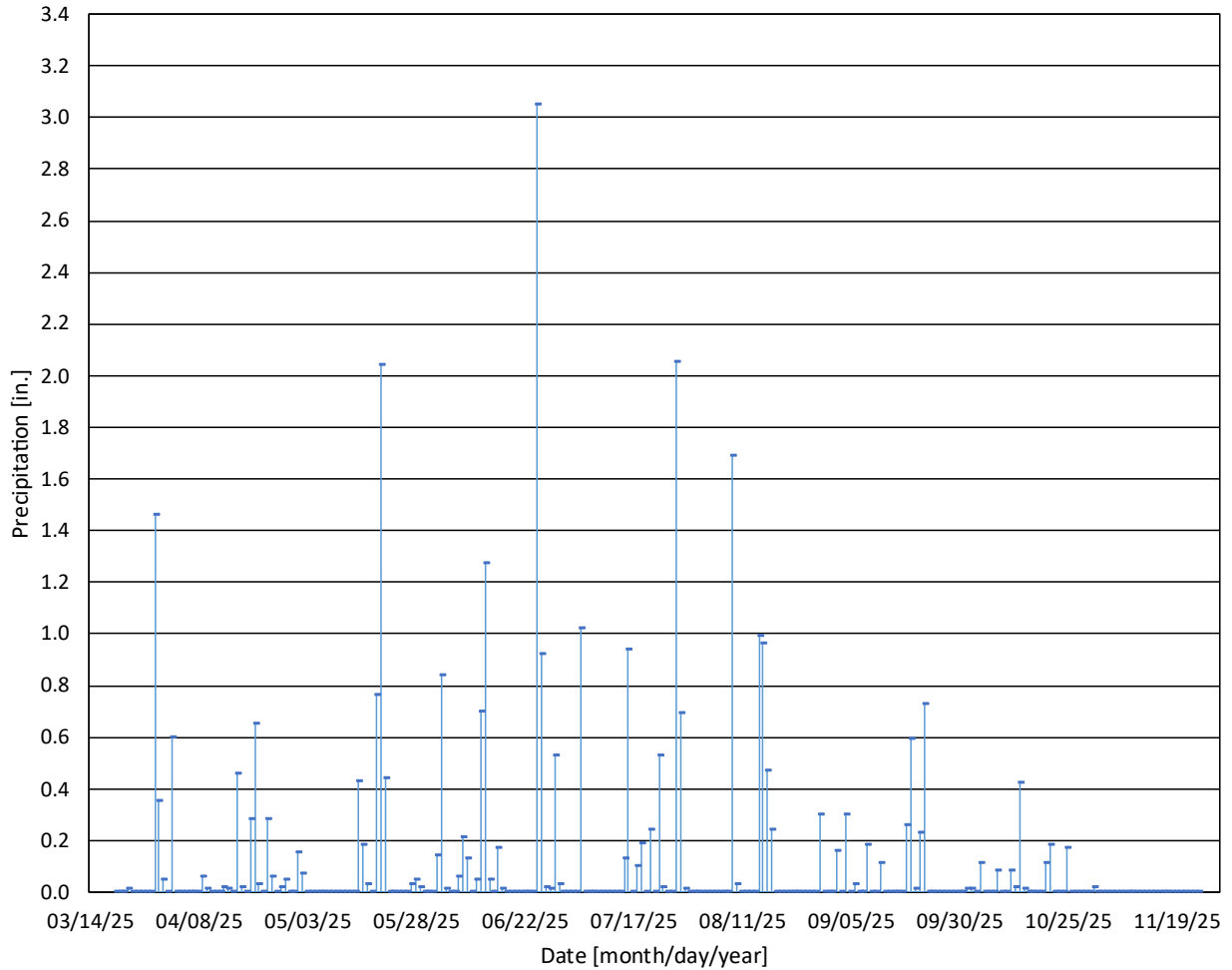


Figure 1. Daily precipitation recorded by the BCWD weather station (March 20 - November 24, 2025).

temperatures exceeding 70°F between 0-8 days per year. However, in 2025, WOMP water temperatures exceeded 70°F on 21 days which is the most since 2012 when the weather station monitoring program began. This is notable since several aquatic species in Brown’s Creek require cold water temperatures to survive and reproduce. For example, brown trout can become physiologically stressed when water temperatures exceed 65°F, and young trout may stop feeding when water temperatures exceed 71°F (personal comm. MNDNR Fisheries).

There are multiple factors that influence instream temperatures that require detailed analysis beyond the scope of this project; however, the data summarized in Table 1 suggest that in the absence of large beaver dams in the creek, a combination of warm air temperatures with concurrent precipitation events appear to have a greater effect on instream temperatures than warm air temperatures alone. For example, since 2012, 2021 had the greatest number of days above 90°F and the warmest nights (nights when the low air temperature was above the average low), yet there was only one day when water temperatures exceeded 70°F at the WOMP station that year. 2021 was also the second driest year (from May 1-Sept.1) since the

Table 1. Air and water temperature trends for Brown’s Creek during warm weather months (May 1-September 1, 2012-2025)

Year	# days with max. air temp above 90° F	# nights with low air temp above average low [°F]	Average low air temp. above average low [°F]	# days when WOMP water temp. exceeded 70°F	Total precip. May 1-Sept 1 [in.]	Total precip. [in.] on days when WOMP water temp. exceeded 70°F
2012	20	43	5.10	21	17.26	5.28
2013	12	34	4.74	11	17.31	2.12
2014	0	25	4.64	7	21.28	0.10
2015	2	25	3.37	4	21.14	1.55
2016	12	38	3.79	10	20.80	4.96
2017	9	16	3.27	0	17.12	N/A
2018	18	45	4.58	8	15.84	3.10
2019	5	15	2.02	1	22.93	0.83
2020	15	42	4.20	8	21.68	3.14
2021	34	33	7.03	1	12.14	0
2022	16	30	4.69	1	13.30	0
2023	24	34	4.03	0	9.26	N/A
2024	4	29	3.51	0	25.76	N/A
2025	12	33	4.56	21*	23.00	4.46

*data influenced by a large beaver dam that was present throughout the monitoring season downstream of Manning Avenue

weather station was installed in 2012. Conversely, the years that had greater precipitation totals during warm weather periods had the greater number of days when the WOMP water temperature exceeded 70°F. Since the inception of the weather station monitoring program, 2023 had the second most days above 90°F but was also the driest year (from May 1-Sept.1), and WOMP water temperatures never exceeded 70°F at any point during that monitoring season. It should be noted that since 2012, 2025 was the only monitoring season when a large beaver dam was present downstream of Manning Avenue. This dam backup up water upstream of Manning Avenue, and WCD staff recorded elevated water temperatures at all stream crossings between Manning Avenue and McKusick Road.

Recommendations

Although beaver dams have been beneficial in the headwaters area of Brown’s Creek and within the tributaries upstream of the Diversion Structure, it is recommended the large beaver dam downstream of Manning Avenue be removed in the spring of 2026 to reduce elevated water temperatures as recorded in 2025 to protect the coldwater resources in Brown’s Creek. Since the beaver dam occurs on private property (Costa, Figure 3), BCWD staff will need permission from the landowner to remove the dam.

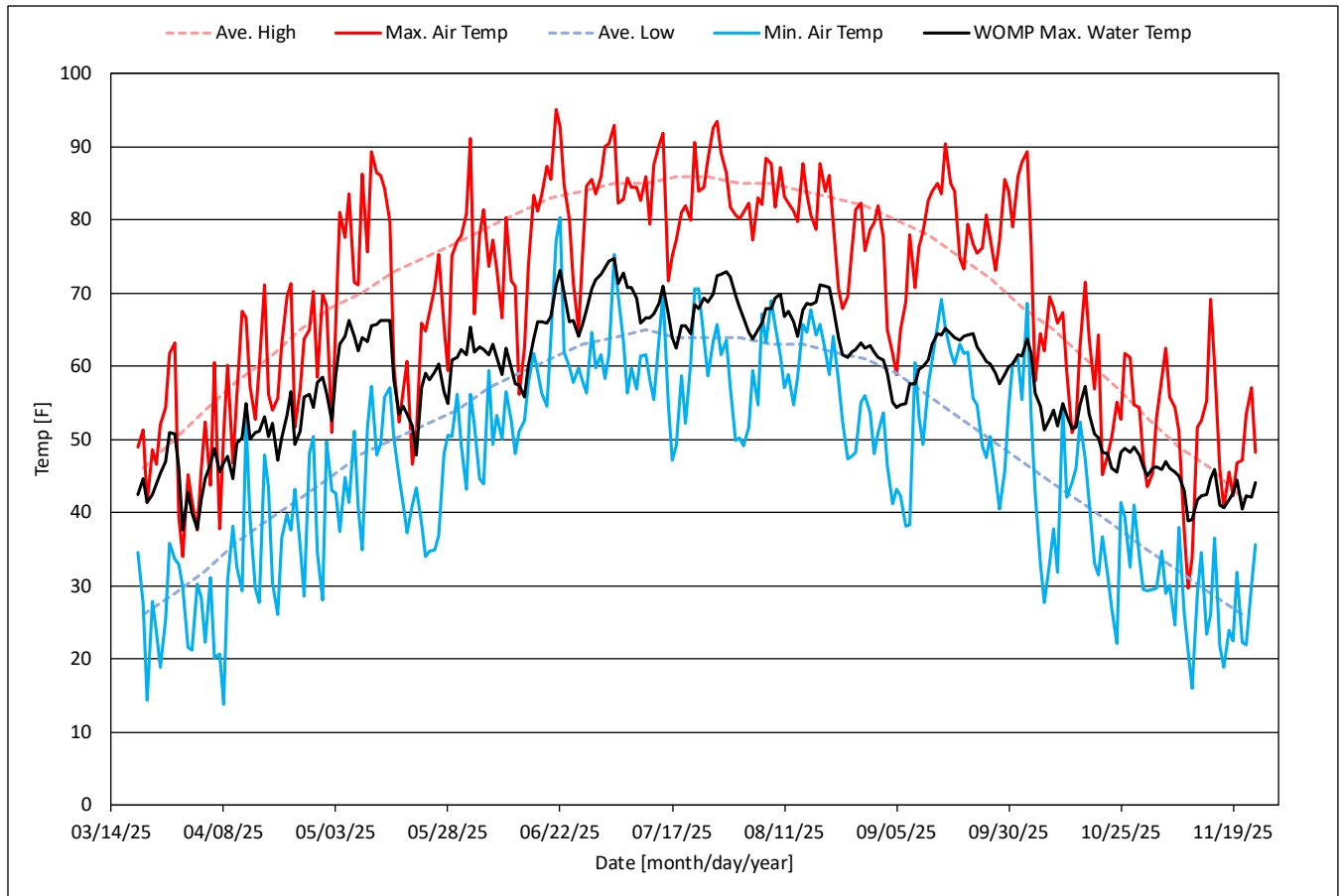


Figure 2. Daily maximum and minimum temperatures recorded by the BCWD weather station and WOMP daily maximum water temperatures recorded by the WCD/ Met Council. Average air temperature data source: <https://weather.com/weather/monthly/1/45.067273,-92.854033>

Weather Station Maintenance

During the monitoring season, the weather station was visited periodically to download data and check for sensor fouling. All weather sensors were inspected in the fall of 2025, and no upgrades or replacements are needed at this time.

2026 Scope of Services

The following outlines the costs associated with equipment preparation, precipitation gauge calibration, data collection, and reporting for the 2026 monitoring season (March to November). All data collected will be forwarded to the Washington Conservation District and other entities as requested.

Task	Hours	Estimated Cost
Precipitation Calibration & Installation of Weather Station, End of Season Removal, Mileage	6	\$1,450
Monthly Download of Data (6 months)	5	\$1,120
Data QA/QC, Report, Data Storage	6	\$1,350
Expenses	N/A	\$260*
TOTALS	17	\$4,180

* Includes the cost for sensor replacement if needed in 2026 (temp/ humidity or pyranometer sensor)

Requested Action

1. Approve this scope of services from account number 957-0000 to operate the BCWD weather station in 2026.



Figure 3. Location of the large beaver dam in the Costa wetland.

Project Name	CIP Operation & Maintenance	Date	03/09/2026
To / Contact info	BCWD Board of Managers		
Cc / Contact info	Karen Kill, BCWD Administrator		
From / Contact info	John Sarafolean; Erik Megow, PE; Camilla Correll, PE / EOR		
Regarding	Recommendation for Award of Contract		

The purpose of this memorandum is to provide a recommendation for selecting a contractor to perform on-going maintenance of five underground stormwater quality units (SWQU) and eight sump catch basins. BCWD has the obligation of maintaining under various cooperative agreements (Countryside Auto Repair, Brown’s Creek Park, and the McKusick Road stormwater improvement projects). Attachment 1 displays the locations where maintenance is to occur. The work includes vacuuming and hydro-jetting of the stormwater treatment structures, testing, hauling, and disposal of accumulated liquid and solids as-needed for a period of two years. The request was for the contractors to provide a lump sum cost per cleaning, per stormwater treatment structure. Also included is cleanout of a 30 foot ditch section at the storm sewer outfall at Countryside Auto Repair where sediment that bypasses the SWQU deposits.

The request for quotes was sent to approximately 116 contacts from the MN Disadvantaged Business Enterprise Program (DBE) database. The DBE is a program for business owners that are socially and economically disadvantaged. The database is keyword searchable and those that offer services that align with the nature of this work were contacted. Because the time to conduct this type of work is heavily dependent on the type of equipment the contractor will be using, a lump sum request was maintained in lieu of time and materials such that a fair comparison can be made between quotes.

Quote Summary

Based on direction the Board provided at the 8/10/2022 Board Meeting, the following language was included in the RFQ, *“BCWD encourages participation by minority, women, and veteran-owned businesses as prime contractors, and encourages all prime contractors to make a significant commitment to use minority, women, veteran owned and other disadvantaged business entities as subcontractors and suppliers. If applicable, please list any information regarding how these categories of disadvantaged business entities are included in your submission”.*

The request for quote package was distributed to contractors on 2/06/2026; two contractors submitted quotes by the 03/06/2026 deadline, as summarized in Table 1.

Table 1. Summary of Quotes

Company	DBE Certification	Total Quote
Rock Leaf Water Environmental*	Woman-owned business	\$32,435
Winberg Companies, LLC.	Service Disabled Veteran Owned	\$122,262

* BCWD contracted with Rock Leaf Environmental for these services 2022-2024 for \$30,686.

EOR has reviewed the Rock Leaf Water Environmental submitted bid and found that it complies in all respects with the submittal requirements. Rock Leaf Water Environmental has extensive experience with maintaining these specific stormwater BMPs. The engineer finds that Rock Leaf Water Environmental is the lowest-priced, responsible, responsive bidder.

Recommendation

EOR suggests that the Board consider the following action:

Authorize the administrator to execute on advice of counsel a contract with Rock Leaf Water Environmental.

Attachments:

Attachment 1. Project Maintenance Cleanout Locations

Attachment 2. Rock Leaf Water Environmental Bid Quote

ATTACHMENT 1.



Cleanout Maintenance BMPs

- SWQU
- Sump

Maintenance Cleanout Locations BCWD

0 125 250 500 Feet



ATTACHMENT 2.

Rock Leaf Water Environmental Submitted 3/5/2026

Table 1 -- Quote Form

Item	Unit	Associated Cost
Project #1 – McKusick Road SWQU and Sump Manholes (Exhibit B)		
SWQU #1 (40 Linear Foot, 60-inch diameter)	Lump sum, per cleanout	\$ 4,489
SWQU #2 (40 Linear Foot, 60-inch diameter)	Lump sum, per cleanout	\$ 4,489
SWQU #3 (40 Linear Foot, 60-inch diameter)	Lump sum, per cleanout	\$ 4,489
Sump Manhole #1 (EX-CBMH48; 3'x5' brick with 2' sump)	Lump sum, per cleanout	\$ 1399
Sump Manhole #2 (EX-CBMH32; 4' diameter with 2' sump)	Lump sum, per cleanout	\$ 1399
Sump Manhole #3 (EX-CBMH33; 4' diameter with 2' sump)	Lump sum, per cleanout	\$ 1399
Sump Manhole #4 (EX-CBMH35; 4' diameter with 2' sump)	Lump sum, per cleanout	\$ 1399
Sump Manhole #5 (EX-CBMH39; 4' diameter with 2' sump)	Lump sum, per cleanout	\$ 1399
Sump Manhole #6 (EX-CBMH40; 4' diameter with 2' sump)	Lump sum, per cleanout	\$ 1399
Sump Manhole #7 (EX-CBMH41; 4' diameter with 2' sump)	Lump sum, per cleanout	\$ 1399
Sump Manhole #8 (P-CBMH43; 6' diameter with 3.5' sump)	Lump sum, per cleanout	\$ 1399
Project #2 – Countryside Auto Repair (Exhibits C & D)		
SWQU #1 (40 Linear Foot, 60-inch diameter)	Lump sum, per cleanout	\$ 2,789
Sediment removal from 30' channel between outlet pipe and rock check dam	Lump sum, per cleanout	\$ 2,789
Project #3 – Brown's Creek Park (Exhibits E & F)		
SWQU #1 (20 Linear Foot, 60-inch diameter)	Lump sum, per cleanout	\$ 2,198
Total Cost for cleanout of all facilities:		\$ 32,435

Project Name | BCWD Permit 25-29 Sunrise Park Trail

Date | March 3, 2026

To / Contact info | BCWD Board of Managers

Cc / Contact info | Dillon McClung; Reabar Abdullah, PE / City of Stillwater

Cc / Contact info | Karen Kill, Administrator / BCWD

From / Contact info | Paul Nation, PE / EOR

Regarding | Permit Application No. 25-29 Engineer's Report

The following review of the above-captioned project located within the legal jurisdiction of the Brown's Creek Watershed District (BCWD) was conducted to determine compliance with the BCWD rules for purposes of the engineer's recommendation to the Board of Managers for its determination of the permit application.

Applicant: City of Stillwater

Permit Submittal Date: 2/3/2026

Completeness Determination: 2/20/2026

Board Action Required By: 4/3/2026

Review based on BCWD Rules effective April 1, 2020

Recommendation: Approve with Conditions

Suggested motion: Move to approve the City of Stillwater permit application 25-29 with the conditions and stipulations stated in the engineer's report.

GENERAL COMMENTS

Existing Conditions: The project site includes three adjacent parcels owned by the City of Stillwater with a total area of 19.07 acres (Figure 1). Existing impervious on the site, known as Sunrise Park, totals 2.08 acres including a portion of Stillwater Blvd and associated sidewalk, a gravel parking area for an onsite soccer field with access from Stillwater Blvd, and a driveway, maintenance building, and playground with access from Sunrise Ave. Of the 0.54 ac proposed to be disturbed by the project, 0.43 ac discharges south to a Manage 1 wetland on the site, while 0.11 ac discharges north to the rear yards of adjacent homes on Knollwood Ct. From there, runoff flows southeast through a swale behind these homes, into the storm sewer system, and ultimately into the same onsite wetland. This wetland has an outlet into storm sewer along Stillwater Blvd, eventually draining to Long Lake.

Proposed Conditions: This project proposes adding an 8-foot-wide paved walking trail from the playground east to Stillwater boulevard (Figure 2). Three swales with check dams and an infiltration basin will treat stormwater runoff from the new trail. The new trail will add 0.15 ac of impervious surface and does not disturb any of the existing 2.08 ac of impervious surfaces. This results in a total proposed impervious area of 2.23 ac (12% of site area).

Recommendation: The BCWD engineer recommends that the board approve the application with the conditions and stipulations outlined in the report.

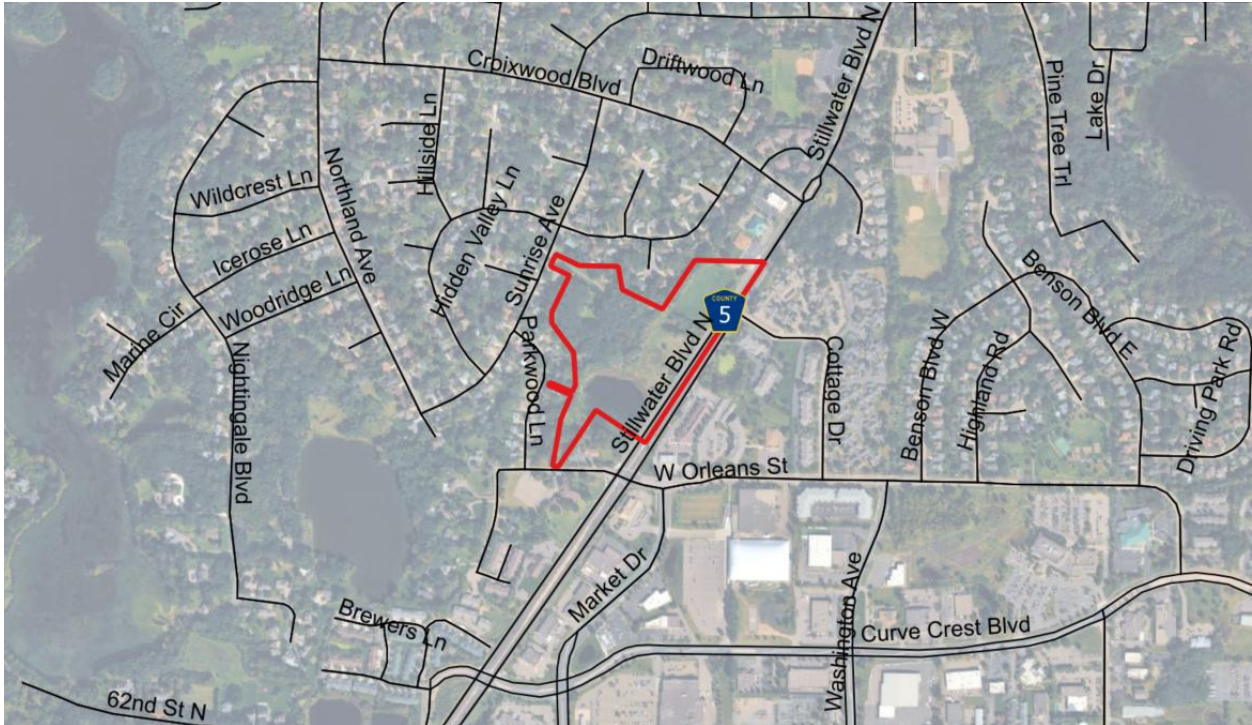


Figure 1. Site Location

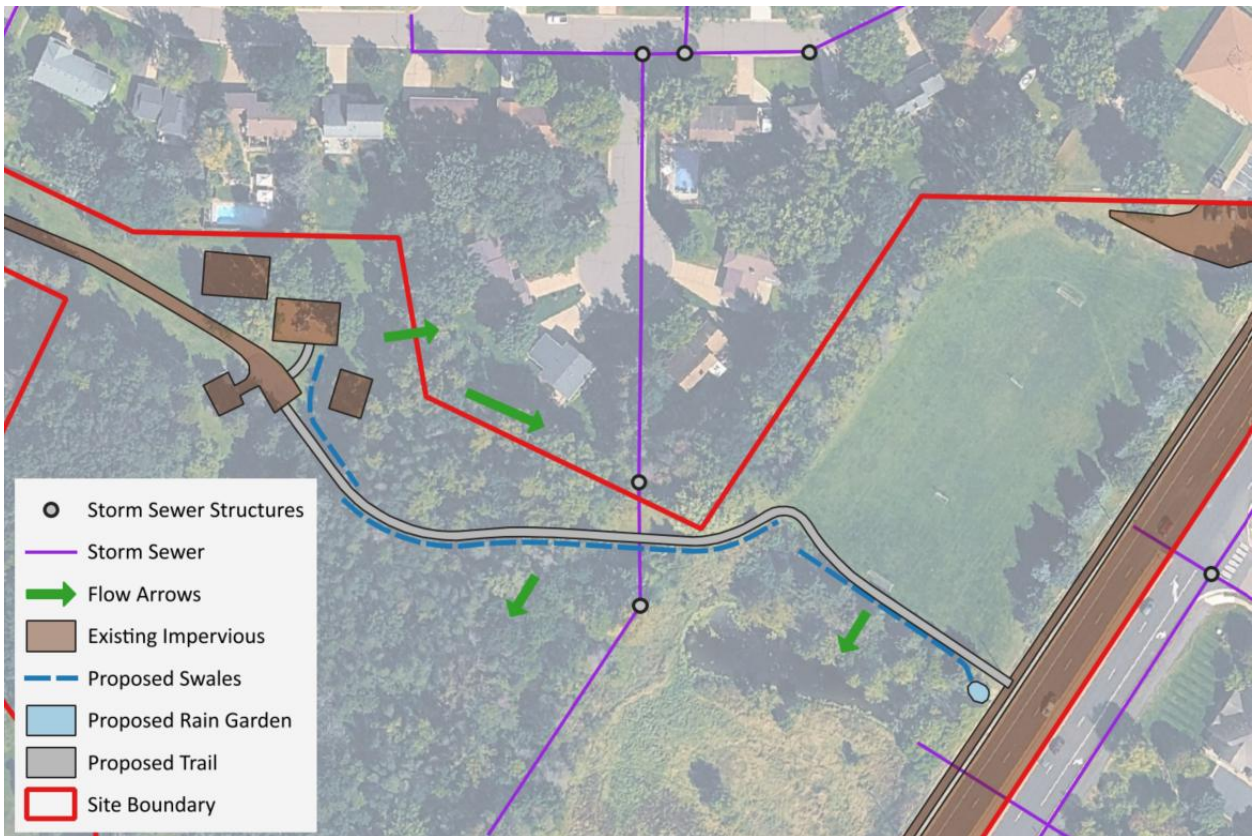


Figure 2. Site Plan

Rule 2.0—STORMWATER MANAGEMENT

Under 2.2(b) of the rule, the proposed project triggers the application of Rule 2.0 Stormwater Management because, aggregated with existing impervious surface on the site, it creates more than 10,000 square feet of impervious surface. The site is located within the Diversion Structure Subwatershed, so the stormwater criteria in subsection 2.4.1(b) apply.

As noted above, the existing site has a total of 0.32 acres of impervious surface. The proposed site will have a total of 0.47 acres of impervious area. This city does not propose to disturb any of the original impervious area. Under 2.2(b)(ii) since the proposed activity will disturb less than 50 percent of existing impervious surface on the site, the criteria will apply only to reconstructed and net additional impervious surface and disturbed areas on the project site.

The stormwater management plan for the project includes:

- *Swales – Three swales will collect runoff directly from the new trail. These swales will have 3” check dams throughout their length to retain stormwater for infiltration.*
- *Rain garden – A shallow (3” deep) rain garden at the eastern end of the trail will provide additional treatment for the eastern-most swale.*

To save on project costs, the city chose not to collect soil borings in the locations of the proposed infiltration practices. The city designed the swales and rain garden with a 3” depth suitable for hydrologic soil group D soils (0.06 in/hr infiltration rate). While this choice should not set a precedent for future permit applicants, the BCWD engineer agrees that the design is conservative and would result in excess treatment if the soils are better than expected, and will meet applicable BCWD criteria (as discussed below) even if the soils are indeed predominantly hydrologic group D.

Runoff leaves the site at the following two discharge points. Drainage areas do not change under proposed conditions.

- *“North” – 0.11 ac of disturbed area discharge north to adjacent private property. From there, runoff flows east through a swale before entering a catch basin and flowing via storm sewer to the onsite wetland.*
- *“South” – 0.43 ac of disturbed area discharge south through wooded park land before reaching the onsite wetland.*

Rate Control

According to BCWD Rule 2.4.1(b)(i), an applicant must submit a stormwater-management plan providing no increase in the existing peak stormwater flow rates from the site for a 24-hour precipitation event with a return frequency of two, 10 or 100 years for all points where discharges leave the site.

Rule Requirement Met

The stormwater management plan developed for the site was evaluated using a HydroCAD model of existing and post-development site conditions. Tables 1 and 2 show a comparison of the modeled peak flow rates to each discharge point.

Table 1 - Peak Discharge Rate “North”

<i>Event</i>	<i>Existing Discharge Rate (cfs)</i>	<i>Proposed Discharge Rate (cfs)</i>
2-year (2.80")	0.3	0.2
10-year (4.17")	0.6	0.6
100-year (7.20")	1.24	1.26*

**This 0.02 cfs increase is within the inherent uncertainty the modeling methods and should not be considered non-compliant.*

Table 2 - Peak Discharge Rate “South”

<i>Event</i>	<i>Existing Runoff Rate (cfs)</i>	<i>Proposed Runoff Rate (cfs)</i>
2-year (2.80")	0.6	0.3
10-year (4.17")	1.2	1.1
100-year (7.20")	2.7	2.6

Volume Control

According to BCWD Rule 2.4.1(b)(ii), an applicant must submit a stormwater-management plan providing retention onsite of 1.1 inches of stormwater volume from the regulated impervious surface.

Rule Requirement Met

To meet the BCWD volume control requirement the applicant proposes three swales and a rain garden. Table 3 shows a summary of the required and provided stormwater volume.

Table 3 – Volume Control Summary

<i>Regulated Impervious Surface Area (ft²)</i>	<i>Required Volume (cf)</i>	<i>Provided Volume (cf)</i>
6,346	582	631

Lake/Wetland Bounce

According to BCWD Rule 2.4.1(b)(iii), an applicant must submit a stormwater-management plan providing no increase in the bounce in water level or duration of inundation for a 24-hour precipitation event with a return frequency of two, 10 or 100 years in the subwatershed in which the site is located, for any downstream lake or wetland beyond the limit specified in Appendix 2.1.

Rule Requirement Met

The onsite Manage 1 wetland has a permitted bounce of pre-development bounce plus 0.5 foot for all storm events. To demonstrate compliance, the increase in stormwater volume for all storms was divided by the surface area of the wetland (2.8 ac) to calculate the increase in bounce.

$$\text{Change in bounce (ft)} = \frac{\text{Increase in year runoff volume (acre - ft)}}{\text{Wetland surface area (acres)}}$$

The downstream high-water level summary shown below in Table 4 demonstrates that the increase in bounce meets the BCWD rules.

Table 4 - Change in Bounce

<i>Storm Event</i>	<i>Pre-development Runoff Volume (ac-ft)</i>	<i>Proposed Runoff Volume (ac-ft)</i>	<i>Change in bounce (ft)</i>
2-year (2.80")	0.04	0.04	0.00
10-year (4.17")	0.08	0.08	0.00
100-year (7.20")	0.18	0.19	0.00

The applicant provided a HydroCAD model to demonstrate compliance with Rule 2.4.1(b)(iii). A comparison of runoff durations in Table 5 demonstrates that the timing of runoff delivery from the site to the wetland has minimal change (± 1 hour) from existing to post-development conditions. Because of this, and no changes to wetland bounce, duration of inundation will be largely unchanged, meeting the allowable inundation periods of existing plus 1 day (2-year storm) and existing plus 2 days (10-year storm or larger) for Manage 1 wetlands.

Table 5 – Runoff Duration

	<i>2-year</i>		<i>10-year</i>		<i>100-year</i>	
	<i>Pre-development</i>	<i>Proposed</i>	<i>Pre-development</i>	<i>Proposed</i>	<i>Pre-development</i>	<i>Proposed</i>
Runoff Duration (hr)	10	9	12	12	15	16
Change in Duration (hr)	-1		0		+1	

Infiltration Pretreatment

According to BCWD Rule 2.5.2, surface flows to infiltration facilities must be pretreated for long-term removal of at least 50 percent of sediment loads.

- Rule Requirement Met

The applicant followed guidance from the MN Stormwater Manual for sizing of pre-treatment filter strips to remove sediment loading to the proposed swales. The design calls for two-foot-wide pretreatment filter strips between the trail and all swales. Depending on the sediment particle size, the filter strips will remove between 79 and 100% of sediment load.

Rule 2.0 Conditions:

- 2-1. Provide BCWD with the final civil plan set prior to start of construction. (BCWD 2.7.9)
- 2-2. The stormwater management facilities to be constructed for the project must be added to the inventory of those maintained under the March 8, 2010, programmatic maintenance agreement between the City of Stillwater and BCWD (BCWD Rule 2.6).

Rule 3.0—EROSION CONTROL

According to BCWD Rule 3.2, all persons undertaking any grading, filling, or other land-altering activities which involve movement of more than fifty (50) cubic yards of earth or removal of vegetative cover on five thousand (5,000) square feet or more of land must submit an erosion control plan to the District, and secure a permit from the District approving the erosion control plan. The proposed project triggers the application of Rule 3.0 Erosion Control because greater than 5,000 square feet of vegetative cover are proposed to be disturbed.

- Rule Requirements Met

The erosion and sediment control plan includes:

- *Silt fence downstream of proposed work*
- *Straw erosion control matting on swales as needed*
- *Seeding after completion of proposed work*

The applicant must address the following conditions in the erosion and sediment control plan to comply with the District's requirements:

Rule 3.0 Conditions:

- 3-1. Provide the contact information for the erosion and sediment control responsible party during construction once a contractor is selected. Provide the District with contact information for the Erosion Control Supervisor and the construction schedule when available (BCWD 3.3.2).

Rule 4.0—LAKE, STREAM, AND WETLAND BUFFER REQUIREMENTS

According to BCWD Rule 4.2.1, Rule 4.0 applies to land that is (a) adjacent to Brown's Creek; a tributary of Brown's Creek designated as a public water pursuant to Minnesota Statutes section 103G.005, subdivision 15; a lake, as defined in these rules; a wetland one acre or larger; or a groundwater-dependent natural resource; and (b) that has been either (i) subdivided or (ii) subject to a new primary use for which a necessary rezoning, conditional use permit, special-use permit or variance has been approved on or after April 9, 2007, (for wetlands and groundwater-dependent natural resources other than public waters) or January 1, 2000 (for other waters).

- Rule Not Applicable to Permit. *The site parcels are not being subdivided.*

Rule 5.0—SHORELINE AND STREAMBANK ALTERATIONS

According to BCWD Rule 5.2, no person may disturb the natural shoreline or streambank partially or wholly below the ordinary high water mark of a waterbody, without first securing a permit from the District.

- Rule Not Applicable to Permit. *There are no proposed shoreline or streambank alterations.*

Rule 6.0—WATERCOURSE AND BASIN CROSSINGS

According to Rule 6.2, no person may use the beds of any waterbody within the District for the placement of roads, highways and utilities without first securing a permit from the District.

- Rule Not Applicable to Permit. *There are no proposed watercourse or basin crossings.*

Rule 7.0—FLOODPLAIN AND DRAINAGE ALTERATIONS

According to Rule 7.2, no person may alter or fill land below the 100-year flood elevation of any waterbody, wetland, or stormwater management basin, or place fill in a landlocked basin, without first obtaining a permit from the District. No person may alter stormwater flows at a property boundary by changing land contours, diverting or obstructing surface or channel flow, or creating a basin outlet, without first obtaining a permit from the District. The proposed project triggers this rule due to altering stormwater flow (increasing flow volume) at the property boundary.

- Rule Requirements Met

All proposed grading is located outside of the floodplain for the onsite wetland.

According to BCWD rule 7.3.2 all new and reconstructed buildings must be constructed such that the lowest floor is at least two feet above the 100-year high water elevation or one foot above the emergency overflow (EOF) of a constructed basin.

There are no buildings adjacent to the proposed rain garden.

Under BCWD Rule 7.3.5, the District will issue a permit to alter surface flows under paragraph 7.2 only on a finding that the alteration will not have an unreasonable impact on an upstream or downstream landowner and will not adversely affect flood risk, basin or channel stability, groundwater hydrology, stream baseflow, water quality or aquatic or riparian habitat.

As noted above under the Lake/Wetland Bounce section, the project will not increase high-water levels for the onsite wetland, and therefore, will not adversely affect flood risk for any downstream properties.

Rule 8.0—FEES

As the City of Stillwater is a government entity, the applicant is exempt from fees.

Rule 9.0—FINANCIAL ASSURANCES

As the City of Stillwater is a government entity, the applicant is exempt from financial assurances.

Rule 10.0—VARIANCES

According to BCWD Rule 10.0, the Board of Managers may hear requests for variances from the literal provisions of these Rules in instances where their strict enforcement would cause undue hardship because of the circumstances unique to the property under consideration. The Board of Managers may grant variances where it is demonstrated that such action will be keeping with the spirit and intent of these rules. Variance approval may be conditioned on an applicant's preventing or mitigating adverse impacts from the activity.

- Rule Not Applicable to Permit. *There are no requested variances.*

RECOMMENDED CONDITIONS OF THE PERMIT:

The following is a summary of the remaining tasks necessary to bring the project into compliance with the BCWD Rules in all respects other than where variances are requested as discussed above:

1. Address all stormwater management requirements (Conditions 2-1 to 2-2).
2. Address all erosion control requirements (Condition 3-1).

STIPULATIONS OF APPROVAL:

1. Note that the permit, if issued, will require that the applicant notify the District in writing at least three business days prior to commencing land disturbance. (BCWD Rule 3.3.1)
2. Provide the District with as-built record drawings showing that the completed grading and stormwater facilities conform to the grading plan.
3. Provide contact information for the party responsible for long-term maintenance of proposed stormwater facilities.

**MASTER GRANT SUB-RECIPIENT AGREEMENT
BETWEEN
CHISAGO SOIL AND WATER CONSERVATION DISTRICT,
GRANT ADMINISTRATOR
AND
BROWN'S CREEK WATERSHED DISTRICT
SUB-RECIPIENT**

This Agreement is between the Chisago Soil and Water District (Chisago SWCD), a regional governmental body established under Minnesota Statutes chapter 103C with offices at 38500 Tanger Dr. Suite 206, North Branch, MN 55056, and Brown's Creek Watershed District (Hereafter "Sub-Recipient"), a special-purposes governmental body under Minnesota Statutes chapters 103B and 103D with offices at 455 Hayward Ave, Oakdale, MN 55128, together referred to herein as "Parties."

WHEREAS, the Parties to this Agreement are parties to the Joint Powers Agreement for the Implementation of the Lower St. Croix Comprehensive Watershed Management Plan; and the parties that have entered into the joint powers agreement are known as the Lower St. Croix Watershed Partners; and

WHEREAS, Chisago SWCD has been awarded grants to fund initiative and projects for the implementation of the Lower St. Croix Comprehensive Watershed Management Plan and Chisago SWCD has entered into grant agreements which incorporate grant workplans that detail grant activities and provide for the allocation of funds awarded under such grant; and

WHEREAS, pursuant to the Joint Powers Agreement for the Implementation of the Lower St. Croix Comprehensive Watershed Management Plan, Chisago SWCD is designated as the Administrative Coordinator and fiscal agent with the authority and responsibility to enter into grant agreements and service agreements with parties of the Lower St. Croix Watershed Partners and professional service providers to carry out grant activities identified in the grant work plans; and

WHEREAS, Sub-Recipient is qualified and willing to carry-out and implement the grant activities identified in the grant workplans that are incorporated in the grant agreements that Chisago SWCD has entered into for the implementation of the Lower St. Croix Comprehensive Watershed Management Plan.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, it is agreed and understood as follows:

I. PURPOSE

The purpose of this Agreement is to clarify roles and responsibilities of the Parties in delivering certain activities that are specified in approved grant workplans for the implementation of the Lower St. Croix Comprehensive Watershed Management Plan.

II. TERM

- A. This Agreement shall be effective on September 14, 2025, or upon the date of the last required signature, whichever is later.
- B. This Agreement shall terminate on December 31, 2028.
- C. This Agreement may be renewed upon the written agreement in the form of an Amendment signed by the necessary parties for up to one additional term not to exceed 3 years and terminating no later than December 31, 2031.

III. SERVICES

- A. Chisago SWCD shall perform the duties and responsibilities required of Chisago SWCD as set forth in this Agreement.
- B. Sub-Recipient shall deliver and carry-out those activities set forth in the various Statements of Work that are signed by respective authorized person of the Chisago SWCD and Sub-Recipient.

IV. COMPENSATION

- A. For services satisfactorily completed, the Chisago SWCD shall pay the Sub-Recipient an amount not to exceed the amount provided in each respective Statement of Work.
- B. Sub-Recipient will submit invoices for seeking reimbursements of its costs incurred in delivering and carrying out those activities set forth in the various Statements of Work. Sub-Recipient may submit invoices no less than quarterly and no more frequently than monthly. The invoices must be itemized at the rates consistent with the relevant Statement of Work, or as otherwise agreed to by Chisago SWCD and Sub-Recipient in the respective Statement of Work.
- C. No payment or reimbursement will be made for work completed outside the dates of the funding source grant agreement.
- D. Chisago SWCD shall not be liable to Sub-Recipient for costs incurred that are not paid by the funding source identified in the respective Statement of Work. Sub-Recipient shall repay any moneys received as a partial payment for any project that Sub-Recipient has not completed. Additionally, Sub-Recipient shall repay to Chisago SWCD any moneys received for costs that the Chisago SWCD or grant funding entity determines as disallowed or not expended during the term of this Agreement.
- E. All payments will be reimbursements of costs incurred unless otherwise approved by the Chisago SWCD Board and specified on the Statement of Work.
- F. There may be delays in payment from waiting for the Chisago SWCD approval or if reimbursement requests overlap distribution of funding source dollars.

V. SERVICES NOT PROVIDED FOR

No claim for services furnished by Sub-Recipient not specifically provided for herein shall be honored by the Chisago SWCD.

VI. INDEPENDENT CONTRACTOR

It is agreed by the parties that at all times and for all purposes hereunder, the relationship of the Sub-Recipient to the Chisago SWCD is that of an independent contractor and not an employee or agent of the Chisago SWCD.

VII. COMPLIANCE WITH LAWS AND GRANT POLICY

Sub-Recipient and Chisago SWCD shall comply with all applicable federal and state statutes and regulations, local ordinances, the funding source policies, policies adopted the Lower St. Croix Watershed Partners and updated from time to time; and grant administration requirements of federal, state or other entity that awards grants for the Implementation of the Lower St. Croix Comprehensive Watershed Management Plan. Any violation of the same shall constitute a material breach of this Agreement and shall entitle Chisago SWCD to terminate this Agreement immediately upon delivery of written notice of termination to the Sub-Recipient.

VIII. PUBLICITY AND ENDORSEMENT

Any publicity regarding activities completed under this agreement must identify the funding source, as required by the funding source policy. For purposes of this provision, publicity includes notices, informational pamphlets, press releases, research, reports, signs, and similar public notices prepared by or for the Sub-Recipient individually or jointly with others.

IX. PROJECT ASSURANCES

- A. The Sub-Recipient shall be responsible to ensure any constructed projects are designed and overseen by persons with credentials and using specifications as specified in funding source policy, grant agreement and grant administration manual, as appropriate.
- B. The Sub-Recipient is responsible to provide for project operations and maintenance for any constructed project for the project lifespan described in the Statement of Work.

X. INDEPENDENT RELATIONSHIP; LIABILITY

- A. This agreement does not create a joint powers board or organization within the meaning of Minnesota Statutes section 471.59. Each party agrees that it will be responsible only for its own acts and omissions, and the results thereof to the extent authorized by the law and will not be responsible for the acts or omissions of the other party or the results thereof. The agreement creates no right in and waives no immunity, defense or liability limitation with respect to any third party. Neither party will be liable for special, indirect, incidental, punitive, exemplary or unforeseeable consequential damages arising out of or in connection with its respective obligations under this agreement. Specific performance and quantum meruit are available remedies for the failure of a party to perform any obligation hereunder and do not require a demonstration that other remedies are inadequate. Remedies are non-exclusive.
- B. Chisago SWCD and BCWD enter this agreement solely to facilitate implementation and maintenance of the work that is the subject of each respective Statement of Work and to achieve and sustain its purposes. Nothing herein will be construed to constitute approval of any permit or other regulatory approval required by any party, nor does this agreement in any way modify or delegate any party's regulatory authority.
- C. Each party will defend, indemnify and hold harmless the other party and their respective boards, commissions, officers, employees and agents from and against all claims of third parties and all associated losses, to the extent arising out of a party's negligence or willful misconduct in performing any of its obligations under this agreement, or (b) a material breach by a party of any of its representations, warranties, covenants or agreements under this agreement.

XI. INSURANCE

Insurance coverage requirements are provided in Exhibit A.

XII. SUBCONTRACTING AND ASSIGNMENTS

Sub-Recipient shall be responsible for the performance of any contractor or subcontractor for completion of the Project. Any subcontractor working with Sub-Recipient shall be bound by all terms and conditions of this agreement and the applicable Statement of Work. Sub-Recipient may not assign any interest in the agreement without the prior written approval of the Chisago SWCD and subject to such conditions and provisions as the Chisago SWCD may deem necessary.

XIII. PAYMENT TO SUBCONTRACTORS

The Sub-Recipient will ensure the contract for construction of the Project requires compliance with the provisions of Minn. Stat. § 471.425, subd. 4a, relating to prompt payment to subcontractors. Sub-Recipient shall indemnify and hold Chisago SWCD harmless with regard to all claims asserted by subcontractors against Chisago SWCD for payment of services performed and materials provided by subcontractor.

- XIV. **WORKER HEALTH, SAFETY, AND TRAINING.** Sub-Recipient shall be solely responsible for the health and safety of its employees in connection with the work performed under this agreement. Sub-Recipient will require the contractor to ensure the health and safety of all subcontractors and other persons who may perform work in connection with each respective Statement of Work . Sub-Recipient shall ensure all personnel of Sub-Recipient and subcontractors are properly trained and supervised and, when applicable, duly licensed or certified appropriate to the tasks engaged in under this Contract. Sub-Recipient shall comply with federal, state and local occupational safety and health standards, regulations and rules promulgated pursuant to the Occupational Health and Safety Act which are applicable to the work to be performed by Sub-Recipient.
- XV. **AFFIRMATIVE ACTION**
No person shall be excluded from employment rights in, be denied the benefits of, or be otherwise subjected to discrimination in the program which is the subject of this Agreement on the basis of race, creed, color, sex, sexual orientation, marital status, public assistance status, age, disability, or national origin.

XVI. NON-DISCRIMINATION

The Sub-Recipient agrees to abide by all provisions of Minn. Stat. § 181.59, as amended, entitled "Discrimination on Account of Race, Creed, or Color Prohibited in Contract," set forth as follows:

MINN. STAT. § 181.59 DISCRIMINATION ON ACCOUNT OF RACE, CREED, OR COLOR PROHIBITED IN CONTRACT.

Every contract for or on behalf of the state of Minnesota, or any county, city, town, township, school, school district, or any other district in the state, for materials, supplies, or construction shall contain provisions by which the Sub-Recipient agrees:

- (1) That, in the hiring of common or skilled labor for the performance of any work under any contract, or any subcontract, no Sub-Recipient staff, material supplier, or vendor, shall, by reason of race, creed, or color, discriminate against the person or persons who are citizens of the United States or resident aliens who are qualified and available to perform the work to which the employment relates;
- (2) That no Sub-Recipient staff, material supplier, or vendor, shall, in any manner, discriminate against, or intimidate, or prevent the employment of any person or persons identified in clause (1) of this section, or on being hired, prevent, or conspire to prevent, the person or persons from the performance of work under any contract on account of race, creed, or color;
- (3) That a violation of this section is a misdemeanor; and

XVII. FORCE MAJEURE

Neither party shall be held responsible for delay or failure to perform caused by fire, flood, epidemic, strikes, riot, acts of God, unusually severe weather, terrorism, war, acts of public authorities or delays or defaults caused by public carriers which was beyond a party's reasonable control, provided the defaulting party gives notice as soon as possible to the other party of the inability to perform.

XVIII. DATA PRIVACY DATA MANAGEMENT AND RECORD RETENTION

- A. In collecting, storing, using and disseminating data on individuals in the course of providing services hereunder, the Sub-Recipient agrees to abide by all pertinent state and federal statutes, rules and regulations covering data privacy, including, but not limited to, the Minnesota Data Practices Act and all rules promulgated pursuant thereto by the Commissioner of the Department of Administration.
- B. All data created, collected, received, stored, used, maintained, or disseminated by the Sub-Recipient in performing this Agreement is also subject to the provisions of the Minnesota Government Data Practices Act)and the Minnesota Rules implementing the Act now in force or hereafter adopted as well as the applicable federal laws on data privacy and, pursuant to that statute, the Sub-Recipient must comply with the

requirements of that statute as if it were a government entity. All remedies set forth in Minn. Stat. § 13.08 shall also apply to the Sub-Recipient.

- C. Notwithstanding Minn. Stat. 13.82, subd. 24 or any other provision of law the parties agree that for purposes of the Minnesota Government Data Practices Act and all other statutes and provision of law related to data practices, data management and records retention, each party shall remain the exclusive responsible authority, as defined in Minn. Stat. 13.02, subd. 16, for its own data management, for responses to data requests and for all aspects of records retention for any and all data in any form that is collected, created, received, maintained or disseminated by the party agency. This section includes but is not limited to all data regardless of its classification as the term government data is defined in Min. Stat. 13.02, subd. 7.
- D. Sub-Recipient agrees that is bonds, records, documents, accounting procedures and practices, and other papers relevant to this Agreement are subject to examination, duplication, transcription and audit by Chisago SWCD, the Legislative or State Auditor under Minn. Stat. § 16C.05, and any other funding authority. Sub-Recipient will maintain these documents for six years from the date of the contract termination.

XIX. EARLY TERMINATION

- A. This agreement may be terminated by either party at any time, with or without cause, upon fourteen (14) days written notice delivered by mail or in person. Notice shall be delivered at the address first written above.
- B. Upon early termination by the Chisago SWCD, the Sub-Recipient shall only be entitled to payment for services satisfactorily performed through the date of termination and shall not be entitled to any other payment and/or damages.
- C. This agreement may be terminated effective immediately upon written notice to Sub-Recipient if funding at an aggregate level sufficient to fund this agreement becomes unavailable.

XX. DEFAULT AND REMEDY

Failure of the Sub-Recipient including the failure of any employee or agent of the Sub-Recipient to abide by any of the terms, conditions, or requirements expressed in this agreement shall constitute a default if not properly corrected by the Sub-Recipient upon receipt of a notice of deficiency and a request for compliance from the Chisago SWCD. In the event of a default by the Sub-Recipient, Chisago SWCD may cancel this agreement by sending a written notice of cancellation to the Sub-Recipient at the address stated above and may recover from the Sub-Recipient any damages sustained by Chisago SWCD which may directly or consequently arise out of the breach of this Agreement by the Sub-Recipient.

XXI. INTERPRETATION, JURISDICTION AND VENUE

All contractual agreements shall be subject to, governed by, and construed and interpreted solely according to the laws of the State of Minnesota. Actions brought in the

state court shall be venued in Chisago County and actions brought in federal court shall be venued in the State of Minnesota.

XXII. SEVERABILITY

The parties agree that if any term or provision of this contract is declared by a court of competent jurisdiction to be illegal or in conflict with any law, the validity of the remaining terms and provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the contract did not contain the particular term or provision held to be invalid.

XXIII. CONFLICT OF TERMS AND CONDITIONS

If there is a conflict in the terms and conditions contained in this agreement and the Chisago policies as adopted by the Lower St. Croix Watershed Partners, the terms and conditions contained in this agreement shall take precedence.

XXIV. WAIVER

The failure of Chisago SWCD or Sub-Recipient to enforce one or more of the terms or conditions of the agreement or to exercise any of its rights or privileges, or the waiver by either party of any breach of such terms or conditions, shall not be construed as thereafter waiving any such terms, conditions, rights, or privileges, and the same shall continue and remain in force and effect as if no waiver had occurred.

XXV. MODIFICATIONS

Any material alterations, modifications or variations of the terms of this agreement shall be valid and enforceable only when they have been reduced to writing as an amendment and signed by the parties.

XXVI. ENTIRE AGREEMENT

It is understood and agreed by the parties that the entire agreements of the parties is contained herein and the Statements of Work executed by the parties and that this agreement supersedes all oral agreements and negotiations between the parties relating to the subject matter hereof as well as any previous agreements presently in effect between the Chisago SWCD and Sub-Recipient relating to the subject matter hereof. The parties hereto revoke any prior oral or written agreement between themselves and hereby agree that this agreement is the only and complete agreement regarding the subject hereof.

XXVII. COUNTERPARTS

This agreement may be executed in any number of counterparts, each one of which shall be deemed to be an original, but all such counterparts together shall constitute one and the same instrument.

XXVIII. NOTICE

Notice is to be given in writing and either sent by mail, email or delivered in person.

For Sub-Recipient will be directed to:

Karen Kill, Administrator (or successor)
Brown's Creek Watershed District
455 Hayward Ave,
Oakdale, MN 55128
karen.kill@mnwcd.org
651-330-8220 x 26

For Chisago SWCD

Craig Mell, District Administrator (or successor)
Chisago Soil and Water Conservation District
38500 Tanger Dr. Suite 206
North Branch, MN 55056
craig.mell@mn.nacdnet.net
651-674-2333

When notice is served by mail, it is deemed received 3 days after mailing. Delivery of a notice or document in accordance with this section is considered equivalent to a delivery method required under applicable law.

(Signatures on Next Page)

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands.

Approved and accepted for:

CHISAGO SWCD

Name: Craig Mell
Title: District Administrator
Chisago Soil and Water Conservation District

Date

Reviewed and Approved to Form:

JANET REITER
CHISAGO COUNTY ATTORNEY

Name: Jeffrey B. Fuge
Title: Assistant County Attorney

Date

Approved and accepted for
SUB-RECIPIENT – BROWN’S CREEK WATERSHED DISTRICT

Name: Karen Kill
Title: Administrator
Brown’s Creek Watershed District

Date

Approved as to form and execution:

Name: Michael Welch
Attorney for Sub-Recipient, Brown’s Creek Watershed District

Date

INSURANCE COVERAGES EXHIBITA

Unless modified by mutual agreement of the parties by specific provision of a Statement of Work or other agreement, the provisions of Article XII, INSURANCE shall apply for the duration of this Agreement, as follows:

1.1. **Commercial General Liability.** Sub-Recipient will require any contractor hired to perform under a Statement of Work authorized in accordance with this agreement to obtain and maintain Commercial General Liability insurance with a combined limit of not less than \$1,500,000 each occurrence.

1.1.1. CGL insurance will be written on an occurrence basis, and will cover liability arising from premises, operations, products-completed operations, personal injury and advertising injury, and liability assumed under an insured contract including the tort liability of another assumed in a business contract.

1.1.2. BCWD will ensure that Chisago SWCD, including its elected and appointed officials and employees are named as additional insureds under the Commercial General Liability. This coverage shall be primary to the additional insured.

1.1.3. The Chisago SWCD's insurance will be excess of the contractor's insurance and will not contribute to it. The contractor's coverage will contain no special limitations on the scope of protection afforded to the Chisago SWCD, its agents, officers, directors, and employees.

1.1.4. **Waiver of Subrogation.** Sub-Recipient waives all rights against Chisago SWCD and its agents, officers, directors and employees for recovery of damages to the extent these damages are covered by the commercial general liability or commercial umbrella liability insurance obtained by contractor pursuant to Paragraph 1.1. Sub-Recipient will obtain an endorsement to affect this waiver.

1.2. **Workers' Compensation Insurance.** Sub-Recipient will ensure contractor provides proof of workers' compensation insurance applicable to contractor in accordance with statute.

1.3. **Other Insurance Provisions**

Prior to the start of this Agreement, Sub-Recipient will furnish Chisago SWCD with a certificate of insurance and copies of the endorsements, executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements set forth above. Sub-Recipient will provide certified copies of all insurance policies required within ten days if requested in writing by Chisago SWCD. Failure of Chisago SWCD to demand such certificate or other evidence of full compliance with the insurance requirements or failure of Chisago SWCD to identify deficiency from evidence that is provided shall not be construed as a waiver of Sub-Recipient's obligation to maintain such insurance. Failure to provide the required certificates of insurance and endorsements or failure to maintain the required insurance may result in termination of this contract.

1.4 **No Representation of Coverage Adequacy.** By requiring insurance herein, Chisago SWCD does not represent that coverage and limits will necessarily be adequate to protect the Sub-Recipient and such coverage and limits shall not be deemed as a limitation on Sub-Recipient's liability under the indemnities granted to Chisago SWCD in this Agreement.

**STATEMENT OF WORK
TO THE MASTER GRANT SUB-RECIPIENT AGREEMENT BETWEEN
CHISAGO SOIL AND WATER CONSERVATION DISTRICT
AND BROWN’S CREEK WATERSHED DISTRICT
2025 LSC WBIF STREAMBANK/SHORELINE RESTORATIONS**

This Statement of Work to the Agreement between Chisago Soil and Water Conservation District (“Chisago SWCD”) and the Brown’s Creek Watershed District (“Sub-Recipient”) provides a statement of activity that Sub-Recipient will perform pursuant to the Agreement. All grant activities specified and detailed herein shall be performed in accordance with the Agreement, partnership policy, the funding source Grant Agreement, Minnesota Board of Water and Soil Resources Grant Administration Manual, and applicable federal and state laws and regulations and local ordinances.

I. SCOPE OF ACTIVITY

Sub-Recipient will carry out or contract for the completion of activities as follows:

- A. **Activity ID:** 2025 LSC WBIF Streambank/Shoreline Restorations Brown’s Creek Watershed District Stream Restoration – Brown’s Creek Phase 2: BC Cove
- B. **Grant Funding Source:** State of Minnesota Board of Water and Soil Resources 2025 Watershed Based Implementation Funding Grant Agreement – Lower St. Croix Watershed Partners (Grant ID C25-0284)
- C. **Activity Timeline:** Activity must be completed between August 27, 2025, and December 31, 2027. Expenses incurred outside of these dates are not eligible for reimbursement.
- D. **Grant Funding Source Work Plan Activity: FY25 LSC WBIF Streambank/Shoreline Restorations**
 - 1. Activity Deliverables:
 - a. Grant activity type: Streambank/Shoreline Restorations
 - b. Conservation practice: Brown’s Creek Phase 2: BC Cove Stream Restoration
 - c. Priority benefitting waterbody: Brown’s Creek
 - d. Project deliverables and description: Brown’s Creek restoration of 1,950 linear feet of trout stream and at least 5 acres of riparian area upstream of McKusick Road in Stillwater to reduce sedimentation by 28 tons/year (TSS), reduce total phosphorus (TP) loading by 20.2 lbs./year, reduce thermal loading, and improve trout stream habitat. It is anticipated that 23 riffles and pools will be restored. All reductions in TSS and TP in Brown’s Creek will also benefit the St. Croix River.
 - e. Timeline: Must be completed no later than December 31, 2027.
 - f. Landowner name (if applicable): Four private landowners. Upstream of McKusick Road in Stillwater, immediately upstream of Brown’s Creek Park Phase 1 restoration project
 - g. Pollutant reductions (if applicable):
 - i. Phosphorus: 20 lbs./yr.
 - ii. Total Suspended Solids: 28 tons/yr.
 - h. Project effective life for which the sub-recipient will be responsible for operations & maintenance of the project: 10 years

Resolution No. 26-03

**Brown's Creek Watershed District
Board of Managers**

Ordering the Brown's Creek Cove project

Manager _____ offered the following resolution and moved its adoption, seconded by Manager _____ :

Whereas Brown's Creek Watershed District has an approved and adopted watershed resources management plan in fulfillment of Minnesota Statutes section 103B.231, and the plan articulates policies committing BCWD to the improvement of the water quality and ecological integrity of Brown's Creek and its tributaries, including maintaining a viable cold-water fishery, and the hydrology and geomorphology required for stream equilibrium and health;

Whereas the capital improvements program in the plan includes creek-restoration projects addressing impairments of Brown's Creek for turbidity and fish-bioassessments identified in the Brown's Creek Total Maximum Daily Load Plan (2012) and the Brown's Creek Thermal Study (2016) and improving ecosystem health;

Whereas at its February 2024 regular meeting, the BCWD Board of Managers directed BCWD staff and the engineer to assess the feasibility of the capital improvements in the plan to address the impairments and restore water quality and habitat in Brown's Creek, and staff and the engineer conducted necessary surveys to develop a conceptual design for restoration of roughly 1,950 linear feet of the creek extending north and west from McKusick Road North just upstream of Brown's Creek Park and at least five acres of associated habitat in Stillwater, and the design concept includes narrowing the creek where widening has occurred; thinning trees and removing invasive species; restoring floodplain connection and wetlands; restoring riffles and pools in the creek; shaping and stabilizing banks; and planting and establishing diverse native vegetation and pollinator habitat (the Brown's Creek Cove Project), and the Brown's Creek Cove Project will also include the development and implementation of a plan for post-construction maintenance and repair of the Brown's Creek Cove Project (the Maintenance Plan);

Whereas BCWD expects the Brown's Creek Cove Project to reduce sediment in creek flows and to the St. Croix River by 28.8 tons per year and reduce total phosphorus by 20.2 pounds per year, to increase fish spawning and provide stable refuge for macroinvertebrates, increase the number and depth of pools providing thermal refuge for aquatic biota during summer and improve winter habitat for fish and amphibians; provide instream woody structure to serve as fish and macroinvertebrate habitat and protect streambanks from erosion;

Whereas the Brown's Creek Cove Project is proposed to be undertaken on parcels owned or controlled by public and private landowners and would require access from

Washington County right-of-way, and BCWD staff have secured preliminary agreement from such property owners to facilitate construction and implementation of the Brown's Creek Cove Project;

Whereas the estimated cost of the Brown's Creek Cove Project, including engineering, design, planning, permitting, construction and construction oversight, is \$420,000, including \$340,000 for construction and \$80,000 for planning, design, permitting, engineering, construction oversight, and BCWD plans to fund through a watershed-wide ad valorem levy of \$133,000 as authorized by Minnesota Statutes section 103B.241, a contribution of \$35,000 in Watershed-Based Implementation Funding through the Lower St. Croix Partnership, and federal water-quality grant funds administered by the Minnesota Pollution Control Agency of \$222,000;

Whereas after presentation by staff and the engineer of the concept for and assessment of the feasibility of the Brown's Creek Cove Project, BCWD conducted a duly noticed public hearing pursuant to Minnesota Statutes section 103B.251, subdivision 3, and [COMMENTS AT HEARING]; and

Whereas in consideration of the above-cited record in the matter, the board of managers finds that the Brown's Creek Cove Project will be conducive to public benefit and promote the general welfare, and represents a cost-effective contribution to the implementation of the watershed plan and the fulfillment of BCWD's powers and purposes under Minnesota Statutes chapters 103B and 103D.

Now, therefore, be it resolved that the Brown's Creek Watershed District Board of Managers hereby orders the Brown's Creek Cove Project, and directs that BCWD's costs thereof be funded through a watershed-wide levy, except as offset by grant funding received;

Be it further resolved that the BCWD Board of Managers directs the administrator to prepare agreements for the access and use of the property necessary for the successful implementation of the Brown's Creek Cove Project with fee title owners of such property and to present drafts of such agreements to the board for approval and authorization to execute on behalf of BCWD;

Be it further resolved that the BCWD Board of Managers approves the task order for the BCWD engineer to complete the design and construction documents, including final plans and specifications and all other documentation necessary to procure bids for implementation of the Brown's Creek Cove Project, and to provide implementation oversight for the Project and authorizes the task order for a total cost not to exceed \$80,867;

Be it further resolved that the BCWD Board of Managers directs the administrator to utilize the final plans and specifications to obtain bids for construction and implementation of the Project in accordance with applicable public-procurement law and to timely present bids received to the managers for approval.

The question was on the adoption of the resolution and there were ___ yeas and ___ nays as follows:

	<u>Yea</u>	<u>Nay</u>	<u>Abstain</u>	<u>Absent</u>
Brod	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eckles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LeRoux	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mattson	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wirth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Upon vote, the president declared the resolution adopted March 11, 2026.

* * * * *

I, Griffin Brod, secretary *pro tem* of the Brown's Creek Watershed District, do hereby certify that I have compared the above resolution with the original thereof as the same appears of record and on file with BCWD and find the same to be a true and correct transcription thereof.

IN TESTIMONY WHEREOF, I set my hand _____.

Griffin Brod, Secretary *pro tem*

Project Name | Brown's Creek Cove Restoration Project**Date** | 03/04/2026**To / Contact info** | BCWD Board of Managers**Cc / Contact info** | Karen Kill, District Administrator**From / Contact info** | Mike Majeski, Dan Mossing, P.E.**Regarding** | Brown's Creek Cove Final Design & Construction Implementation

Background

BCWD and EOR staff met with the four landowners around the Brown's Creek Cove project area to discuss the potential project and creek corridor restoration. All four landowners have shown interest in moving forward with the project, and BCWD staff are currently working on draft landowner agreements. In January 2026, the BCWD executed a grant with MPCA for Federal 319 funding for engineering services and construction implementation.

Scope of Services

The following scope of services provides a breakdown of tasks and hours to complete draft design and final construction plans, permitting, and construction implementation of the Brown's Creek Cove Restoration Project.

Task 1: 60% Draft through Final Design, Construction Documents

EOR will develop draft and final construction plans, construction cost estimates, project specifications, and prepare a construction project manual for bidding.

- Develop final grade contours and refine excavation / fill quantities needed for permitting & bidding
- Develop a final construction plan and engineer's opinion of probable cost
- Develop construction documents including a stormwater pollution prevention plan (SWPPP), specifications, special provisions, and a project manual

Task 2: Permitting & Related Services

EOR will complete a no-rise certificate and obtain all necessary permits to implement the project.

- A no-rise document will be completed and sent to permitting agencies for review
- Completion of permit applications including the MNDNR Public Waters Work Permit, United States Army Corps of Engineers permit, and all local & watershed permits required for the project
- Complete a MPCA 401 WQ Certification application (now separate from the Army Corps permit)

Task 3: Construction Services

Construction services will include online bidding and bid tabulations, submittals review, contractor recommendation, pre-construction meeting, construction oversight, as-built survey and record drawings, prepare pay applications, and attend meetings to complete the project. Two years of post-construction site inspections and vegetation monitoring will also be completed, including coordination with the contractor to address any maintenance items and invasive species.

- Utilize Quest CDN and tabulate bids

- Prepare bid summary and contractor recommendation memo
- Review construction submittals and hold a pre-construction meeting with the selected contractor
- Mark trees to harvest following pre-construction meeting
- EOR staff will provide construction oversight during the entire window of construction to ensure the project is implemented as designed
- An as-built survey will be completed, and record drawings will be prepared to document project construction inputs
- Review contractor pay requests and prepare pay application memos
- Post-construction site inspections for two years (to be conducted spring & fall)

Deliverables

Deliverables for this scope of services include the following:

- Draft construction plans and construction specifications for BCWD staff and legal counsel review
- Final construction plans and construction specifications / bidding documents
- Project documents (no-rise certificate, MPCA 401 WQ certification)
- Topographic data (electronic files)
- Construction as-built and record drawings, construction photographs
- Construction updates and attend meetings

Project Assumptions

The following is a list of assumptions for this scope of services:

- BCWD to pay the MNDNR Public Waters Work Permit fee
- Cultural resources review will be completed using the Office of the State Archaeologist (OSA) web portal and submission of information to the Army Corps of Engineers & the State Historic Preservation Office (SHPO). It is assumed this will suffice for cultural resources review for this project located entirely on private property
- The proposed design project will not trigger the need for an EAW
- Construction of the project to occur over a 4-week period (weather dependent). EOR will provide construction oversight 4 days a week until substantial project completion but may reduce field visits depending on construction inputs scheduled during each week of construction
- If construction cannot be implemented in 2026, the project will be constructed in the spring of 2027 after the DNR work exclusion date of April 1, with substantial project completion by June 30, 2027

Cost Estimate

Table 1. Cost estimate for Brown's Creek Cove final design and construction implementation.

Engineering Task	Estimated Hours	Task Schedule	Fee & Expenses*
Task 1: Final Design & Construction Documents	131	March-May 2026	\$23,350
Task 2: Permitting & Related Services	70	May 2026	\$13,600
Task 3: Construction Management	219	Bidding & Contractor Selection (June 2026) Construction (August 2026 or between April-June 2027) Site Inspections & Veg. Maintenance (Spring/Fall 2027-2028)	\$44,200
Total	420		\$81,150

*includes mileage & equipment expenses

Board Action

1. Approve Tasks 1-3 for \$81,150 from account 947-0026 to advance the Brown's Creek Cove design and construction implementation.

Project Name	Oak Glen Golf Course Streambank Repair Project	Date	02/3/2026
To / Contact info	BCWD Board of Managers		
Cc / Contact info	Karen Kill, District Administrator		
From / Contact info	Mike Majeski, Dan Mossing, P.E.		
Regarding	Project Background & Scope of Work		

Background

During a creek inspection through the Oak Glen golf course in the fall of 2025, EOR identified six bank erosion sites downstream of McKusick Road (Figure 1). Following a field meeting with watershed, golf course, and DNR staff, EOR presented an approach to protect the eroding streambanks utilizing existing woody invasive species located within the creek buffer through the golf course. The banks would be protected using brush bundles comprised of hand-cut trunks and branches that would be inserted into the creek banks and anchored with wood stakes as needed. EOR has used this approach on other small-scale creek projects with success, and the DNR hydrologist approved of this method. In addition, this approach fits under the DNR’s “no-permit-required criteria for bank or shoreline zone restoration work” and thus will not require a public waters work permit.

After initial outreach with DNR staff, EOR met with BCWD and Washington Conservation District (WCD) staff to discuss whether the project could be implemented by WCD field crews. The WCD indicated they could assemble a minimum four-person crew to complete the project.

The purpose of this memo is to provide a scope of services to coordinate project logistics with WCD and golf course staff and provide construction oversight of the bank repair work.

Scope of Services

Streambank Repair Coordination & Implementation

The streambanks to repair measure between 15-40 linear feet long, with the total length of bank repair estimated at 170 linear feet between all six sites. It was estimated that a total of 20 brush bundles will need to be installed for the project, and there is sufficient woody invasive material within the creek buffer to create the brush bundles. EOR will coordinate with WCD and golf course staff to harvest the woody material and preposition the brush within the buffer area. Installation of the brush bundles will be completed in the spring of 2026 after the DNR’s winter stream work exclusion dates end (September 1 – April 1).

Following implementation of the project, EOR will draft a site maintenance plan which is required to be submitted to DNR fisheries staff to outline an approach for monitoring the brush bundles and managing woody invasive species within the creek buffer.



Figure 1. Proposed Brown's Creek bank repair sites (red lines) along the Oak Glen golf course.

Cost Estimate

Table 1 summarizes the tasks and estimated hours to complete the project.

Table 1. Cost estimate for the Oak Glen golf course streambank repair project.

TASK	EOR HOURS	ESTIMATED COST*
1. Project Coordination	3	\$654
2. Bank Repair Oversight of WCD Staff (estimated 3 days for WCD to install the brush bundles)	8	\$1,744
3. Post Project Inspection & Draft Maintenance Plan to DNR	5	\$1,090
TOTAL	16	\$3,488

*includes mileage and expenses.

Board Action

1. Approve Tasks 1-3 for \$3,488 from account 948-0000 to advance coordination and implementation of the streambank repair project.

Agreement Granting an Irrevocable Term License for Access and Use

Oak Glen Golf Course Buffer & Creek Stabilization

This license agreement is made by and among Oak Glen LLC, a private Minnesota corporation (Oak Glen), and Brown's Creek Watershed District, a regional governmental unit with purposes and powers set forth at Minnesota Statutes chapters 103B and 103D (BCWD).

Recitals

- A. Oak Glen owns in fee simple certain real property at 1599 McKusick Road North in the City of Stillwater, Washington County, legally described as:

Outlot G, Oak Glen, Washington County, Minnesota

(Outlot G);

- B. Outlot G includes buffer area along Brown's Creek that was planted and established by BCWD in accordance with a September 12, 2011, project agreement between the parties (the 2011 Agreement), under which BCWD also successfully completed work to stabilize the banks of Brown's Creek as it traverses Outlot G;
- C. The parties entered into and recorded on Outlot G and other Oak Glen Golf Course parcels an easement agreement whereby BCWD retained responsibility for maintenance of the buffer area and stabilized streambank for five years from October 22, 2020, and Oak Glen granted to BCWD the right to access Outlot G for six years from October 22, 2020, purposes of maintenance of the buffer area and stabilized streambank (the Easement);
- D. Under the 2011 Agreement and the Easement, Oak Glen agreed to maintain the buffer area and stabilized streambank for 10 years after BCWD's governing board accepted the buffer establishment and streambank stabilization work as complete, and this license agreement does not diminish Oak Glen's rights or responsibilities under the 2011 Agreement and the Easement;
- E. BCWD has identified areas of the streambank on Outlot G that have eroded such that repair is now needed, and - notwithstanding Oak Glen's responsibilities as referenced in paragraph D herein - BCWD wishes to undertake the repair work, which will include field personnel on foot inserting and anchoring hand-cut trunks and branches of woody invasive buckthorn into the creek banks over 170 linear feet along the creek on Outlot G to stabilize the creek bank (the Repair Work);
- F. BCWD has requested and Oak Glen has agreed to grant to BCWD a license to access and use Outlot G for the Repair Work.

G. BCWD is authorized to enter this license agreement by Minnesota Statutes section 103D.33 5, subdivisions 7 and 13.

Agreement

NOW, THEREFORE, in consideration of the mutual terms and conditions set forth herein, the sufficiency of which the parties hereby acknowledge, Oak Glen and BCWD agree as follows:

1. **Grant of license.** Oak Glen hereby grants and conveys to BCWD, its contractors, agents, successors and assigns an irrevocable term license over, under, upon and across Outlot G for purposes of completing the Repair Work (the License). The License includes the right to ingress and egress and to pass over and through, cross and recross Outlot G, on foot and using small mechanical equipment to access and repair the banks of Brown's Creek for purposes of the Repair Work. BCWD will notify Oak Glen at least 24 hours prior to BCWD's entry onto Outlot G to undertake the Repair Work.
2. **Cost.** As between the parties to this agreement, BCWD will be responsible for all costs of the Repair Work.
3. **Coordination.** The Repair Work will be conducted in coordination with Oak Glen to ensure no material disruption to Oak Glen golf course operations. During the term of the License, Oak Glen will not use Outlot G in any manner that would damage or interfere with or degrade the utility or efficacy of the Repair Work. Oak Glen may use and enjoy Outlot G for all other purposes, but such use and enjoyment are subject to the restrictions stated herein and the temporary right of BCWD to use Outlot G for the purposes herein expressed.
4. **No public access or use.** No right of access or use of Outlot G is granted to the general public by this License.
5. **Continuing Maintenance.** After completion of the Repair Work, BCWD will prepare inspection and maintenance guidelines for review and approval by Oak Glen, such approval not to be unreasonably withheld. Oak Glen will inspect and maintain the buffer area and creek banks on Outlot G in accordance with the approved guidelines and in ongoing consultation with BCWD. The continuing maintenance is not part of the Repair Work.
6. **Term.** The License granted hereunder will expire September 15, 2026, or on notification by BCWD that the License is no longer needed, whichever occurs sooner. The License is irrevocable by Oak Glen prior to expiration on its terms, and does not diminish or supplant BCWD's rights to access Outlot G and other Oak Glen property under the Easement. All other rights, obligations and duties hereunder will survive termination of the License, including but not limited to BCWD's obligation under paragraph 5.

7. **Golf Course Property restoration; release of liability for preexisting conditions.** In the event Outlot G is damaged by the Repair Work, BCWD will promptly repair or restore Outlot G to the extent reasonably practicable or to a condition agreed on by Oak Glen. BCWD will repair, seed or plant disturbed or damaged areas with vegetation suitable for the established and customary uses of Outlot G. Oak Glen agrees and acknowledges that by execution of this agreement BCWD assumes no liability or responsibility of any kind for environmental conditions on Outlot G or for the completion of any actions required by any regulatory authority. Oak Glen will indemnify, defend and hold BCWD harmless from all costs, liabilities and responsibilities arising from the existing condition of Outlot G, except for those costs, liabilities and responsibilities arising out of BCWD's actions or breach of this agreement.
8. **Insurance.** BCWD will require its contractors, agents, successors and assigns to carry commercial general liability coverage or self-insure for injury to or death of a person or persons and for damage to property occasioned by the performance of the Repair Work. Oak Glen will remain solely responsible for maintaining liability and other insurance for its own uses of and authority over Outlot G.
9. **Delivery of notices.** All notices required or permitted under this agreement will be in writing and will be deemed delivered when delivered by electronic mail or in hard copy to the following:

Oak Glen LLC:
Jason Whitehill
1599 McKusick Rd N
Stillwater, MN 55082
jason@oakglengolf.com

BCWD:
Administrator
Brown's Creek Watershed District
455 Hayward Avenue North
Oakdale MN 55128
651-330-8220
KKill@mnwcd.org
10. **Severability.** If any one or more of the provisions of this agreement, or the applicability of any such provision to a specific situation, is held invalid or unenforceable, such provision will be modified to the extent necessary to make it or its application valid and enforceable, and the validity and enforceability of all other provisions of this agreement and all other applications of any such provision will not be affected thereby.

11. **Governing law; venue.** This agreement will be construed and governed by the laws of the State of Minnesota. Venue for any claim will be Washington County, Minnesota.
12. **No waiver of immunity.** No provision of this agreement will be interpreted as a waiver of any statutory or common law immunity by or limitation of liability available to BCWD, all such immunities and limitations being expressly reserved by BCWD.

IN WITNESS WHEREOF, the undersigned have executed this agreement with the intent to be legally bound by its terms as of the date this agreement is fully executed by both parties.

Oak Glen LLC

Jason Whitehill, General Manager

Date: _____

Brown's Creek Watershed District

Karen Kill, administrator

Date: _____

Approved as to form and execution

BCWD counsel



MEMORANDUM

TO: WCD/BCWD Boards
FROM: Cameron Blake, Natural Resource Specialist
DATE: 2/19/2026

RE: 2025-2026 BCWD-WCD Service Agreement Amendment

The BCWD has existing funding in the BCWD-WCD Service Agreement allocated to the maintenance of identified stormwater best management practices and other supportive maintenance activities. For 2026 a request was made to estimate the cost of adding additional maintenance tasks for Capital Improvement Projects not currently in the agreement. These cost estimates are summarized in the table below.

Capital Improvement Project	Activity	Estimated Time (hours)	Estimated Cost (\$81/hr for Specilaist and \$50/hr for Seasonal Technicians)	Account #
Oak Glen Golf Course Buffer	Streambank revetments and buckthorn removal	76	\$3,920	948-0000
Trout Habitat Preservation Project	Inlet Clean Out and small erosion repair	36	\$1,924	948-0000
Kismet Basin Stabilization Project	Inlet Clean Out	18	\$962	948-0000
Brown’s Creek Conservation Area	HELP grant shrub planting	50	\$2,562	935-0002
Brown’s Creek Conservation Area	Vegetative maintenance	160	\$8,000	935-0002
Total			\$17,368	

Recommended action: Approve amending the 2025-2026 BCWD-WCD Service Agreement to add these activities totaling \$17,368 in 2026.



BROWN'S CREEK WATERSHED DISTRICT

Preserving the integrity of the watershed for future generations

www.bcwd.org | 455 Hayward Ave N, Oakdale, MN 55128 | 651-330-8220

MEMORANDUM

TO: Brown's Creek Watershed District Board
FROM: Karen Kill and Camilla Correll
RE: MN Department of Health – groundwater protection initiative grant
DATE: March 10, 2026

Background

Minnesota Department of Health has made a call for grant proposals for groundwater protection initiatives due April 3, 2026. The eligible grant request is between \$10,000-\$50,000 and has no match requirements. The grant period is July 1, 2026 to January 31, 2028. These funds are for pre-project identification, planning and design work that is required before on-the-ground projects can be implemented. Implementation projects are not eligible.

Issue

Staff recommend applying for the grant for the following 2027-2036 Watershed Management Plan Groundwater Activity:

Address issues related to modern water utility management by leading the development of an integrated water utility roadmap with financial support from District communities. This roadmap will explore opportunities to break down the silos among water, wastewater, and stormwater to create a more sustainable water future. It will establish a framework for member communities so that as opportunities to upgrade or repair systems arise, utilities are not only examining existing needs but making changes to modernize and make systems more resilient.

NEW sub-tasks to help the Board envision what this would entail:

- Convene a project kickoff meeting with district staff and community representatives.
- Establish a technical advisory group composed of public works directors, utility managers, planners, and finance staff.
- Develop a baseline understanding of how water utilities are currently structured and managed.
- Identify Challenges, Risks, and Opportunities
 - Evaluate infrastructure condition and capital investment needs.
 - Identify climate-related risks such as flooding, drought, or changing precipitation patterns.
 - Assess operational challenges such as aging infrastructure, regulatory pressures, or limited staffing capacity.
 - Identify opportunities where coordinated planning could improve outcomes, such as stormwater reuse, infiltration, or watershed-scale / District projects.
- Explore Integration Opportunities

Managers:

- Evaluate opportunities for integrated planning and project delivery.
 - Explore opportunities for joint infrastructure projects or shared services.
 - Identify policy or program changes that support cross-department coordination.
- Develop the Integrated Water Utility Roadmap that translates findings into a clear, implementable framework for communities

Collaborators:

- City of Stillwater
- City of Oak Park Heights
- Metropolitan Council
- MPCA
- Washington County
- East Metro Water Resource Education Program (EMWREP)

Requested Action

Provide feedback on grant application and direct staff accordingly.

1 **Minutes of the February 9, 2026, Community Advisory Committee Meeting**

2 **Attendance**

CAC Members Present:	Others Present:
Jyneen Thatcher	Hannah Peterson, BCWD Staff
Dennis Gervais	Celia Wirth, BCWD Manager
Anne Maule Miller*	Allison McGinnis, Bird City Stillwater/SSMN*
Hal Udoli*	Mari Frederickson, CAC Applicant
David Wortman	Victoria Bradford-Styrbicki, A House Unbuilt*
Dory Herman*	
CAC Members Absent:	
George Vania	

3 **Attended virtually*

4 **1) Called the meeting to order at 6:00 pm**

5 **2) Introductions**

6 CAC members and others in attendance in person and online provided a brief introduction.

7 **3) Approved Agenda**

8 **4) Approved December 8, 2025 Minutes**

9 **5) Elect Chair, Co-Chair, & Recorder**

10 The CAC decided to table until their April meeting since current chair, George Vania, was absent.
11 Hannah encouraged CAC members to consider taking on more of a leadership role.

12 **6) Watershed Management Plan Update**

13 Hannah shared that the plan would be going out for 60-day review after board approval at their
14 February 11th regular meeting.

15 **7) Recent Events Recap**

16 Hannah provided a recap of the winter creek painting event with Denise Lau and the DaVinci Fest at
17 Stillwater area high school. She shared that both events were moderately successful, but that an
18 interactive salt-related activity would have been helpful to engage students at the DaVinci Fest.

19 **8) Upcoming Event Planning**

20 Hannah shared the planned and tentative events for 2026:

21 **a) Water Where We Live Reception at Heritage Center, March 25th, 6-8pm**

22 **b) Sustainable Stillwater MN's Valley Eco Fair, April 26th, 11am-2pm**

23 **c) Brown's Creek Conservation Area Planting, April 27th-29th, During Workday**

24 Hannah shared that bare root trees will be arriving on April 24th, and that due to the location,
25 Washington Conservation District seasonal staff would be helping with the planting. The CAC
26 discussed that any interested volunteers are still welcome, but this wouldn't be advertised as a
27 community volunteering event.

- 1 **d) Long Lake Trail West Birding, Late April/Early May, Morning**
2 Hannah noted that she would connect with George on a date.
- 3 **e) Brown's Creek Park Restoration – Identify/mark dead trees, May 11th-15th, During Workday**
4 **f) Brown's Creek Park Restoration – Volunteer Replanting, May 16th-17th, Morning**
5 **g) Spring Creek Scene Painting, May 31st, 2-4pm**
6 **h) Walking Tour at Lakes at Stillwater Trail, Summer Tuesday, 6:30-8pm**
7 Hannah asked if Jyneen would be interested in leading again. The CAC discussed splitting into a
8 few groups of different abilities due to overwhelming success last year. They proposed June 16th
9 and June 23rd as potential dates, noting that the 23rd would be close to a summer painting event
10 if that is June 28th.
- 11 **i) Summer Creek Scene Painting at outdoor location, June 28th or July 12th, 2-4pm**
12 **j) Fishing Event at New Pier at Restoration Site, May or Summer Weeknight**
13 Hannah shared that she is discussing the feasibility of this event with Trout Unlimited.
- 14 **k) Long Lake Water Quality and Art Event in Collaboration with SSMN and A House Unbuilt,**
15 **August 1st or 2nd**
16 Hannah shared that based on previous CAC discussion and cool plant findings at Long Lake that
17 BCWD staff were looking to put on a lake health related event at Long Lake. Victoria Bradford-
18 Styrbicki shared her vision for the event, bringing in three artists to help engage community
19 members through embodied/performative, community listening, and hands-on activities. The
20 CAC was very supportive of this type of event, but they expressed some concern of it being the
21 same weekend as the Washington County Fair and suggested looking at other date options.
- 22 **l) Community Watershed Celebration & Bird Festival, September 19th, 10am-1pm**
23 Allison shared that she is not yet able to reserve the raptors. She also said it would be fun to do
24 a bird costume contest again. The CAC discussed if live music was worthwhile and decided that
25 it should still be part of the event.
- 26 **m) Fall Creek Scene Painting, October 11th, 2-4pm**
27 **n) Seeding and Snowshoeing, January 2027**
28 Hannah shared this idea for 2027. Jyneen described how winter seeding works.
- 29 **9) CAC Updates**
30 CAC members discussed seasonal flora handouts to include in the boxes along the trail at Long Lake
31 with the bird handouts. Anne and Jyneen agreed to select some plant photos to start with and come
32 up with descriptions. Hannah or Celia could then help turn it into a handout. CAC members also
33 discussed the use of QR codes versus paper and other opportunities to provide educational content.
34 David proposed creating audio or video content on the species. The CAC discussed use of the East
35 Metro Water Resources Education Program photos and materials, and Hannah shared that as a
36 partner with a shared office, we have access to a lot of that content. Jyneen also shared that her and
37 George will likely resume their plant and bird surveys at the Brown's Creek Conservation Area in
38 April.
- 39 **10) BCWD Updates**
40 Hannah proposed a theme of lake health for the 2026 newsletter and requested CAC members to
41 share any content ideas they have. She also shared that BCWD is still seeking one board member.
42 She provided an update on the Brown's Creek Restoration Project, sharing that the next phase
43 through Brown's Creek Cove will hopefully begin this year.
- 44 **11) Adjourned Meeting at 8:00 pm**