

## VLAWMO TECHNICAL COMMISSION MEETING

**8:00 AM March 13, 2024**

Vadnais Heights City Hall, Council Chambers, 800 County Road E East, Vadnais Heights, MN 55127

### Action items: 🗣️

- I. **Call to Order – 8:00am – Chair Tessier**
- II. **Approval of Agenda 🗣️**
- III. **Approval of Minutes (Feb. 14, 2024) 🗣️ p. 2**
- IV. **Administration & Operations**
  - A. **March Financial Report and Consider Authorization for Payment – Phil 🗣️ p. 8**
- V. **Programs**
  - A. **Update on Pleasant Lake Signs – Authorize Submission to NOHOA for Review 🗣️ - Phil/Dawn p. 16 & 20**
- VI. **Projects - Dawn**
  - A. **Consider Houston Engineering Task Order for Monitoring Analysis for the Wilkinson Project 🗣️ p. 16 & 29**
  - B. **Update on Watershed Management Plan Progress p. 16**
  - C. **Spent Lime Demonstration Project Update and Amendment to Temporary Easements p. 17**
  - D. **Tamarack Lake Alum Project Update p. 17**
  - E. **Birch Lake AIS Removal Preparation Update p. 17**
  - F. **Wilkinson Deepwater Wetland Restoration Minor Update p. 18**
  - G. **Pleasant Lake Carp Removal Update p. 18**
  - H. **VH City Hall Wooded Wetland Buckthorn Removal Spring 2024 p. 19**
- VII. **Commissioner Reports**
- VIII. **NOHOA**
- IX. **Ramsey Soil & Water Conservation Division**
- X. **St. Paul Regional Water Services**
- XI. **Public Comment**
- XII. **Next meetings: TEC: April 10 2024, Board meeting: April 24, 2024**
- XIII. **Adjourn 🗣️**

### Upcoming Events: Visit [vlawmo.org/events](http://vlawmo.org/events)

VLAWMO Grants 101	March 7
Aquatic Invasive Species (AIS) Training	March 12
Raingardens 101	March 14
Resilient Shorelines [Blue Thumb] Webinar	April 9
Initial Planning Meeting: Watershed Management Plan	April 24

**Vadnais Lake Area Water Management Organization  
Technical Commission (TEC) Minutes  
February 14, 2024  
Vadnais Heights City Hall, Council Chambers  
800 County Road E East, Vadnais Heights, MN 55127**

**Commission Members Present:**

Gloria Tessier	Gem Lake (GL)
Nick Ousky	Vadnais Heights (VH)
Jami Philip	White Bear Township (WBT)
Terry Huntrods	White Bear Lake (WBL)
Susan Miller	City of North Oaks (NO)
Andy Nelson	City of Lino Lakes (LL)

**Absent:** None

**Others in attendance:** Phil Belfiori, Brian Corcoran, Lauren Sampedro, Dawn Tanner (VLAWMO staff), Jennifer Morris and Therese Galatowitsch (The Pines HOA), Erin Spry (City of Vadnais Heights).

**I. Call to Order**

Chair Tessier called the meeting to order at 8:00 am.

**II. Approval of Agenda**

It was moved by Commissioner Philip and seconded by Commissioner Miller to approve the February 14, 2024 TEC agenda. Vote: all aye. Motion passed.

**III. Approval of Minutes (January 10, 2024)**

It was moved by Commissioner Ousky and seconded by Commissioner Huntrods to approve the January 10<sup>th</sup> meeting minutes as presented. Vote: all aye. Motion passed.

**IV. Administration & Operations**

**A. Financial Report for February and Authorization for Payment**

Administrator Belfiori outlined the February financial report as included in the packet.

He highlighted income from the stormwater utility fees and interest. He also summarized some of the expenses such as administrative/operations items and the spent lime project payment for seven spent lime applications at Oak Knoll pond. Staff recommended approval of the February financial report for payment.

It was moved by Commissioner Huntrods and seconded by Commissioner Nelson to approve the February Financial Report for payment. Vote: All aye. Motion passed.

## B. February TEC Report to the Board

Administrator Belfiori presented the February TEC report. He discussed VLAWMO is working with SRF consultants on the completion of the East Vadnais Lake Subwatershed Resiliency Study and potential pursuit of a grant application to implement projects from the Study. He also highlighted staff are getting ready to start carp work and continue vegetative management at the Wilkinson project in the spring, and staff are working on a partnership with the City of Vadnais Heights on a raingarden at Elmwood Park. He thanked the City for its third partnership year on adding raingardens in City parks.

Belfiori stated planning for the 2025 budget and the five-year project table is already in progress and the final budget will be presented in December. He recommended approval of the February report.

It was moved by Commissioner Ousky and seconded by Commissioner Philip to approve the TEC report to the Board. Vote: All aye. Motion passed.

## V. Programs

### A. LL2 2024-01 The Pines HOA Smart Irrigation Controllers

Sampedro summarized the LL2 grant application from The Pines HOA and mentioned the applicant was in attendance and could answer any questions. Sampedro described the proposed project includes upgrading five irrigation controller systems to smart irrigation controllers. The controllers will monitor weather and help the HOA reduce their use of groundwater for irrigation. Sampedro noted the bids varied widely and the recommendation is based on the lowest bid. She recommended approval of the application in the amount of 90%, not to exceed \$19,115.96.

Commissioner Miller stated she would like to see tailored education and outreach efforts on smart irrigation controllers for HOAs and asked if an outreach event could be scheduled for HOAs in the North Oaks area. Sampedro responded that the smart irrigation controller program is in its second year and staff are planning to analyze the groundwater usage data from the projects that were completed last year to have information that can be used for tailored outreach.

Commissioner Ousky noted it is important to have pre- and post- water usage data for the irrigation systems, but it can still be difficult to quantify groundwater conservation. Commissioner Nelson concurred and noted the pre-and post- data can be in different units and difficult for a direct comparison. He stated it would be a good idea to have a broader public outreach program on smart irrigation controllers and asked if the HOA

would be willing to allow people outside of North Oaks to see the controllers. The applicant responded they would welcome the public if they would like to tour the project.

Chair Tessier stated the TEC should require education and outreach and reporting components with the application. Sampedro responded the grant application already integrates education and outreach requirements and the operation and maintenance agreement for the project will require groundwater usage reporting.

Commissioner Miller asked how much funding is available in the 2024 grant programs budget. Sampedro responded there will be around \$33,000 left in the Landscape Level 2 program budget if the application is approved.

It was moved by Commissioner Miller and seconded by Commissioner Ousky to approve LL2 2024-01. Vote: All aye. Motion passed.

#### B. 2024 VLAWMO Education and Outreach Plan

Administrator Belfiori presented the 2024 education and outreach plan, which is updated annually and is part of VLAWMO's annual report. Some of the 2024 goals include focusing on capital improvement campaigns related to major projects and programs, engagement for the next Watershed Management Plan, supporting communities with MS4 permit Minimal Control Measures, working with community members on projects, continuing to partner with volunteers and help them be community leaders, providing education at schools to promote ecological awareness, and providing professional support to the Board of Directors, TEC, and WAV for supplemental learning.

Administrator Belfiori thanked the TEC for being the eyes and ears in the community and a vital component of the education and outreach plan.

No questions from the TEC.

## VI. Projects

#### A. Comprehensive Watershed Management Plan (WMP): Public and TEC/CAC/Partner Surveys

Tanner provided an update on the Watershed Management Plan (WMP) process, which is currently focused on the initiate steps. Staff are working closely with Houston Engineering to complete the required steps. One of the first initiate steps included contacting review authorities for an initial 60-day review of VLAWMO's WMP. This was completed and VLAWMO received comments from seven state agencies and the City of White Bear Lake that provided specific guidance for VLAWMO, which will be synthesized by staff.



Tanner described staff have created surveys for gathering input on the WMP, including one for the general public and one for the TEC. She encouraged the TEC to complete the TEC survey and promote the public survey through their networks so it reaches more people. She stated all of the information VLAWMO receives will contribute to identifying and specifying the content that will go in the new WMP and be used to discuss priority issues with the Board.

B. Spent Lime Demonstration Project Update, Recommendation for Payment, and Barr Recommendation for 2024

Tanner presented an update on the spent lime demonstration project. She said seven loads of spent lime were applied to Oak Knoll pond in 2023 and staff and Barr Engineering have been collecting and analyzing samples from the pond. VLAWMO would like to resume the project in 2024 to work to achieve the full dose and have a better understanding about how well spent lime works to improve water quality and how long it lasts.

She stated the contractor and the City of White Bear Lake are supportive of the project continuing into 2024 and recommended authorizing the extension of the project through 2024, signing and returning the contract extension, and authorizing staff to pursue an amendment extension of the temporary easements with the landowners.

Commissioner Miller asked if the spent lime applications have to be completed regularly or indefinitely, or if the applications are only applied at an interval like once every five years. Tanner responded spent lime is a substitute for alum, which needs reapplication if phosphorus continues to enter a waterbody. She said it is not currently known how long spent lime lasts, but VLAWMO is expecting it to last for a number of years before needing to do another dose. Tanner added that VLAWMO will be analyzing the results over the next three to five years or so and possibly more depending upon results.

Commissioner Miller asked if spent lime is less expensive than alum. Tanner responded spent lime itself is free, but applying it to waterbodies is still expensive.

It was moved by Commissioner Miller and seconded by Commissioner Huntrods to approve extending the demonstration project through 2024, sign and return the contract extension, and authorize staff to pursue an amendment extension with existing temporary easements. Vote: All aye. Motion passed.

C. Wilkinson Deep Water Wetland Restoration Minor Status Update

Tanner provided a quick update on the Wilkinson deep water wetland project. She shared before and after pictures of buckthorn removal that Natural Shore Technologies completed on the islands. The work was done this past January when there were frozen conditions,

which allowed the contractors to access the islands safely. She said maintenance of buckthorn removal is anticipated to be part of ongoing site maintenance.

D. NOHOA Partnership MOU on Invasive Yellow Iris Removal

Tanner summarized the invasive yellow iris survey and removal work that has been completed thus far on Deep and Pleasant Lakes. She stated a MOU with NOHOA is included in the packet for partnership on yellow iris removal. This year the effort will include adding the channel between Deep Lake and Pleasant Lakes in addition to continuing the areas previously underway. Tanner recommended approval of signing the MOU.

Commissioner Miller asked if staff are seeing yellow iris in any waterbodies outside of North Oaks. Tanner responded that the majority of infestations have been found in North Oaks, but yellow iris has been found in small areas outside of North Oaks as well. She explained that yellow iris was previously found in a shoreline restoration project on Birch Lake, which was removed after staff contacted the homeowner, and around a stormwater pond in Vadnais Heights.

Commissioner Huntrods asked how the yellow iris spreads. Tanner replied yellow iris spreads by seed pods, which easily spread when they float in the water. Commissioner Huntrods asked if the yellow iris can spread through birds. Tanner responded that she did not think birds were a vector for spreading this species and that they spread largely from the seeds in water.

Commissioner Miller recommended VLAWMO to write another educational article on yellow iris in the local newspapers in North Oaks and surrounding communities.

It was moved by Commissioner Miller and seconded by Commissioner Philip to approve signing the MOU with NOHOA for 2024. Vote: All aye. Motion passed.

E. Pleasant Lake Aquatic Plant Article #3

Tanner provided an update on the Pleasant Lake education efforts. She described a series of articles that were featured in North Oaks News. These discussed how aquatic plants will increase as the lake improves in quality. She stated that the most recent article focused specifically on recent plant survey work with the Ramsey County Soil and Water Conservation Division that included a graphic of the distribution of plants in Pleasant Lake. She added that drafts of two signs are currently in progress for educating the public on aquatic plants and the completed water quality efforts around Pleasant Lake that will be sent to NOHOA when completed for review.

**VII. Commissioner Reports**

None.

**VIII. NOHOA**

None.

**IX. Ramsey Soil & Water Conservation Division**

None.

**X. St. Paul Regional Water Services**

None.

**XI. Public Comment**

None.

**XII. Next Meetings:**

Next TEC meeting March 13<sup>th</sup>. Next BOD meeting February 28<sup>th</sup>.

**XIII. Adjourn**

It was moved by Commissioner Huntrods and seconded by Commissioner Philip to adjourn the meeting at 8:47 am. Vote: all aye. Motion passed.

# VLAWMO Finance Summary: March 2024

Mar-24		Actual 3/1/24	Actual to Date	2024 Budget (June 2023 Board Approved)	Carry over from 2023 to 2024	Remaining in Budget	2024 Available (Dec. 2023 Board approved)	Act vs. Budget
<b>BUDGET #</b>	<b>INCOME</b>							
<b>5.11</b>	Storm Water Utility	\$38,406	\$46,282	\$1,145,431	\$0	\$1,099,149	\$1,145,431	4%
<b>5.12</b>	Service Fees			\$1,000	\$0	\$1,000	\$1,000	0%
<b>5.13</b>	Interest + mitigation acct	\$4,462	\$9,324	\$30,000	\$0	\$20,676	\$30,000	31%
<b>5.14</b>	Misc. income - WCA admin & other		\$54	\$3,000	\$0	\$2,946	\$3,000	2%
<b>5.15</b>	Other Income Grants/loan			\$365,000	\$0	\$365,000	\$365,000	0%
<b>5.16</b>	Transfer from reserves			\$791,380	\$193,062	\$984,442	\$984,442	0%
	<b>TOTAL</b>	<b>\$42,868</b>	<b>\$55,660</b>	<b>\$2,335,811</b>	<b>\$193,062</b>	<b>\$2,473,213</b>	<b>\$2,528,873</b>	<b>2%</b>
<b>EXPENSES</b>								
<b>3.1</b>	<b>Operations &amp; Administration</b>							
<b>3.110</b>	Office - rent, copies, post tel supplies	\$2,803	\$4,920	\$32,239	\$0	\$27,319	\$32,239	15%
<b>3.120</b>	Information Systems	\$1,571	\$3,142	\$33,850	\$0	\$30,708	\$33,850	9%
<b>3.130</b>	Insurance			\$10,050	\$0	\$10,050	\$10,050	0%
<b>3.141</b>	Consulting - Audit	\$12,495	\$12,495	\$12,000	\$7,000	\$6,505	\$19,000	66%
<b>3.142</b>	Consulting - Bookkeeping	\$46	\$93	\$1,500	\$0	\$1,407	\$1,500	6%
<b>3.143</b>	Consulting - Legal			\$7,000	\$0	\$7,000	\$7,000	0%
<b>3.144</b>	Consulting - Eng. & Tech.		\$1,505	\$30,000	\$20,000	\$48,495	\$50,000	3%
<b>3.150</b>	Storm Sewer Utility	\$215	\$215	\$22,500	\$0	\$22,285	\$22,500	1%
<b>3.160</b>	Training (staff/board)	\$250	\$250	\$14,250	\$0	\$14,000	\$14,250	2%
<b>3.170</b>	Misc. & mileage	\$194	\$264	\$6,930	\$0	\$6,666	\$6,930	4%
<b>3.191</b>	Administration - staff	\$32,421	\$64,333	\$435,554	\$0	\$371,221	\$435,554	15%
<b>3.192</b>	Employer Liability	\$9,888	\$19,699	\$129,869	\$0	\$110,170	\$129,869	15%
<b>3.2</b>	<b>Monitoring and Studies</b>							
<b>3.210</b>	Lake and Creek lab analysis	\$30	\$177	\$18,000	\$0	\$17,823	\$18,000	1%
<b>3.220</b>	Equipment	\$54	\$54	\$3,000	\$0	\$2,946	\$3,000	2%
<b>3.230</b>	Wetland assessment & management			\$15,000	\$0	\$15,000	\$15,000	0%
<b>3.240</b>	Watershed planning /special study	\$3,417	\$7,056	\$100,000	\$15,000	\$107,944	\$115,000	6%
<b>3.3</b>	<b>Education and Outreach</b>							
<b>3.310</b>	Public Education	\$500	\$2,000	\$6,000	\$0	\$4,000	\$6,000	33%
<b>3.320</b>	Comm., Outreach & Marketing	\$0	\$938	\$20,000	\$2,000	\$21,062	\$22,000	4%
<b>3.330</b>	Community Blue Ed Grant			\$8,000	\$0	\$8,000	\$8,000	0%
<i>Total Core functions: Ops, Monitoring, Education</i>		<i>\$63,884</i>	<i>\$117,141</i>	<i>\$905,742</i>	<i>\$44,000</i>	<i>\$832,601</i>	<i>\$949,742</i>	<i>12%</i>
<b>Capital Improvement Projects and Programs</b>								
<b>3.4</b>	<b>Subwatershed Activity</b>							
<b>3.410</b>	Gem Lake			\$25,000	\$10,000	\$35,000	\$35,000	
<b>3.420</b>	Lambert Creek			\$90,000	\$0	\$90,000	\$90,000	0%

3.421	Lambert Lake Loan			\$38,569	\$0	\$38,569	\$38,569	0%
3.425	Goose Lake	\$1,658	\$24,908	\$85,000	\$0	\$60,092	\$85,000	29%
3.430	Birch Lake	(\$5,000)	\$1,150	\$48,000	\$0	\$46,850	\$48,000	2%
3.440	Gilf Black Tam Wilk Amelia	\$10,865	\$28,429	\$345,000	\$60,000	\$376,571	\$405,000	7%
3.450	Pleasant Charley Deep	\$15,000	\$19,563	\$145,000	\$0	\$125,437	\$145,000	13%
3.460	Sucker Vadnais	\$7,331	\$16,192	\$90,000	\$33,000	\$106,808	\$123,000	13%
3.48	<b>Programs</b>							
3.480	Soil Health Grant	\$68	\$138	\$10,500	\$4,500	\$14,862	\$15,000	1%
3.481	Landscape 1	\$5,000	\$5,000	\$40,000	\$16,263	\$51,263	\$56,263	9%
3.482	Landscape 2/BWSR WBF	\$378	\$1,278	\$60,000	\$25,299	\$84,021	\$85,299	1%
3.483	Project Research & feasibility			\$5,000	\$0	\$5,000	\$5,000	0%
3.485	Facilities Maintenanc/ Pub. Ditch Main.	\$1,006	\$3,556	\$78,000	\$0	\$74,444	\$78,000	5%
3.5	<b>Regulatory</b>							
3.510	Engineer Plan review			\$5,000	\$0	\$5,000	\$5,000	0%
	<i>Total CIP &amp; Program</i>	\$36,306	\$100,214	\$1,065,069	\$149,062	\$1,113,917	\$1,214,131	8%
	<b>Total of Core Operations &amp; CIP</b>	<b>\$100,189</b>	<b>\$217,355</b>	<b>\$1,970,811</b>	<b>\$193,062</b>	<b>\$1,946,518</b>	<b>\$2,163,873</b>	<b>10%</b>

Fund Balance	2/1/2024	3/1/2024
4M Account	\$819,208	\$796,909
4M Plus Savings	\$241,261	\$242,275
Total	\$1,060,469	\$1,039,184

Restricted funds	3/1/2024
Mitigation Savings	\$21,022
Term Series	\$300,000

**Vadnais Lake Area Water Management Organizatic**  
**Profit & Loss**  
**February 15 through March 13, 2024**

12:26 PM

03/06/2024

Cash Basis

**Feb 15 - Mar 13, 24**

<b>Ordinary Income/Expense</b>	
<b>Income</b>	
Misc.	38,406.25
<b>5.1 · Income</b>	
5.13 · Interest	4,462.39
<b>Total 5.1 · Income</b>	<u>4,462.39</u>
<b>Total Income</b>	<u>42,868.64</u>
<b>Gross Profit</b>	<u>42,868.64</u>
<b>Expense</b>	
<b>3.1 · Administrative/Operations</b>	
<b>3.110 · Office</b>	
Copies	151.10
Phone/Internet/Machine Overhead	315.00
Postage	446.98
Rent	1,765.00
Supplies	125.06
<b>Total 3.110 · Office</b>	<u>2,803.14</u>
<b>3.120 · Information Systems</b>	
IT Support	1,571.00
<b>Total 3.120 · Information Systems</b>	<u>1,571.00</u>
3.141 · Audit	12,495.00
3.142 · Bookkeeping help	45.72
3.144 · Eng. & Tech.	0.00
3.150 · Storm Sewer Utility	215.00
3.160 · Training (staff/board)	250.00
3.170 · Misc. & mileage	194.21
<b>3.191 · Employee Payroll</b>	
payroll	32,421.25
<b>Total 3.191 · Employee Payroll</b>	<u>32,421.25</u>
<b>3.192 · Employer Liabilities</b>	
Admin payroll processing	244.33
Administration FICA	2,306.55
Administration PERA	2,431.58
Insurance Benefit	4,906.08
<b>Total 3.192 · Employer Liabilities</b>	<u>9,888.54</u>
<b>Total 3.1 · Administrative/Operations</b>	<u>59,883.86</u>
<b>3.2 · Monitoring and Studies</b>	
3.210 · Lake & Creek lab analysis	30.00
3.220 · Equipment	54.18
3.240 · Watershed Plan Amendment	3,416.67
<b>Total 3.2 · Monitoring and Studies</b>	<u>3,500.85</u>
<b>3.3 · Education and Outreach</b>	



3.310 · Public Education	500.00
<b>Total 3.3 · Education and Outreach</b>	<b>500.00</b>
<b>3.4 · Capital Imp. Projects/Programs</b>	
3.425 · Goose Lake	
Oak Knoll	1,658.00
<b>Total 3.425 · Goose Lake</b>	<b>1,658.00</b>
3.430 · Birch Lake	-5,000.00
3.440 · Gilfillan Black Tamarack Wilkin	
Wilkinson 319 grant 320705.50	1,650.50
3.440 · Gilfillan Black Tamarack Wilkin - Other	9,214.07
<b>Total 3.440 · Gilfillan Black Tamarack Wilkin</b>	<b>10,864.57</b>
3.450 · Pleasant Charley Deep	15,000.00
3.460 · Sucker Vadnais	7,330.53
<b>Total 3.4 · Capital Imp. Projects/Programs</b>	<b>29,853.10</b>
<b>3.48 · Programs</b>	
3.480 · Soil Health Grant	68.33
3.481 · Landscape 1 - cost-share	5,000.00
3.482 · Landscape 2	377.50
3.485 · Facilities & Maintenance	1,005.95
<b>Total 3.48 · Programs</b>	<b>6,451.78</b>
<b>Total Expense</b>	<b>100,189.59</b>
<b>Net Ordinary Income</b>	<b>-57,320.95</b>
<b>Net Income</b>	<b>-57,320.95</b>

**Vadnais Lake Area Water Management Organization**  
**Check Detail**

12:21 PM  
 03/06/2024

February 15 through March 13, 2024

Type	Num	Date	Name	Item	Account	Paid Amount	Original Amount
Check	eft	02/23/2024	further		Checking - 1987		-6.00
				Insurance Benefit		-6.00	6.00
TOTAL						-6.00	6.00
Check	eft	03/13/2024	US Bank		Checking - 1987		-45.72
				3.142 · Bookkeeping help		-45.72	45.72
TOTAL						-45.72	45.72
Check	5730	03/13/2024	Houston Engineering, Inc		Checking - 1987		-773.50
				3.485 · Facilities & Maintenance		-773.50	773.50
TOTAL						-773.50	773.50
Check	5731	03/13/2024	Barr Engineering Co		Checking - 1987		-7,271.50
				3.440 · Gilfillan Black Tamarack Wilkin		-3,044.00	3,044.00
				Oak Knoll		-693.50	693.50
				3.440 · Gilfillan Black Tamarack Wilkin		-3,007.50	3,007.50
				Oak Knoll		-526.50	526.50
TOTAL						-7,271.50	7,271.50
Check	5732	03/13/2024	CliftonLarsonAllen		Checking - 1987		-12,495.00
				3.141 · Audit		-12,495.00	12,495.00
TOTAL						-12,495.00	12,495.00
Check	5733	03/13/2024	City of Vadnais Heights		Checking - 1987		-2,678.08
				Rent		-1,765.00	1,765.00
				Phone/Internet/Machine Overhead		-315.00	315.00
				Postage		-446.98	446.98
				Copies		-151.10	151.10
TOTAL						-2,678.08	2,678.08
Check	5734	03/13/2024	Innovative Office Solutions		Checking - 1987		-125.06
				Supplies		-71.28	71.28
				Supplies		-53.78	53.78
TOTAL						-125.06	125.06
Check	5735	03/13/2024	Gallagher		Checking - 1987		-3,416.67
				3.240 · Watershed Plan Amendment		-3,416.67	3,416.67
TOTAL						-3,416.67	3,416.67
Check	5736	03/13/2024	SEH		Checking - 1987		-3,162.57

		3.440 · Gilfillan Black Tamarack Wilkin	-3,162.57	3,162.57
TOTAL			<u>-3,162.57</u>	<u>3,162.57</u>
	<b>Check 5737</b>	<b>03/13/2024 North Oaks Home Owners Association</b>	<b>Checking - 1987</b>	<b>-15,000.00</b>
		3.450 · Pleasant Charley Deep	-15,000.00	15,000.00
TOTAL			<u>-15,000.00</u>	<u>15,000.00</u>
	<b>Check 5738</b>	<b>03/13/2024 Kennedy &amp; Graven, Chartered</b>	<b>Checking - 1987</b>	<b>-438.00</b>
		Oak Knoll	-438.00	438.00
TOTAL			<u>-438.00</u>	<u>438.00</u>
	<b>Check 5739</b>	<b>03/13/2024 SRF Consulting Group</b>	<b>Checking - 1987</b>	<b>-7,330.53</b>
		3.460 · Sucker Vadnais	-7,330.53	7,330.53
TOTAL			<u>-7,330.53</u>	<u>7,330.53</u>
	<b>Check 5740</b>	<b>03/13/2024 Anoka County</b>	<b>Checking - 1987</b>	<b>-215.00</b>
		3.150 · Storm Sewer Utility	-215.00	215.00
TOTAL			<u>-215.00</u>	<u>215.00</u>
	<b>Check 5741</b>	<b>03/13/2024 Metro - Inet</b>	<b>Checking - 1987</b>	<b>-1,571.00</b>
		IT Support	-1,571.00	1,571.00
TOTAL			<u>-1,571.00</u>	<u>1,571.00</u>
	<b>Check 5742</b>	<b>03/13/2024 Metro Blooms</b>	<b>Checking - 1987</b>	<b>-500.00</b>
		3.310 · Public Education	-500.00	500.00
TOTAL			<u>-500.00</u>	<u>500.00</u>
	<b>Check 5743</b>	<b>03/13/2024 Natural Shore Technologies, Inc</b>	<b>Checking - 1987</b>	<b>-1,650.50</b>
		Wilkinson 319 grant 320705.50	-1,650.50	1,650.50
TOTAL			<u>-1,650.50</u>	<u>1,650.50</u>
	<b>Check 5744</b>	<b>03/13/2024 City of White Bear Lake</b>	<b>Checking - 1987</b>	<b>-41,937.63</b>
		payroll	-32,421.25	32,421.25
		Administration FICA	-2,267.58	2,267.58
		Administration PERA	-2,393.41	2,393.41
		Insurance Benefit	-4,900.08	4,900.08
		Admin payroll processing	-244.33	244.33
		3.144 · Eng. & Tech.	-220.02	220.02
TOTAL			<u>-42,446.67</u>	<u>42,446.67</u>
	<b>Check 5745</b>	<b>03/13/2024 City of White Bear Lake</b>	<b>Checking - 1987</b>	<b>-42,303.79</b>
		payroll	-32,421.25	32,421.25

		Administration FICA Administration		
		PERA	-2,431.58	2,431.58
		Insurance Benefit	-4,900.08	4,900.08
		Admin payroll processing	-244.33	244.33
TOTAL			<u>-42,303.79</u>	<u>42,303.79</u>
	<b>Check 5746</b>	<b>03/13/2024 Joseph Crowe</b>		<b>-68.33</b>
			<b>Checking - 1987</b>	
		3.480 - Soil Health Grant	-68.33	68.33
TOTAL			<u>-68.33</u>	<u>68.33</u>
	<b>Check 5747</b>	<b>03/13/2024 Kristina Swanson</b>		<b>-5,000.00</b>
			<b>Checking - 1987</b>	
		3.481 - Landscape 1 - cost-share	-5,000.00	5,000.00
TOTAL			<u>-5,000.00</u>	<u>5,000.00</u>
	<b>Check 5748</b>	<b>03/13/2024 Nicholas Voss</b>		<b>-259.83</b>
			<b>Checking - 1987</b>	
		3.170 - Misc. & mileage	-9.83	9.83
		3.160 - Training (staff/board)	-250.00	250.00
TOTAL			<u>-259.83</u>	<u>259.83</u>
	<b>Check 5749</b>	<b>03/13/2024 Brian Corcoran</b>		<b>-88.35</b>
			<b>Checking - 1987</b>	
		3.170 - Misc. & mileage	-34.17	34.17
		3.220 - Equipment	-54.18	54.18
TOTAL			<u>-88.35</u>	<u>88.35</u>
	<b>Check 5750</b>	<b>03/13/2024 Dawn Tanner</b>		<b>-88.44</b>
			<b>Checking - 1987</b>	
		3.170 - Misc. & mileage	-88.44	88.44
TOTAL			<u>-88.44</u>	<u>88.44</u>
	<b>Check 5751</b>	<b>03/13/2024 Lauren Sampedro</b>		<b>-61.77</b>
			<b>Checking - 1987</b>	
		3.170 - Misc. & mileage	-61.77	61.77
TOTAL			<u>-61.77</u>	<u>61.77</u>

**Vadnais Lake Area Water Management Organization**  
**Custom Transaction Detail Report**  
 January 1 through March 1, 2024

12:15 PM

03/06/2024

Accrual Basis

Type	Date	Num	Name	Memo	Account	Clr	Split	Amount	Balance
Jan 1 - Mar 1, 24									
Credit Card Charge	01/02/2024		Google*SVCAPPS_VLAWM		US Bank CC	√	WEB	42.00	42.00
Credit Card Charge	01/03/2024		University of Minnesota	Dawn 2024 project management training	US Bank CC		3.170 · Misc. & mileage	900.00	942.00
Credit Card Charge	01/08/2024		adobe *photography plan		US Bank CC	√	Software	9.99	951.99
Transfer	01/22/2024			Funds Transfer	US Bank CC	√	Checking - 1987	-1,504.70	-552.71
Credit Card Charge	01/25/2024		Innovative Office Solutions	wmp envelopes	US Bank CC		3.320 · Marketing	71.28	-481.43
Credit Card Charge	01/25/2024		Adobe "Creative Cloud		US Bank CC	√	Software	32.50	-448.93
Credit Card Charge	01/31/2024		Survey Monkey	2024 renewal	US Bank CC	√	3.320 · Marketing	468.00	19.07
Credit Card Charge	02/02/2024		Google*SVCAPPS_VLAWM		US Bank CC	√	WEB	42.00	61.07
Credit Card Charge	02/12/2024		Name Bank USA	mailing list	US Bank CC		3.320 · Marketing	147.50	208.57
Credit Card Charge	02/12/2024		xylem	ysi unit	US Bank CC		Wilkinson 319 grant 320705.50	3,938.75	4,147.32
Credit Card Charge	02/14/2024		Aatrix	1095-B efile	US Bank CC		3.142 · Bookkeeping help	24.95	4,172.27
Credit Card Charge	02/21/2024		Ace Hardware	remote camera batteries	US Bank CC		3.485 · Facilities & Maintenance	21.99	4,194.26
Credit Card Charge	02/28/2024		hologram	account refill	US Bank CC		3.210 · Lake & Creek lab analysis	30.00	4,224.26
Credit Card Charge	03/01/2024		Starbucks	coffee for S to S	US Bank CC		3.485 · Facilities & Maintenance	48.20	4,272.46
Credit Card Charge	03/01/2024		Fresh Thyme	ICWC crew snacks	US Bank CC		3.485 · Facilities & Maintenance	22.19	4,294.65
Credit Card Charge	03/01/2024		subway	lunch Corrections crew	US Bank CC		3.485 · Facilities & Maintenance	140.07	4,434.72
								<b>4,434.72</b>	<b>4,434.72</b>

Jan 1 - Mar 1, 24

## **TEC Staff Memo – March 13, 2024**

### **IV. Administration & Operations**

#### **A. March Financial Report and Consider Authorization for Payment**

Please find the March financial report and authorization to pay bills in the ePacket for consideration and approval.

### **V. Programs**

#### **A. Update on Pleasant Lake Signs – Authorize Submission to NOHOA for Review**

Two draft educational signs for posting at Pleasant Lake Beach are ready for review and attached in the packet. These signs provide information about native and invasive aquatic plants in Pleasant Lake and partnership projects underway to improve water quality and habitat resilience.

These signs are the next phase in the educational effort focused on Pleasant Lake. The signs follow the 3-article series published in North Oaks News during the fall/winter.

**Requested action:** Staff request TEC review and approval of the draft signs and authorization to send the draft signs to NOHOA for consideration.

### **VI. Projects**

#### **A. Consider Houston Engineering Task Order for Monitoring Analysis for the Wilkinson Project**

At VLAWMO staff's request, HEI prepared a monitoring scope for the Wilkinson deep-water wetland project. The scope is consistent with the grant project budget and will inform required reporting to MPCA for pollutant load reductions. The total cost for the scope is \$8,300 with additional in-kind support from VLAWMO staff. The full scope is attached in the packet

**Requested action:** Staff request TEC review and recommendation to the VLAWMO Board for approval and authorization at the April regular Board meeting.

#### **B. Update on Watershed Management Plan Progress**

The TEC/CAC/Partner survey closed on February 26, 2024. HEI is analyzing results and will be incorporating this feedback along with the public survey into the



upcoming Board survey. We had 100% participation from the TEC on the survey. Thank you for taking the time to fill out this survey and everything you do as part of our TEC.

**C. Spent Lime Demonstration Project Update and Amendment to Temporary Easements**

The Board authorized the contract extension to allow the spent lime demonstration project to resume in 2024. A total of 10 landowners living around Oak Knoll Pond/Wood Lake granted temporary easements for the project in 2024. All landowners living around the pond/lake were mailed a postcard with a project update in early March. A follow-up letter and request for signature on an amendment to extend the temporary easement to allow project completion during 2024 was mailed on March 5, 2024. The project resumption date is dependent upon receiving temporary easement extensions from participating landowners.

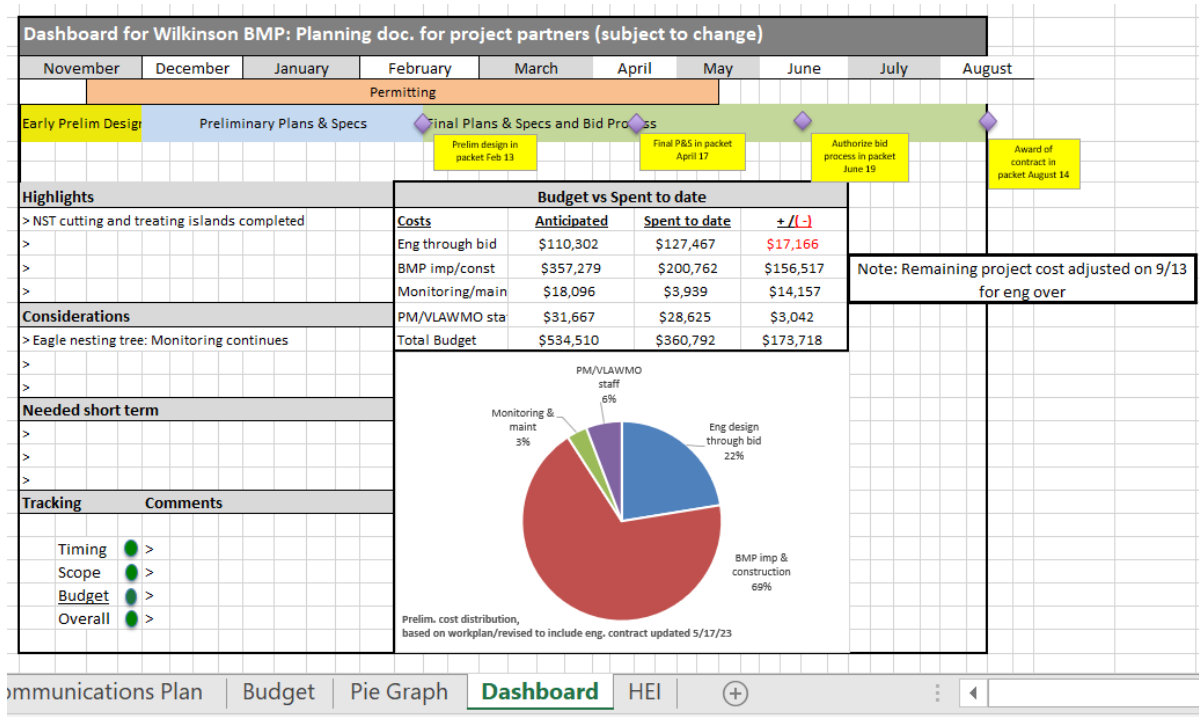
**D. Tamarack Lake Alum Project Update**

The Board authorized continuing project planning and preparing Request For Quote documents for the alum treatment in Tamarack Lake in 2024 at the February regular Board meeting. Barr Engineering is working on RFQ documents, and VLAWMO staff/partners are working to complete the temporary access agreement with Ramsey County Parks/RCSWCD.

**E. Birch Lake AIS Removal Preparation Update**

VLAWMO staff are working with partners including MN DNR (permitting), BLID (payment of Dive Guys), Dive Guys (handpulling/reporting), and RCSWCD (pre/post surveys) on the ongoing AIS removal effort in Birch Lake. All partners have been contacted to make sure the project is ready to resume in the spring. The project may need to start early depending upon spring conditions.

## F. Wilkinson Deepwater Wetland Restoration Minor Update



The Wilkinson deep-water wetland project work continues with eagle monitoring. The eagles are incubating at the nest, and both adults are regularly seen during weekly observations. During spring, the contractor will complete remaining punch list items, and HEI will provide oversight/inspection. Once the vegetation starts to emerge and establishment can be assessed, VLAWMO staff plans to consult with NST for enhancement to the site during the growing season.

The project dashboard was updated in early March, and an invoice was submitted to the MPCA. The project is doing well, and funds will be available for enhancement in addition to the monitoring scope covered above.

## G. Pleasant Lake Carp Removal Update

With the possibility of an early spring and unpredictable migration timing, VLAWMO staff have been coordinating early with Carp Solutions to secure the MN DNR permit to complete both barriers, conduct telemetry to monitor carp movements, complete the barriers, and install the antenna to detect PIT tags as migration movements occur. The antenna was installed on March 1, the barriers were closed on March 6, and telemetry monitoring is ongoing.

The photo below was taken on March 1 after installation of the antenna was completed.



#### H. VH City Hall Wooded Wetland Buckthorn Removal Spring 2024

Crew work ramped up quickly this spring to conduct buckthorn removal at the City Hall wooded wetland. A crew cut, treated, and piled cut buckthorn on March 1. The City partnered with VLAWMO to bring over the chipper for another crew day on March 8. Three total crew days are planned for the spring.

**V. A.****Attachment 1**

## Update on Pleasant Lake Signs

### Authorize Submission to NOHOA for Review

**Phil Belfiori and Dawn Tanner**  
**March 13, 2024**  
**VLAWMO TEC Meeting**



## Outline

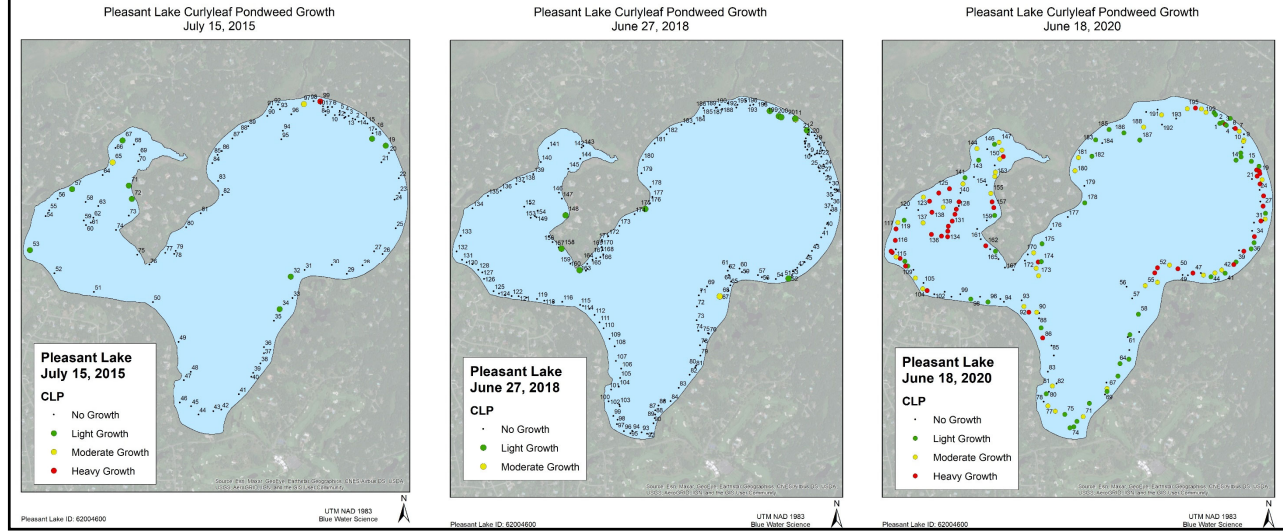
- Recent aquatic vegetation surveys and partner involvement, building upon prior surveys, to inform current education effort
- 3-part series on aquatic vegetation published in North Oaks News to communicate about survey results, rare species, and invasive species delineation
- Sign drafts for review, planned for posting at the Pleasant Lake beach, with request to formally submit to NOHOA for approval





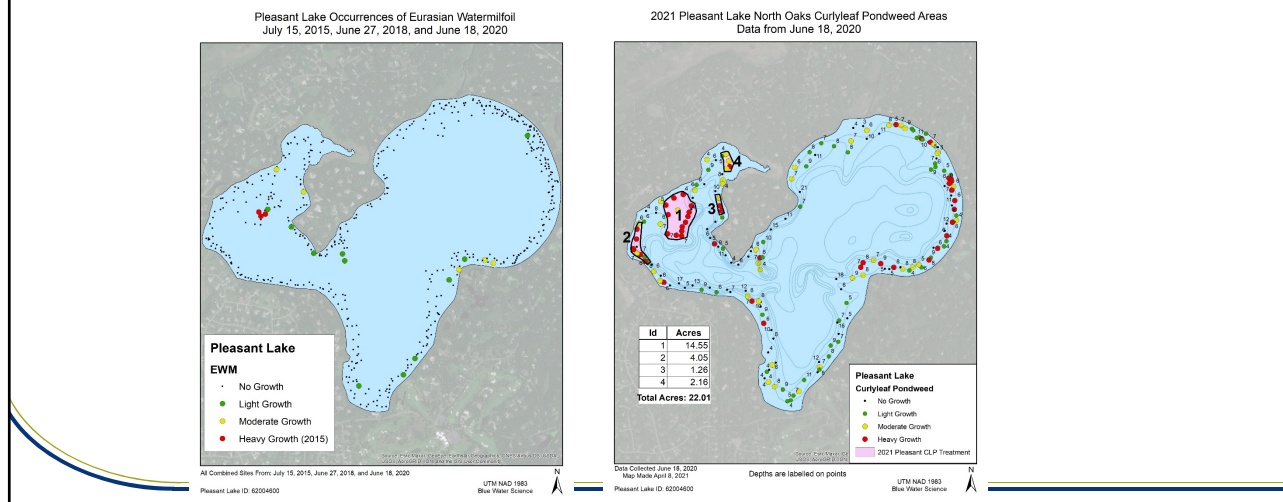
# Background: Surveys and data collection

- Prior years vegetation surveys done by NOHOA with Blue Water Science



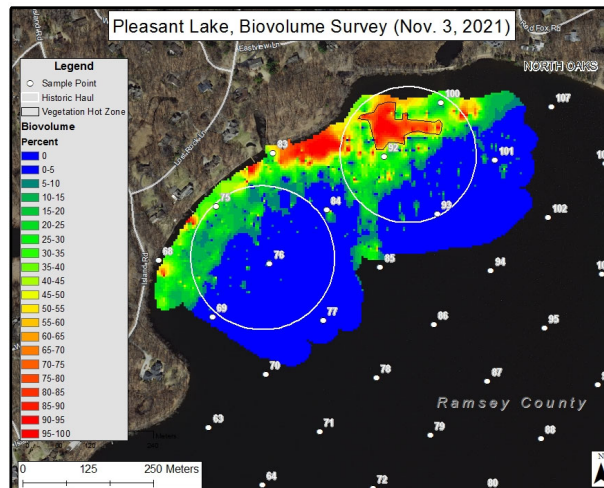
# Background: Surveys and data collection

- Prior years vegetation surveys done by NOHOA with Blue Water Science:  
EWM and veg recommendation for potential carp removal



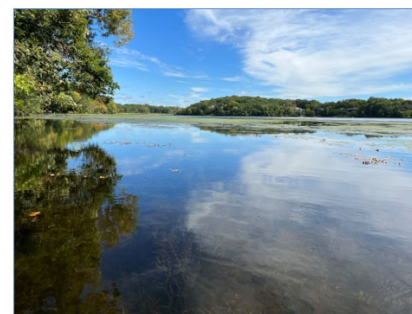
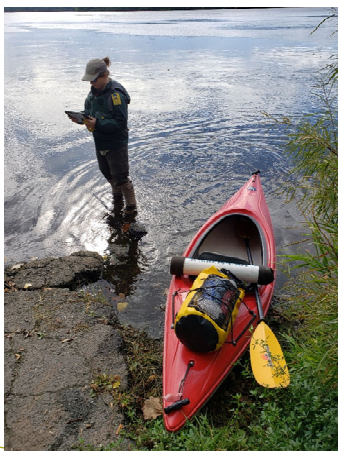
## Background: Surveys and data collection

- More detailed survey of beach area completed in 2021 with RCSWCD & VLAWMO to help inform potential carp netting locations
- Vegetation was not prohibitive for potential netting location, so no action was taken
- Possible chemical treatment of CLP at Charley Channel area was not allowed by MDH
- Winter carp removal was not success due to a variety of conditions
- Removals now focused on spring migration; highly successful and active



## Background: Surveys and data collection

- 2022 survey, rare plant ID, and report by MN DNR Minnesota Biological Survey



Minnesota Biological Survey  
List of Plant Species Observed at  
Pleasant Lake (ID# 62004600)

Lake Name: Pleasant (ID# 62004600)  
County: Ramsey  
Major Watershed: Mississippi River - Twin Cities  
Located 1.5 miles west of the town of North Oaks.  
Survey Date: 21 September 2022  
Area Surveyed: meandered throughout littoral zone of northern bay of western arm.

Minnesota Department of Natural Resources

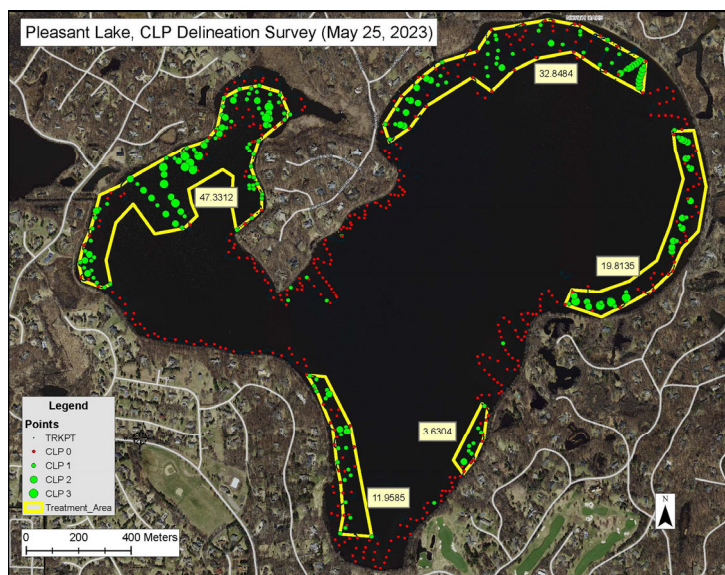


## Background: Surveys and data collection

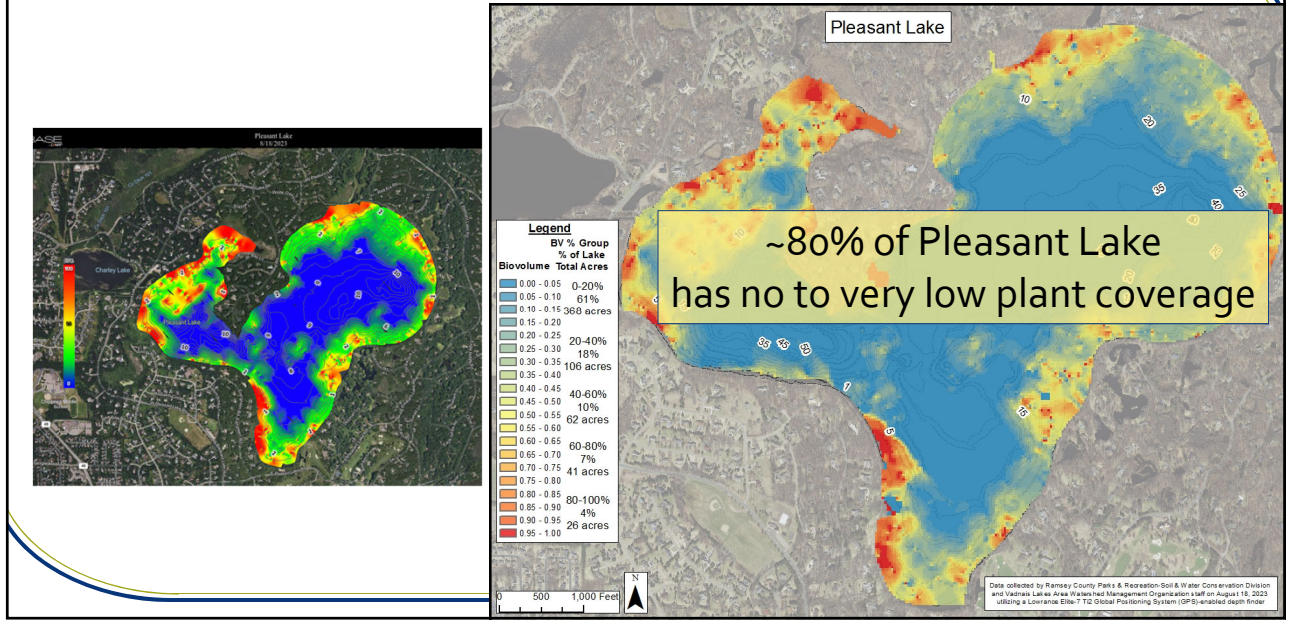
- 2023 comprehensive aquatic plant surveys including:
  - Early season focus on invasive Curly-leaf pondweed
  - Later season focus on natives (and including invasive Eurasian watermilfoil)
- Partnership with RCSWCD



## Background: Results of CLP spring delineation



# Background: Results of vegetation survey



# Background: Education effort

- Aquatic plant focus of 3-part series of articles published in North Oaks News
- Published in September, November, and February
- Partnership with NOHOA and SPRWS



## Aquatic plants vs native plants found in Pleasant Lake

The vegetation in the lake plays a crucial role in water quality. Native plants like coontail and spikerush are well-adapted to the local environment and provide natural filtration. In contrast, aquatic plants like water hyacinth and water lettuce are non-native and can form dense mats that block sunlight and deplete oxygen. The survey identified several areas where these plants are present, with a significant portion of the lake showing low to no plant coverage.

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# Current phase of education initiative

- Signage for Pleasant Lake Beach to explain aquatic plants and water quality and active partnership project to improve Pleasant Lake

Draft

### Peering into Pleasant Lake's Underwater Forest

**Native aquatic plants and plant look-alikes** Beneficial

More than 18 species of native plants and plant look-alikes are found in Pleasant Lake. A healthy plant community grows mainly in shallow water, between the shoreline and water that is 10-15 feet deep.

**How do plants help the lake?**  
Plants take up nutrients in the water and help prevent blue-green algae blooms that cloud the water and make conditions unsafe for people and pets. Plants need clear water and light to grow, but turbid, murky water prevents plant growth.

**Invasive aquatic plants** Harmful

Two aquatic invasive plant species are documented in Pleasant Lake.

Eurasian Watermilfoil is fairly localized in Pleasant Lake, although it can form dense patches. Invasive Eurasian Watermilfoil hybridizes with native Northern Watermilfoil. Identification between the different strains is difficult. DNA is used to better understand hybrid strain distributions.

Curly-leaf Pondweed reaches its highest abundance in the spring and dies back in the summer. This can stimulate late season, potentially harmful blue-green algae blooms.

Practice "Clean, Drain, Dry" to avoid spreading Aquatic Invasive Species (AIS) to other waterbodies.

Visit [VLAWMO.org](http://VLAWMO.org) for more info on Pleasant Lake.

Draft

### Partnerships for Pleasant Lake

Partnerships projects under water quality improvements possible

Visit [VLAWMO.org](http://VLAWMO.org) for more info on Pleasant Lake.

# Aquatic plant sign

- Highlights role of plants in providing clear water
- Includes some native species found in Pleasant Lake
- Also includes invasive plants found in Pleasant Lake

Draft

### Peering into Pleasant Lake's Underwater Forest

**Native aquatic plants and plant look-alikes** Beneficial

More than 18 species of native plants and plant look-alikes are found in Pleasant Lake. A healthy plant community grows mainly in shallow water, between the shoreline and water that is 10-15 feet deep.

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Curly-leaf Pondweed reaches its highest abundance in the spring and dies back in the summer. This can stimulate late season, potentially harmful blue-green algae blooms.

Practice "Clean, Drain, Dry" to avoid spreading Aquatic Invasive Species (AIS) to other waterbodies.

Visit [VLAWMO.org](http://VLAWMO.org) for more info on Pleasant Lake.

Draft

## Partnership project sign

- Highlights active projects to improve water quality in Pleasant Lake
- Recognizes critical involvement of partnerships to conduct and maintain projects

**Partnerships for Pleasant Lake**

Partnership projects make water quality improvements possible

**Invasive Common Carp Program**  
Reduce Common Carp populations for improved water quality  
VLAWMO, SPRWS, NOHOA, NOC

**Vegetation Surveys**  
Understand plant diversity and distribution  
VLAWMO, RCSWCD, NOHOA

**Lake Oxygenation System**  
Provide continuous flow to prevent low oxygen in the lake bottom  
and oxygen conditions around the algae channels  
SPRWS, NOHOA, City of North Oaks

**Sedimentation Study**  
Determine that Mississippi River water is not negatively  
contributing to sediment loads in west bay  
VLAWMO, SPRWS, City of North Oaks

**Stabilize Winter Water Levels**  
Reduce lake fluctuation during the winter to decrease erosion  
SPRWS, NOHOA, University of Minnesota

**Shoreline Restorations**  
Restore and maintain shorelines to reduce erosion  
and enhance habitat  
NOHOA, VLAWMO, Individual Residents

**Invasive Yellow Iris Removal**  
Support native shoreline plant diversity for increased resilience  
to pollution and extreme events  
VLAWMO, NOHOA

Visit [VLAWMO.org](http://VLAWMO.org) for more info on Pleasant Lake.

## Requested action

- Staff request TEC review and approval of the draft signs and authorization to formally send the draft signs to NOHOA for consideration.



# Peering into Pleasant Lake's Underwater Forest

## Native aquatic plants and plant look-alikes

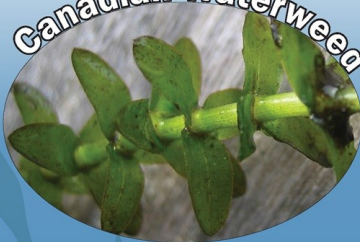
Beneficial

More than 18 species of native plants and plant look-alikes are found in Pleasant Lake. A healthy plant community grows mainly in shallow water, between the shoreline and water that is 10-15 feet deep.

Water Stargrass



Canadian Waterweed



White Water Lily



Clasping-Leaf Pondweed



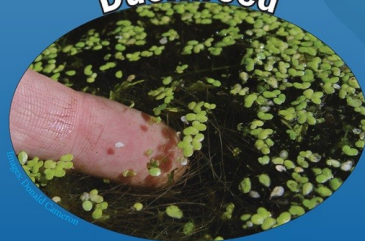
Yellow Water Crowfoot



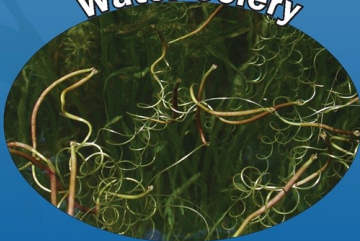
Coontail



Duckweed



Water Celery



Flat-Stem Pondweed



Chara



## How do plants help the lake?

Plants take up nutrients in the water and help prevent blue-green algae blooms that cloud the water and make conditions unsafe for people and pets. Plants need clear water and light to grow, but turbid, murky water prevents plant growth.

Chara is an example of a group of plant look-alikes that are actually large algae. These native algae are an important part of the underwater forest and help to provide clear water. They are not part of the blue-green algae that cause potentially harmful algal blooms.

## Invasive aquatic plants

Harmful

Two aquatic invasive plant species are documented in Pleasant Lake.

Eurasian Watermilfoil



Eurasian Watermilfoil is fairly localized in Pleasant Lake, although it can form dense patches. Invasive Eurasian Watermilfoil hybridizes with native Northern Watermilfoil. Identification between the different strains is difficult. DNA is used to better understand hybrid strain distributions.

Curly-Leaf Pondweed



Curly-leaf Pondweed reaches its highest abundance in the spring and dies back in the summer. This can stimulate late season, potentially harmful blue-green algae blooms.

Practice "Clean, Drain, Dry" to avoid spreading Aquatic Invasive Species (AIS) to other waterbodies.



Visit [VLAWMO.org](http://VLAWMO.org) for more info on Pleasant Lake.



# Partnerships for Pleasant Lake

## Invasive Common Carp Program



Reduce common carp population for improved water quality  
VLAWMO, SPRWS, NOHOA, NOC



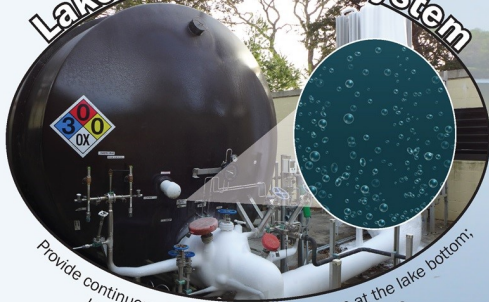
Partnership projects make water quality improvements possible

## Vegetation Surveys



Understand plant diversity and distribution  
VLAWMO, RCSWCD, NOHOA

## Lake Oxygenation System



Provide continuous flow to prevent low oxygen at the lake bottom;  
low oxygen conditions stimulate algae blooms  
SPRWS, NOHOA, City of North Oaks

## Sedimentation Study



Determined that Mississippi River water is not significantly contributing to sediment delta in west bay  
VLAWMO, SPRWS, City of North Oaks

## Stabilize Winter Water Levels



Reduce lake fluctuation during the winter to decrease erosion  
SPRWS, NOHOA, University of Minnesota

## Shoreline Restorations



Restore and maintain shorelines to reduce erosion and enhance habitat  
NOHOA, VLAWMO, Individual Residents

## Invasive Yellow Iris Removal



Improve native shoreline plant diversity for increased resilience to pollution and extreme events  
VLAWMO, NOHOA

Visit [VLAWMO.org](http://VLAWMO.org) for more info on Pleasant Lake.



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## SCOPE OF SERVICES



Task Order No. 2024-01  
Vadnais Lakes Area WMO



### Wilkinson Lake BMP Monitoring Assistance

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Houston Engineering Inc. (HEI) Project No.: R007057-0022

#### **Task Order Purpose:**

The project purpose is to assist VLAWMO staff with monitoring and evaluating load reductions from the Wilkinson Lake BMP Wetland Creation Project. The following tasks are anticipated.

#### **Professional Services Rendered:**

A draft monitoring plan has been developed which provides one methodology that could be followed to measure changes in water quality as a result of the construction of the wetland (see **Appendix A**). The following is a summary of the tasks from the monitoring plan which we recommend be completed by HEI. (Note: additional tasks may be added to this scope upon request).

#### **Task 1: Streamflow monitoring:**

- Survey staff gauge and downstream outlet channel.
- Prepare rating curve for project outlet channel based on XP-SWMM model previously completed for the Wilkinson Lake BMP project.
- Calculate streamflow based on velocity and depth measurements provide by VLAWMO staff in the field.

#### **Task 2: Water quality sampling:**

- Assist VLAWMO staff with monitoring collection planning.
- Review XP-SWMM model to determine expected minimum and maximum flow rates for the streamflow monitoring location, based on the model output hydrograph from a 10-year, 24-hour storm event.

#### **Task 3: Data Analysis**

- Compare the inflow levels of TSS and TP against the outflow levels in various scatter plots through Microsoft Excel.
- Summarize the results in a Technical Memorandum.

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## SCOPE OF SERVICES



**Task Order No. 2024-01  
Vadnais Lakes Area WMO**



### **Wilkinson Lake BMP Monitoring Assistance**

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#### **Deliverables:**

The deliverables for the Task Order consist primarily of:

- Water quality technical memorandum
- Survey of staff gauge
- Three virtual meetings with VLAWMO staff

#### **Schedule and Compensation:**

We estimate a cost of **\$8,300** for services described within this task order. HEI shall not exceed this amount for the completion of this work without prior authorization from VLAWMO. It is understood that the MPCA reporting deadlines occur annually in August and February. In order to get a true “annual” load reduction estimate, at least one complete sampling season worth of data is required at a minimum. The intent would be to collect samples in spring/ summer/ fall of 2024, then data analysis complete near the end of 2024, with the deadline for submittal of the Final Report completed on or before February 1, 2025 in time for MPCA reporting timelines. The collection of adequate water quality samples will be dependent on weather conditions, and may potentially delay the process.

#### **Assumptions:**

The estimated compensation for the execution of the tasks identified within the “Professional Services Rendered” section of this Task Order is based upon the following assumptions:

1. VLAWMO will lead site visits, collection of sampling and environmental condition data, and deliveries of water quality samples to VLAWMO’s preferred environmental quality laboratory.
2. No more than three (virtual) meetings will be required.
3. HEI will coordinate and receive compiled and organized data from the VLAWMO.
4. HEI will not need to coordinate with the MPCA during this process.
5. VLAWMO will coordinate submittals to the MPCA.

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**SCOPE OF SERVICES**



**Task Order No. 2024-01  
Vadnais Lakes Area WMO**



**Wilkinson Lake BMP Monitoring Assistance**

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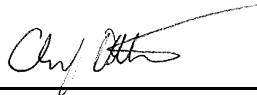
**SIGNATURES:**

The services described by this Task Order are being provided in accordance with the Professional Services Agreement between the Vadnais Lakes Area Water Management Organization and Houston Engineering dated May 6, 2021. This Task Order shall be effective **February 1, 2024** as authorized by the signatures of representatives of the Vadnais Lakes Area Water Management Organization and Houston Engineering, Inc.

**VLAWMO**

By: \_\_\_\_\_  
Name: Phil Belfiori  
Title: Administrator  
Date: \_\_\_\_\_

**Houston Engineering, Inc.**

By:   
Name: Chris Otterness  
Title: Principal/ Client Manager  
Date: February 6, 2024

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## SCOPE OF SERVICES



Task Order No. 2024-01  
Vadnais Lakes Area WMO



### Wilkinson Lake BMP Monitoring Assistance

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#### Appendix A – Draft Monitoring Plan

The following draft monitoring plan is designed to measure changes in load reductions as a result of the construction of the wetland.

##### **Streamflow monitoring:**

- Determine streamflow monitoring location(s) for collecting streamflow data. We recommend measure streamflow from one location (just downstream of the newly constructed deepwater wetland). Upstream flow can be partitioned among the contributing channels based on drainage area.
- Define a rating curve for the outlet streamflow monitoring location downstream of the project, based on the XP-SWMM model for the area.
- Install a water level staff gauge at the streamflow monitoring location
- Manually calculate streamflow periodically (2-3 times, particularly during low flow conditions) at the downstream streamflow monitoring location to compare against SWMM model rating curve, using in-stream velocity measurement and channel survey

##### Site visits and rough budgetary considerations:

Mobilization, [preparing field excursion materials, equipment shake-down (if applicable: testing, pre-install QAQC, charging batteries, testing computer interface, etc.)] – 0.5 day, 1 staff

Equipment Install and on-site calibration – 1 trip, 0.5 day, 2 staff

Decommissioning – 1 trip, 0.5 day, 2 staff

##### Optional Items:

- Manually calculate streamflow periodically (2-3 times) from upstream inlet(s) to determine fraction of total flow from each inlet.
- Install continuous flow monitoring equipment.

##### Responsibilities:

VLAWMO: Install/remove staff gauge, collect stream velocity measurements

HEI: Survey staff gauge, prepare rating curve, calculate flow from velocity measurements

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## SCOPE OF SERVICES



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### Wilkinson Lake BMP Monitoring Assistance

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#### Water quality sampling:

- Water quality monitoring locations should be located upstream of each inlet to the project area (~3 locations) and at the outlet downstream of the project area (1 location – concurrent with streamflow monitoring location).
- Review XP-SWMM model to determine expected minimum and maximum flow rates for the streamflow monitoring location using the hydrograph output for a 10-year 24-hour storm event.
  - Having a defined sampling frequency is significantly less important than ensuring that samples are collected across the full range of expected streamflow conditions.
- Collect at least 12 water quality samples from each final water quality monitoring location.
  - 3+ samples from each water quality monitoring location under relatively low flow conditions (e.g., dry weather).
  - 5+ samples from each water quality monitoring location under moderate flow conditions (e.g., shortly before or up to a few days after a runoff peak).
  - 4+ samples from each water quality monitoring location under high flow conditions (e.g., the day after a significant runoff episode).
- Record stream stage at the time of water quality sampling.

#### Site visits and budgetary considerations:

Mobilization – 1 hour, 1 staff (per site visit)

Standard site visits – 12 trips, concurrent with streamflow monitoring visits

Lab drop off – 2 hours, 1 staff (per site visit)

#### Laboratory fees:

Assuming 4 water quality sampling locations, 2 analytes at each location, 12 samples per analyte: 96 water quality samples in total.

TSS - (SM 2540 D-2011 / USGS I-3765-85 methods, or equivalent)

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## SCOPE OF SERVICES



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### **Wilkinson Lake BMP Monitoring Assistance**

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48 samples \* \$23 per sample = ~\$1,100

TP - (EPA 365.3 (0.003 ppb RL Low Level ) / SW-846 6010D, or equivalent)

48 samples \* \$24 per sample = ~\$1,150

Estimates are based on RMB Environmental Laboratories, Inc. 2024 list prices.

#### Responsibilities:

VLAWMO: Collect WQ samples, deliver to lab, return results to HEI in a timely manner

HEI: Assist with collection plan development

#### Data Analysis

Once VLAWMO has water quality samples collected and analyzed by the lab, data will be provided to HEI in a timely manner for analysis. HEI will compare the inflow levels of TSS and TP against the outflow levels via various scatter plots through Microsoft Excel. This will allow for the determination of times when there is expected higher concentrations of TP and TSS inflow, and the measurement of the efficiency of the wetland in reducing those concentrations. The results will be summarized in a brief Technical Memorandum.

#### Responsibilities:

VLAWMO: Provide collection data

HEI: complete analysis and prepare a memo.