

**Ramsey-Washington
Metro Watershed
District**

**March 2018
Board Packet**

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Agenda

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Regular Board Meeting Agenda

Wednesday, March 7, 2018

6:30 P.M.

District Office Board Room
2665 Noel Drive, Little Canada, MN

1. Call to Order – 6:30 PM
2. New Board Member Welcome and Introductions
3. **Approval of Agenda**
4. **Consent Agenda**
 - A. Approval of Minutes February 7, 2018
5. **Treasurer’s Report and Bill List**
6. Visitor Presentations
7. Permit Program
 - A. Applications
 - i. **18-05 3M North Parking Lot/11th Street, Maplewood**
 - B. Enforcement Action Report
8. BMP Incentive Program
 - A. Applications
 - i. **#18-02 Caulfield, Rain Garden**
 - B. Budget Status Update
9. Action Items - NONE
10. Administrator’s Report
 - A. Meetings Attended
 - B. Upcoming Meetings and Dates
 - C. Website Update
 - D. Watershed Based Clean Water Funding

11. Project and Program Status Reports
 - A. West Vadnais to East Vadnais Drainage Feasibility Study (attached)
 - B. Owasso Basin Improvements (presented at meeting)
 - C. Ongoing Project and Program Updates
 - i. Beltline Resiliency Study
 - ii. Snail Lake/ Grass Lake Study
 - iii. West Vadnais Lake Outlet
 - iv. Wakefield Park Project
 - v. BMP Design Assistance
 - vi. Owasso Basin Improvements
 - vii. Beltline/Battle Creek Tunnel
 - viii. CIP Maintenance/Repairs 2018
 - ix. Frost/Kennard Project
 - x. Willow Pond CMAC
 - xi. Natural Resources Program
 - xii. Education Program
12. Informational Items
13. Report of Managers
- 14. Adjourn**

Items in **bold signify that an action needs to be taken by the Board.*

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Consent Agenda

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**Ramsey-Washington Metro Watershed District
Minutes of Regular Board Meeting
February 7, 2018**

The Regular Meeting of February 7, 2017, was held at the District Office Board Room, 2665 Noel Drive, Little Canada, Minnesota, at 6:30 p.m.

PRESENT:

Marj Ebensteiner, President
Cliff Aichinger, Vice President
Dianne Ward, Manager

ABSENT:

Dr. Pam Skinner, Secretary

ALSO PRESENT:

Tina Carstens, District Administrator
Amanda Staple, Recording Secretary
Erin Anderson Wenz, Barr Engineering
Simba Blood, Natural Resources Specialist
Larry Swope, Resident

Paige Ahlborg, Project Manager
Tracey Galowitz, Attorney for District
Nicole Soderholm, Permit Inspector
Dave Vlasin, Water Quality Technician

1. CALL TO ORDER

The meeting was called to order by President Ebensteiner at 6:30 p.m.

2. APPROVAL OF AGENDA

Tina Carstens requested to add the following items to the agenda: under the Permit Program, Item iii. Grass Lake Berm Wetland Replacement; under Action Items, Item C. Change Order No. 1 – Grass Lake Berm; Under Project and Program Status Report, Item A. Snail to Sucker Lake Feasibility Study (which will then make the Ongoing Project and Program Updates, Item B); and under Informational Items, Item A. Ramsey Conservation District Article.

Motion: Cliff Aichinger moved, Dianne Ward seconded, to approve the agenda as amended. Motion carried 3-0. (Dr. Pam Skinner absent)

3. CONSENT AGENDA

- A. Approval of Minutes from January 3, 2018
- B. District Liability Insurance Coverage Waiver
- C. Change Order No. 5 – Beltline and Battle Creek Tunnel Repair Project

Motion: Cliff Aichinger moved, Dianne Ward seconded, to approve the consent agenda as presented. Motion carried unanimously. (Dr. Pam Skinner absent)

4. TREASURER'S REPORT AND BILL LIST

Manager Aichinger referenced the 2017 year-end budget and noted that the District staff training and education line item was only 61 percent used. He wanted to ensure staff was taking advantage of the training available. Tina Carstens noted that staff did take part in the appropriate training, but the policy only allows for out of state attendance at training and conferences every other year. 2017 was an off year, so less out of state expenses were incurred.

Motion: Dianne Ward moved, Cliff Aichinger seconded, to approve the February 7, 2018, bill list as submitted. Motion carried 3-0. (Dr. Pam Skinner absent)

5. VISITOR PRESENTATIONS

There were none.

6. PERMIT PROGRAM

A. Applications

Permit #18-03: Suite Living – North St. Paul

Nicole Soderholm noted that both permits #18-03 and #18-04 are being completed by the same developer and designer. (Dr. Pam Skinner absent)

Motion: Cliff Aichinger moved, Dianne Ward seconded, to approve Permit #18-03. Motion carried 3-0. (Dr. Pam Skinner absent)

Permit #18-04: Suite Living – Little Canada

Motion: Dianne Ward moved, Cliff Aichinger seconded, to approve Permit #18-04. Motion carried 3-0. (Dr. Pam Skinner absent)

Grass Lake Berm Wetland Replacement

Nicole Soderholm stated that this is not a typical permit, but the Board does review wetland replacement requests. She explained that when the original permit was approved, wetland impacts were not anticipated. She stated that after further investigation, there will be permanent wetland impacts and therefore Barr Engineering has submitted a plan for one-to-one mitigation on-site, to the extent available, and wetland credits will fulfill the remainder of the obligation. Manager Aichinger referenced the proposed replacement and asked for additional clarification on the location. Tina Carstens highlighted the area on figure two. Nicole noted that the necessary notifications were provided, and comments were not received from BWSR or the other agencies.

Motion: Cliff Aichinger moved, Dianne Ward seconded, to approve the notice of application for the Grass Lake Berm wetland replacement. Motion carried 3-0. (Dr. Pam Skinner absent)

B. Monthly Enforcement Report

During January, zero notices were sent.

7. STEWARDSHIP GRANT PROGRAM

A. Applications

None.

B. Budget Status Update

Paige Ahlborg provided an update on the outreach that staff has done to further promote the program.

8. ACTION ITEMS

A. Board of Managers Annual Meeting

Tina Carstens stated that this is an opportunity for the Board to provide input on the past year and designate the necessary appointment and designations for the future.

Manager Aichinger stated that he felt that staff has done a great job with communication with the Board and has been pleased with the citizen input process for the Grass Lake issues. He stated that this past year has received the most public input and thought that staff did a great job responding to the issue. President Ebensteiner stated that she believes that the staff participation has increased close to 100 percent since she has joined the Board and she thanked the staff for their contributions.

Manager Ward stated that she likes the summary information and the ability to review policy information. She stated that she looks forward to receiving additional educational opportunities this year.

Manager Aichinger stated that, while he enjoys the annual tour, it would also be helpful to have shorter tours related to current issues and/or projects. He stated that it is often helpful to see the area in person and receive background information in that format. President Ebensteiner noted that the short tours would not necessarily need a bus as the Board could meet staff in locations prior to regular Board meetings. Tina agreed that it is nice for staff to be able to show the Board the projects they have been working on and the progress that has been made.

President Ebensteiner stated that she has been pleased that the electronic packets have been made available earlier, which provides additional time for review prior to the Board meeting.

Manager Aichinger asked if there should be a standard rotation of officers. He stated that he is not necessarily a fan of rotating officers as the District has had a history of great leadership, but noted that sometimes the public feels a need for the positions to be rotated. President Ebensteiner stated that in her experience, sometimes people that are members of Boards do not wish to hold certain positions. She recognized that certain Boards have bylaws that require rotation or term limits. Manager Ward stated that she sees the benefit of rotating positions, as a method of sharing the workload, but also recognized that sometimes people do not wish to hold specific positions. President Ebensteiner stated that she is willing to serve as President again. Tina noted that Dr. Pam Skinner has stated that she is willing to be Treasurer or Secretary, whichever Manager Ward does not wish to do.

Motion: Cliff Aichinger moved, Dianne Ward seconded, to elect Marj Ebensteiner as President, Cliff Aichinger as Vice President, Dianne Ward as Treasurer, and Dr. Pam Skinner as Secretary for 2018. Motion carried 3-0. (Dr. Pam Skinner absent)

President Ebensteiner stated that it is often true that once you begin working with a consultant, that consultant develops knowledge about the organization and is loyal to the organization. Tracey Galowitz stated that, while her firm has served the District for years, the firm works hard to not become complacent and to do the best job they can for the District. Manager Aichinger stated that the District is lucky to have the consultants that it has. He noted that all the legal and engineering representatives that attend the Board meetings and contribute to District projects have been helpful, knowledgeable, and great to work with.

Motion: Dianne Ward moved, Cliff Aichinger seconded, to designate consulting staff, official bank of deposit, and official newspapers as recommended in the Board packet. Motion carried 3-0. (Dr. Pam Skinner absent)

Erin Anderson Wenz thanked the Board, noting that Barr Engineering enjoys the District projects and working with the District staff and Board.

B. District Office Building Solar Energy Project

Tina highlighted the information provided in the Board packet regarding the solar energy project for the District office building. Manager Ward asked how long it would take to achieve a savings. She asked if the District intends to remain in this building or whether the District would require a larger space in the future. Tina stated that there is sufficient space for the District staff and there are no plans to move to another facility. Manager Aichinger stated that the savings would be achieved prior to the 25-year warranty expiring. President Ebensteiner noted that the District is also completing this project as an act of good stewardship and an example for the public.

Motion: Cliff Aichinger moved, Dianne Ward seconded, to direct staff to move forward on a contract with All Energy Solar to install the 48kW Solar System on the District office building in 2018. Motion carried 3-0. (Dr. Pam Skinner absent)

C. Change Order No. 1 – Grass Lake Berm

Erin Anderson Wenz stated that the District is awaiting an access agreement from the County, which will go before the County Board on March 6. She stated that the extension would allow Fitzgerald to start on the morning of March 7 and for the work to be completed on April 30. She noted that while the District awaits the access agreement, Fitzgerald has begun working on other areas. Dave Vlasin provided an update on the recent maintenance activity that the contractor is completing.

Motion: Cliff Aichinger moved, Dianne Ward seconded, to approve Change Order No. 1 for the Grass Lake Berm. Motion carried 3-0. (Dr. Pam Skinner absent)

9. ADMINISTRATOR'S REPORT

A. Meetings Attended

No additional comments.

B. Upcoming Meetings and Dates

No additional comments.

C. Website Update

No additional comments.

D. MAWD Legislative Reception and Breakfast

Tina Carstens highlighted the legislative breakfast and reception. She stated that the reception and March Board meeting are both scheduled for the same day and confirmed that it would not be a conflict for the Board. President Ebensteiner asked if an email reminder could be sent to the Board prior to the event.

10. PROJECT AND PROGRAM STATUS REPORTS

A. Snail to Sucker Lake Feasibility Study

Erin Anderson Wenz highlighted the topics of discussion that will occur at the next few Board meetings, noting that tonight's discussion will focus on the Snail to Sucker Lake section of the feasibility study. She stated that a summary of the proposals will occur at the May Board meeting, which will help the Board prepare to decide on the best option. She stated that Barr Engineering has been looking at the 100-year/96-hour storm event for modeling, which has become the new normal for modeling after incorporation of the Atlas 14 figures.

Erin reported that the target elevation for Snail Lake has been determined as 882 feet for this analysis. She stated that there is an existing augmentation system that brings water from Sucker to Snail Lake when Snail Lake is at low levels and explained that this scenario would pump the water from Snail to Sucker in times of high water. She reviewed the pumping options that were considered for this analysis. She stated that first it was determined that the existing pipe could not be used as a portion of the pipe is gravity flow and accepts water from other residential areas along the way. She stated that Sucker is part of a chain of lakes that accepts water from the Mississippi River and eventually flows into the Saint Paul Regional Water Services (SPRWS) treatment facility. She provided the amount of water in gallons that would need to be pumped to Sucker after a 100-year/96-hour event with the three different pumping rates and the length of time that would be required to reach the optimal 882-foot elevation for Snail Lake. She stated that the SPRWS would then need to adjust the amount of water that would be taken from the Mississippi, as some of their supply would then come from Snail Lake. She reviewed the different permits that would be needed in order for this activity to be allowed and the different jurisdictions/agencies that would be involved. She reviewed the different model scenarios and the estimated costs for each of the pumping scenarios. She stated that two different paths for the pipe were reviewed and presented both options, noting that both options would include sections of force main and gravity flow. She stated that ranges for anticipated costs were included in the Board packet and explained that there are different costs based on alignment and pumping rate. She reviewed the items that would be included in the anticipated cost estimates, noting that land acquisition is not

included. She stated that a similar table will be provided in May, which will compare the different options that will be reviewed over the next few months.

President Ebensteiner asked what the result of this work will be, specifically the cost feasibility. Manager Aichinger stated that the time needed to bring the lake to the desired lake level will be helpful, as well as the amount of disruption to the public. He stated that input from the member cities on the feasibility will also be helpful. Manager Ward stated that it was her recollection that some of the other options would be dependent on the feasibility of lowering the 15-inch pipe under 694. She wanted to ensure that cost is also included in the options. Erin stated that the reason to do any of these actions would be to gain flood control and to gain control of the overflow of the landlocked basin. She stated that any of these options would keep Snail Lake from overflowing during a 100-year/96-hour event, if the storm started at the same elevation of Snail Lake last fall. She stated that landlocked basins have a difficult challenge in management. President Ebensteiner asked what would happen if the lake overflowed. Erin stated that if the lake overflows, it travels down the "backdoor" route to potentially impact the Crestview addition although there are other recommendations that would change the overflow to go into Wetland A instead if need be.

President Ebensteiner asked how those homes could be protected without completing these actions. Erin replied that a lesser freeboard could be agreed upon for the lower elevation homes or the District could develop an emergency response plan. She provided an example of an emergency response plan that was developed by the District and provided to the member city. She stated that the City then chooses whether or not to adopt that plan and how to implement it.

Manager Aichinger stated that if the cost cannot be justified to complete these actions and the potential highest level of the lake has to be accepted, the District could then determine if it is feasible to protect the home(s) at risk. If it is determined that it is not feasible to protect that lowest elevation home(s), the District could offer to purchase the home(s). He provided an example in which the District offered to purchase the lowest elevation homes, noting that the homeowners denied the offer and the District completed an emergency response plan for the member city.

President Ebensteiner stated that it is important to consider the most practical solution. She noted that the options presented tonight are expensive and would require a lot of work and permitting. She stated that if the District has the practice in place of offering to purchase the most at risk home(s), she would want to consider that option as well. She stated that the minimum option should be a focus as well, in addition to the costlier options. Manager Aichinger stated that the District should ensure to document the benefits that would be provided through the options being reviewed in the feasibility study.

Manager Aichinger stated that the relation to groundwater would also be helpful, as they would want to ensure that they are not just continuing to pump groundwater. He recognized that this is a strange situation that was not anticipated. He stated that in the last few years, White Bear Lake was at a record low because of the low groundwater and now that the groundwater level has increased, White Bear Lake has rebounded. President Ebensteiner stated that this information was helpful. She stated that the job of the watershed is to protect the homes and, while it would be nice to do some of the other elements, the purpose of the District should remain in focus. Manager Aichinger stated that it would also be helpful to have a process for the other member cities and agencies to provide input. Tina Carstens confirmed that staff is planning to receive input from those entities prior to the May Board meeting.

- B. Ongoing Project and Program Updates
 - i. Owasso Boulevard/Park Retrofit
 - ii. Snail Lake/Grass Lake Study
 - iii. Tanner's Lake Alum Facility
 - iv. Targeted Retrofit Projects

- v. BMP Design Assistance
- vi. Owasso Basin Improvements
- vii. Shoreview Lake Feasibility Study
- viii. Frost/Kennard Project
- ix. Willow Pond CMAC Project
- x. Beltline/Battle Creek Tunnel
- xi. CIP Maintenance/Repair 2018
- xii. New Technology Reviews

President Ebensteiner asked if there could be a review at some time of the new technology items. Tina Carstens agreed that she had considered doing an “audit” of new technologies.

- xiii. Natural Resources Program
- xiv. Education Program

Manager Ward stated that she would find it helpful to have additional information on groundwater, as that continues to be an item of discussion.

11. INFORMATIONAL ITEMS

A. Ramsey Conservation District Article

Tina Carstens stated that she wanted to provide an opportunity for the Board to discuss this item as she had sent an email to the Board and some were comments received. Tracey Galowitz stated that she was hired by the Ramsey Conservation District to attend the meeting. She believed the newspaper article to be accurate. She provided an update and stated that, while she does not view a conflict of interest at this time, she would disclose that should a conflict arise.

12. REPORTS OF MANAGERS

A. Summary of Closed Meeting held January 31, 2018

Manager Aichinger stated that a closed meeting was held on January 31, 2018, for the purpose of reviewing the Administrator’s performance and all Managers were in attendance. He noted that the job description, performance, and salary were discussed.

Manager Aichinger stated that he recently attended a meeting of the Metro MAWD, noting that a nice presentation was given by the new MAWD Administrator which provided information on her background and her vision and plan for the future of the organization.

He stated that BWSR is now considering how to disperse Clean Water Funds through a One Watershed, One Plan framework, which will reduce the amount of funds available through the competitive grant program and instead distributing the funds to agencies with approved Water Plans. Tina confirmed that it is watershed-based funding. She stated that this will be a pilot program and provided details on how the funds would be distributed for different counties. She stated that, if a county cannot come to an agreement on how the funds would be distributed, the funds would then be available through the competitive grant program. She confirmed that the District would still have to have a project identified for the funding and a report would need to be made.

13. ADJOURN

Motion: Cliff Aichinger moved, Dianne Ward seconded, to adjourn the meeting at 8:10 p.m. Motion 3-0. (Dr. Pam Skinner absent)

Respectfully submitted,

Dr. Pam Skinner, Secretary

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Bill List

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RWMWD BUDGET STATUS REPORT

Administrative & Program Budget

Fiscal Year 2018

2/28/2018

Budget Category	Budget Item	Account Number	Original Budget	Budget Transfers	Current Month Expenses	Year-to-Date Expenses	Current Budget Balance	Percent of Budget
Manager	Per diems	4355	\$6,500.00	-	630.00	1,330.00	\$5,170.00	20.46%
	Manager expenses	4360	3,500.00	-	552.52	552.52	2,947.48	15.79%
Committees	Committee/Bd Mtg. Exp.	4365	3,500.00	-	354.80	369.32	3,130.68	10.55%
Employees	Staff salary/taxes/benefits	4010	1,300,000.00	-	87,019.33	180,961.05	1,119,038.95	13.92%
	Employee expenses	4020	10,000.00	-	93.40	236.15	9,763.85	2.36%
	District training & education	4350	25,000.00	-	503.49	645.65	24,354.35	2.58%
Administration/ Office	GIS system maint. & equip.	4170	15,000.00	-	987.02	987.02	14,012.98	6.58%
	Data Base/GIS Maintenance	4171	15,000.00	-	-	-	15,000.00	0.00%
	Equipment maintenance	4305	3,000.00	-	-	-	3,000.00	0.00%
	Telephone	4310	8,000.00	-	55.40	110.80	7,889.20	1.39%
	Office supplies	4320	5,000.00	-	152.37	320.76	4,679.24	6.42%
	IT/Internet/Web Site/Software Lic.	4325	42,000.00	-	6,305.84	6,393.54	35,606.46	15.22%
	Postage	4330	10,000.00	-	-	-	10,000.00	0.00%
	Printing/copying	4335	8,000.00	-	796.58	1,082.25	6,917.75	13.53%
	Dues & publications	4338	11,000.00	-	7,575.00	7,620.00	3,380.00	69.27%
	Janitorial/Trash Service	4341	17,000.00	-	177.63	959.00	16,041.00	5.64%
	Utilities/Bldg.Contracts	4342	18,000.00	-	4,040.85	4,247.60	13,752.40	23.60%
	Bldg/Site Maintenance	4343	70,000.00	-	288.00	288.00	69,712.00	0.41%
	Miscellaneous	4390	5,000.00	-	305.19	305.19	4,694.81	6.10%
	Insurance	4480	35,000.00	-	-	-	35,000.00	0.00%
	Office equipment	4703	40,000.00	-	487.98	727.97	39,272.03	1.82%
	Vehicle lease, maintenance	4810-40	43,000.00	-	1,214.58	1,376.73	41,623.27	3.20%
Consultants/ Outside Services	Auditor/Accounting	4110	50,000.00	-	3,126.82	3,411.22	46,588.78	6.82%
	Engineering-administration	4121	93,000.00	-	6,142.00	11,631.00	81,369.00	12.51%
	Engineering-permit I&E	4122	15,000.00	-	-	-	15,000.00	0.00%
	Engineering-eng. review	4123	55,000.00	-	4,082.00	8,222.00	46,778.00	14.95%
	Engineering-permit review	4124	50,000.00	-	1,568.00	2,548.00	47,452.00	5.10%
	Project Feasibility Studies	4129	735,000.00	-	18,011.72	26,185.72	708,814.28	3.56%
	Attorney-permits	4130	10,000.00	-	430.00	430.00	9,570.00	4.30%
	Attorney-general	4131	40,000.00	-	-	-	40,000.00	0.00%
	Outside Consulting Services	4160	40,000.00	-	2,582.00	2,582.00	37,418.00	6.46%
Programs	Educational programming	4370	60,000.00	-	3,980.47	3,980.47	56,019.53	6.63%
	Communications & Marketing	4371	25,000.00	-	180.00	180.00	24,820.00	0.72%
	Events	4372	50,000.00	-	2,500.00	2,684.20	47,315.80	5.37%
	Water QM-Engineering	4520-30	513,000.00	-	3,985.52	4,354.13	508,645.87	0.85%
	Project operations	4650	140,000.00	-	1,546.28	1,606.77	138,393.23	1.15%
	SLMP/TMDL Studies	4661	115,000.00	-	42.00	42.00	114,958.00	0.04%
	Natural Resources/Keller Creek	4670-72	100,000.00	-	275.08	4,091.70	95,908.30	4.09%
	Outside Prog.Support/Weed Mgmt.	4683-84	70,000.00	-	10,950.52	13,014.35	56,985.65	18.59%
	Research Projects	4695	100,000.00	-	936.00	936.00	99,064.00	0.94%
	Health and Safety Program	4697	2,000.00	-	-	-	2,000.00	0.00%
	NPDES Phase II	4698	20,000.00	-	-	400.00	19,600.00	2.00%
	Atlas 14 Watershed Modeling	4732	0.00	-	-	-	0.00	0.00%
GENERAL FUND TOTAL			\$3,976,500.00	\$0.00	\$171,878.39	\$294,813.11	\$3,681,686.89	7.41%
CIP's	CIP Project Repair & Maintenance	516	1,000,000.00	-	47,420.00	53,648.40	946,351.60	5.36%
	Targeted Retrofit Projects	518	800,000.00	-	1,349.00	1,834.00	798,166.00	0.23%
	District Office Building Solar Energy Retrofit	519	150,000.00	-	476.00	1,230.00	148,770.00	0.82%
	Flood Damage Reduction Fund	520	2,000,000.00	-	11,468.92	24,761.49	1,975,238.51	1.24%
	Debt Services-96-97 Beltline/MM/Battle Creek	526	448,951.00	-	-	277,525.09	171,425.91	61.82%
	Stewardship Grant Program	528-529	800,000.00	-	2,618.00	5,883.00	794,117.00	0.74%
	Impervious Surface Volume Reduction Opportunity	531	1,500,000.00	-	-	-	1,500,000.00	0.00%
	Beltline & Battle Creek Tunnel Repair	549	-	-	696,721.86	715,701.77	(715,701.77)	---
	Frost/Kennard Enhanced WQ BMP	550	400,000.00	-	1,856.18	2,261.18	397,738.82	0.57%
	Markham Pond Dredging & Aeration	551	25,000.00	-	-	-	25,000.00	0.00%
	Wakefield Park Project	553	1,100,000.00	-	1,899.50	1,982.00	1,098,018.00	0.18%
	Willow Pond CMAC	554	400,000.00	-	8,875.00	14,844.00	385,156.00	3.71%
	District Office Bond Payment	585	194,885.00	-	-	195,173.81	(288.81)	100.15%
CIP BUDGET TOTAL			\$8,818,836.00	-	\$772,684.46	\$1,294,844.74	\$7,523,991.26	14.68%
TOTAL BUDGET			\$12,795,336.00	\$0.00	\$944,562.85	\$1,589,657.85	\$11,205,678.15	12.42%

Current Fund Balances:

Fund:	Unaudited Beginning Fund Balance @ 12/31/17	Fund Transfers	Year to date Revenue	Current Month Expenses	Year to Date Expense	Unaudited Fund Balance @ 02/28/18
101 - General Fund	\$4,337,030.99	-	10,965.87	171,878.39	294,813.11	4,053,183.75
516 - CIP Project Repair & Maintenance	565,132.25	-	-	47,420.00	53,648.40	511,483.85
518 - Targeted Retrofit Projects	813,825.81	-	-	1,349.00	1,834.00	811,991.81
519 - District Office Building Solar Energy Retrofit	129,623.50	-	-	476.00	1,230.00	128,393.50
520 - Flood Damage Reduction Fund	1,146,068.88	-	4,082.20	11,468.92	24,761.49	1,125,389.59
526 - Debt Services-96-97 Beltline/MM/Beltline-Battle Creek Tunnel Repair	359,578.26	-	-	-	277,525.09	82,053.17
528/529 - BMP Incentive Fund	596,359.71	-	-	2,618.00	5,883.00	590,476.71
531 - Impervious Surface Volume Reduction Opportunity	1,484,215.00	-	-	-	-	1,484,215.00
549 - Beltline & Battle Creek Tunnel Repair	2,456,490.80	-	-	696,721.86	715,701.77	1,740,789.03
550 - Frost/Kennard Enhanced WQ BMP	108,640.25	-	-	1,856.18	2,261.18	106,379.07
551 - Markham Pond Dredging & Aeration	106,429.71	-	-	-	-	106,429.71
553 - Wakefield Park Project	351,873.96	-	-	1,899.50	1,982.00	349,891.96
554 - Willow Pond CMAC	-	-	-	8,875.00	14,844.00	(14,844.00)
580 - Contingency Fund	448,781.00	-	-	-	-	448,781.00
585 - Certificates of Participation	133,637.38	-	-	-	195,173.81	(61,536.43)
Total District Fund Balance	\$13,037,687.50	-	\$ 15,048.07	\$ 944,562.85	\$1,589,657.85	\$11,463,077.72

RWMWD BUDGET STATUS REPORT
Administrative & Program Budget
Fiscal Year 2017
12/31/2017 - UPDATED 2/27/18

Budget Category	Budget Item	Account Number	Original Budget	Budget Transfers	Current Month Expenses	Year-to-Date Expenses	Current Budget Balance	Percent of Budget
Manager	Per diems	4355	\$6,500.00	-	-	3,852.08	\$2,647.92	59.26%
	Manager expenses	4360	3,500.00	-	-	1,183.27	2,316.73	33.81%
Committees	Committee/Bd Mtg. Exp.	4365	3,500.00	-	-	3,919.28	(419.28)	111.98%
Employees	Staff salary/taxes/benefits	4010	1,250,000.00	-	-	1,125,239.96	124,760.04	90.02%
	Employee expenses	4020	10,000.00	-	-	9,401.04	598.96	94.01%
	District training & education	4350	25,000.00	-	-	15,187.15	9,812.85	60.75%
Administration/Office	GIS system maint. & equip.	4170	15,000.00	-	-	3,588.87	11,411.13	23.93%
	Data Base/GIS Maintenance	4171	20,000.00	-	-	4,875.00	15,125.00	24.38%
	Equipment maintenance	4305	3,000.00	-	-	600.00	2,400.00	20.00%
	Records Management	4306	5,000.00	-	-	-	5,000.00	0.00%
	Telephone	4310	10,000.00	-	-	4,414.90	5,585.10	44.15%
	Office supplies	4320	5,000.00	-	-	3,935.26	1,064.74	78.71%
	IT/Internet/Web Site/Software Lic.	4325	55,000.00	-	-	31,651.49	23,348.51	57.55%
	Postage	4330	5,000.00	-	-	4,241.51	758.49	84.83%
	Printing/copying	4335	10,000.00	-	-	6,486.55	3,513.45	64.87%
	Dues & publications	4338	9,000.00	-	-	6,735.45	2,264.55	74.84%
	Janitorial/Trash Service	4341	17,000.00	-	-	10,631.83	6,368.17	62.54%
	Utilities/Bldg.Contracts	4342	23,000.00	-	-	10,838.28	12,161.72	47.12%
	Bldg/Site Maintenance	4343	30,000.00	-	-	16,888.12	13,111.88	56.29%
	Miscellaneous	4390	5,000.00	-	-	1,666.04	3,333.96	33.32%
	Insurance	4480	35,000.00	-	-	30,541.64	4,458.36	87.26%
	Office equipment	4703	10,000.00	-	-	11,940.94	(1,940.94)	119.41%
	Vehicle lease, maintenance	4810-40	65,000.00	-	-	32,284.62	32,715.38	49.67%
Consultants/Outside Services	Auditor/Accounting	4110	50,000.00	-	-	48,761.34	1,238.66	97.52%
	Engineering-administration	4121	89,000.00	-	-	67,177.84	21,822.16	75.48%
	Engineering-permit I&E	4122	15,000.00	-	-	1,644.50	13,355.50	10.96%
	Engineering-eng. review	4123	50,000.00	-	-	41,721.20	8,278.80	83.44%
	Engineering-permit review	4124	50,000.00	-	-	52,641.02	(2,641.02)	105.28%
	Project Feasibility Studies	4129	300,000.00	-	-	89,524.70	210,475.30	29.84%
	Attorney-permits	4130	10,000.00	-	-	-	10,000.00	0.00%
	Attorney-general	4131	40,000.00	-	-	33,172.13	6,827.87	82.93%
	Outside Consulting Services	4160	40,000.00	-	-	32,559.75	7,440.25	81.40%
Programs	Educational programming	4370	60,000.00	-	-	41,246.58	18,753.42	68.74%
	Events	4372	40,000.00	-	-	40,080.36	(80.36)	100.20%
	Water QM-Engineering	4520-30	133,000.00	43,000.00	-	182,367.34	(6,367.34)	103.62%
	Project operations	4650	140,000.00	-	-	79,144.15	60,855.85	56.53%
	SLMP/TMDL Studies	4661	125,000.00	-	-	4,133.50	120,866.50	3.31%
	Water Management Plan/Updates	4662	20,000.00	-	-	20,357.22	(357.22)	101.79%
	Natural Resources/Keller Creek	4670-72	90,000.00	15,000.00	-	119,977.07	(19,977.07)	114.26%
	Outside Prog.Support/Weed Mgmt.	4683-84	110,000.00	-	-	43,652.74	66,347.26	39.68%
	Research Projects	4695	235,000.00	-	-	111,176.94	123,823.06	47.31%
	Health and Safety Program	4697	2,000.00	-	-	1,965.40	34.60	98.27%
	NPDES Phase II	4698	20,000.00	-	-	4,850.74	15,149.26	24.25%
	Atlas 14 Watershed Modeling	4732	0.00	-	-	223.59	(223.59)	0.00%
GENERAL FUND TOTAL			\$3,239,500.00	\$58,000.00	\$0.00	\$2,356,481.39	\$941,018.61	71.46%
CIP's	CIP Project Repair & Maintenance	516	700,000.00	-	-	665,110.44	34,889.56	95.02%
	Targeted Retrofit Projects	518	850,000.00	-	-	304,546.64	545,453.36	35.83%
	District Office Building Solar Energy Retrofit	519	150,000.00	-	-	16,995.50	133,004.50	11.33%
	Flood Damage Reduction Fund	520	1,600,000.00	-	-	509,878.54	1,090,121.46	31.87%
	Debt Services-96-97 Beltline/MM/Battle Creek	526	238,977.00	-	-	181,474.85	57,502.15	75.94%
	BMP Incentive Fund	528-529	950,000.00	-	-	574,480.32	375,519.68	60.47%
	Impervious Surface Volume Reduction Opportunity	531	1,500,000.00	-	-	-	1,500,000.00	0.00%
	Beltline & Battle Creek Tunnel Repair	549	-	-	-	2,065,506.20	(2,065,506.20)	---
	Frost/Kennard Enhanced WQ BMP	550	375,000.00	-	-	13,591.50	361,408.50	3.62%
	Markham Pond Dredging & Aeration	551	618,750.00	-	-	386,813.08	231,936.92	62.52%
	Wakefield Park Project	553	353,000.00	-	-	-	353,000.00	0.00%
	District Office Bond Payment	585	194,885.00	-	-	194,863.95	21.05	99.99%
CIP BUDGET TOTAL			\$7,530,612.00	-	\$0.00	\$4,913,261.02	\$2,617,350.98	65.24%
TOTAL BUDGET			\$10,770,112.00	\$58,000.00	\$0.00	\$7,269,742.41	\$3,558,369.59	67.50%

Current Fund Balances:

Fund:	Beginning Fund Balance @ 12/31/16	Fund Transfers	Year to date Revenue	Current Month Expenses	Year to Date Expense	Unaudited Fund Balance @ 12/31/17
101 - General Fund	\$3,420,560.56	-	3,272,951.82	-	2,356,481.39	4,337,030.99
516 - CIP Project Repair & Maintenance	464,998.00	-	765,244.69	-	665,110.44	565,132.25
518 - Targeted Retrofit Projects	362,074.00	-	756,298.45	-	304,546.64	813,825.81
519 - District Office Building Solar Energy Retrofit	146,619.00	-	-	-	16,995.50	129,623.50
520 - Flood Damage Reduction Fund	841,148.00	-	814,799.42	-	509,878.54	1,146,068.88
526 - Debt Services-96-97 Beltline/MM/Beltline-Battle Creek Tunnel Repair	114,726.00	245,431.00	180,896.11	-	181,474.85	359,578.26
527 - Casey Lake Watershed Infiltration Retrofit	210,980.00	(210,980.00)	-	-	-	-
528/529 - BMP Incentive Fund	709,116.00	-	461,724.03	-	574,480.32	596,359.71
531 - Impervious Surface Volume Reduction Opportunity	1,484,215.00	-	-	-	-	1,484,215.00
549 - Beltline & Battle Creek Tunnel Repair	4,521,997.00	-	-	-	2,065,506.20	2,456,490.80
550 - Frost/Kennard Enhanced WQ BMP	47,471.00	-	74,760.75	-	13,591.50	108,640.25
551 - Markham Pond Dredging & Aeration	202,622.00	-	290,620.79	-	386,813.08	106,429.71
553 - Wakefield Park Project	-	-	351,873.96	-	-	351,873.96
580 - Contingency Fund	483,232.00	(34,451.00)	-	-	-	448,781.00
585 - Certificates of Participation	134,238.00	-	194,263.33	-	194,863.95	133,637.38
Total District Fund Balance	\$13,143,996.56	-	\$ 7,163,433.35	\$ -	\$7,269,742.41	\$13,037,687.50

Ramsey Washington Metro Watershed Dist.
Check Register
For the Period From Feb 1, 2018 to Feb 28, 2018

Check #	Date	Payee ID	Payee	Description	Amount
EFT	02/01/18	met008	MetLife-Group Benefits	Employee Benefits	\$835.01
EFT	02/15/18	hea002	HealthPartners	Employee Benefits	7,536.89
69759	02/13/18	ada002	Adam's Pest Control, Inc.	Utilities/Bldg. Contracts	79.00
69760	02/13/18	aws001	AWS Service Center	Janitorial/Trash Service	177.63
69761	02/13/18	bei001	Anna D. Beining	Employee Reimbursement	51.36
69762	02/13/18	blo001	Simba Blood	Employee Reimbursement	76.21
69763	02/13/18	con004	Contanda Terminals LLC	Dev. Escrow-General	46.00
69764	02/13/18	fli001	Flint Hills Resources Pine Bend, LLC	Dev. Escrow-General	356.00
69765	02/13/18	for001	Forestry Suppliers, Inc.	Natural Resources Project	175.87
69766	02/13/18	ham002	Hamline University	Educational Program	323.68
69767	02/13/18	min008	Minnesota Native Landscapes, Inc.	Construction-Maint. & Repair	15,312.50
69768	02/13/18	nsp001	Xcel Energy	Utilities/Project Operations	2,501.91
69769	02/13/18	pac001	Pace Analytical Services, Inc.	Water Quality Monitoring	280.00
69770	02/27/18	aic001	Clifton Aichinger	Manager Expense	39.95
69771	02/27/18	all004	allstream	Project Operations	60.49
69772	02/27/18	att002	AT & T Mobility - ROC	IT/Website/Software	111.23
69773	02/27/18	bar001	Barr Engineering	January/February Engineering	100,506.42
69774	02/27/18	bar004	Deborah Barnes	Employee Reimbursement	20.00
69775	02/27/18	blo001	Simba Blood	Employee Reimbursement	92.94
69776	02/27/18	bud001	Budget Sign & Graphics	Construction-Flood Damage	352.00
69777	02/27/18	cap001	Capitol Region Watershed District	Training & Education	200.00
69778	02/27/18	cit009	City of St. Paul	Events	1,000.00
69779	02/27/18	cit010	City of White Bear Lake	GIS System Maintenance	987.02
69780	02/27/18	cit011	City of Roseville	IT/Website/Software	6,074.73
69781	02/27/18	ecs001	ECSI	Utilities/Bldg. Contracts	360.00
69782	02/27/18	fit001	Fitzgerald Excavating & Trucking, Inc.	Progress Payment #1	32,400.00
69783	02/27/18	fre001	Freshwater Society	Outside Program Support	500.00
69784	02/27/18	gal001	Galowitz Olson, PLLC	February Legal Fees	1,324.76
69785	02/27/18	gru001	Gruber's Power Equipment	Natural Resources Project	26.99
69786	02/27/18	ham002	Hamline University	Outside Program Support	10,000.00
69787	02/27/18	ing002	INGCO International, Inc.	Communications & Marketing	100.00
69788	02/27/18	inn002	Innovative Office Solutions LLC	Office Supplies	15.60
69789	02/27/18	inn003	Innovational Concepts, Inc.	Utilities/Bldg. Contracts	206.75
69790	02/27/18	int001	Office of MN, IT Services	Telephone Expense	55.40
69791	02/27/18	kla001	Christian G. Klatt	Employee Reimbursement	8.18
69792	02/27/18	lea003	L. Tracy Leavenworth	Educational Program	3,980.47
69793	02/27/18	maw002	MAWD	2081 Dues	7,500.00
69794	02/27/18	mel001	Michelle L. Melser	Employee Reimbursement	60.42
69795	02/27/18	met004	Metro Sales, Inc.	Printing Expense	510.91
69796	02/27/18	mid003	Roseville Midway Ford	Vehicle Expense	1,016.88
69797	02/27/18	min008	Minnesota Native Landscapes, Inc.	Construction-Flood Damage	848.68
69798	02/27/18	nsp001	Xcel Energy	Utilities/Project Operations	2,088.31
69799	02/27/18	pci001	PCi Roads, LLC	Pay Request #11	664,864.00
69800	02/27/18	qwe001	CenturyLink	Project Operations	223.17
69801	02/27/18	red002	Redpath & Company, Ltd	January Accounting	3,126.82
69802	02/27/18	sel001	Select Synthetics	Bldg./Site Maintenance	250.00
69803	02/27/18	sod001	Nicole Soderholm	Employee Reimbursement	40.00
69804	02/27/18	tim002	Timesaver Off-Site Secretarial, Inc.	Committee/Board Mtg Expense	211.00
69805	02/27/18	umn001	UMN	Training & Education	80.00
69806	02/27/18	usb002	U.S. Bancorp	Monthly Credit Card Expense	3,219.24
69807	02/27/18	usb005	US Bank Equipment Finance	Printing Expense	285.67
69808	02/27/18	vla001	Dave Vlasin	Employee Reimbursement	100.59
69809	02/27/18	voy001	US Bank Voyager Fleet Sys.	Vehicle Expense	197.70
69810	02/27/18	wet003	Wetland Credit Agency, Inc.	Construction-Flood Damage	7,311.24
69811	02/27/18	win002	Windmill Design Incorporated	Outside Consulting Services	2,582.00
Total					<u>\$880,691.62</u>

Ramsey Washington Metro Watershed Dist.
Cash Disbursements Journal
For the Period From February 1, 2018 - February 28, 2018

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail
02/01/18	EFT	met008	MetLife-Group Benefits			\$835.01	
				4040-101-000	Employee Benefits-General		622.49
				2015-101-000	Employee Health-General		212.52
02/15/18	EFT	hea002	HealthPartners			7,536.89	
				4040-101-000	Employee Benefits-General		5,819.32
				2015-101-000	Employee Health-General		1,717.57
02/13/18	69759	ada002	Adam's Pest Control, Inc.	4342-101-000	Utilities/Bldg. Contracts	79.00	
02/13/18	69760	aws001	AWS Service Center	4341-101-000	Janitorial/Trash Service	177.63	
02/13/18	69761	bei001	Anne D. Beining	4020-101-000	Employee Expense-General	51.36	2017
02/13/18	69762	blo001	Simba Blood			76.21	2017
				4040-101-000	Employee Benefits-General		40.00
				4670-101-000	Natural Resources Project-Genearl		36.21
02/13/18	69763	con004	Contanda Terminal LLC	2024-101-000	Dev.Escrow-General	46.00	
02/13/18	69764	fli001	Flint Hills Resources Pine Bend, LLC	2024-101-000	Dev. Escrow-General	356.00	2017
02/13/18	69765	for001	Forestry Supplies, Inc.	4670-101-000	Natural Resources Project-General	175.87	
02/13/18	69766	ham002	Hamline University	4370-101-000	Educational Program-General	323.68	2017
02/13/18	69767	min008	Minnesota Native Landscapes, Inc.	4630-516-000	Construction-Maint. & Rep.	15,312.50	2017
02/13/18	69768	nsp001	Xcel Energy			2,501.91	
				4342-101-000	Utilities/Bldg. Contracts		1,812.63
				4650-101-000	Project Operations-General		689.28
02/13/18	69769	pac001	Pace Analytical Services, Inc.	4530-101-000	Water QM Staff-General	280.00	2017
02/27/18	69770	aic001	Clifton Aichinger	4360-101-000	Manager Expenses-General	39.95	
02/27/18	69771	all004	allstream	4650-101-000	Project Operations-General	60.49	
02/27/18	69772	att002	AT & T Mobility - ROC	4325-101-000	IT/Website/Software	111.23	
02/27/18	69773	bar001	Barr Engineering			100,506.42	
				4121-101-000	Engineering Admin-General Fund		6,142.00
				4123-101-000	Engineering-Review		4,082.00
				4129-101-000	Project Feasability-General		270.00
				4129-101-000	Project Feasability-General		1,037.50
				4129-101-000	Project Feasability-General		124.50
				4129-101-000	Project Feasability-General		124.50
				4129-101-000	Project Feasability-General		480.22
				4129-101-000	Project Feasability-General		479.00

Ramsey Washington Metro Watershed Dist.
Cash Disbursements Journal
For the Period From February 1, 2018 - February 28, 2018

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail
				4129-101-000	Project Feasability-General		4,920.50
				4129-101-000	Project Feasability-General		8,336.50
				4129-101-000	Project Feasability-General		1,706.00
				4129-101-000	Project Feasability-General		533.00
				4128-520-000	Engineering-Flood Damage		63.00
				4128-520-000	Engineering-Flood Damage		751.50
				4128-520-000	Engineering-Flood Damage		2,115.92
				4128-520-000	Engineering-Flood Damage		713.00
				4124-101-000	Eng.Permit Review-General		1,568.00
				4661-101-000	SLMP/TMDL Studies		42.00
				4695-101-000	Research Projects-General		936.00
				4650-101-000	Project Operations-General		67.50
				4128-553-000	Engineering-Wakefield		1,899.50
				4128-550-000	Engineering-Frost/Kennard		1,856.18
				4128-518-000	Engineering-School/Commer Retrofit		825.00
				4128-518-000	Engineering-School/Commer Retrofit		524.00
				4682-529-000	Stewardship Grant Program		2,618.00
				4128-554-000	Engineering-Willow Pond		8,875.00
				4128-520-000	Engineering-Flood Damage		2,430.00
				4128-520-000	Engineering-Flood Damage		27.00
				4128-519-000	Engineering-Office Solar Energy		476.00
				4128-549-000	Engineering-Beltline/Battle Creek		31,857.86
				4128-516-000	Engineering-Projects Maint. & Repair		845.00
				4128-516-000	Engineering-Projects Maint. & Repair		13,780.24
02/27/18	69774	bar004	Deborah Barnes	4040-101-000	Employee Benefits-General	20.00	
02/27/18	69775	blo001	Simba Blood			92.94	
				4040-101-000	Employee Benefits-General		80.00
				4020-101-000	Employee Expense-General		12.94
02/27/18	69776	bud001	Budget Sign & Graphics	4630-520-000	Construction-Flood Damage	352.00	
02/27/18	69777	cap001	Capitol Region Watershed District	4350-101-000	Training & Education-General	200.00	
02/27/18	69778	cit009	City of St. Paul	4372-101-000	Events	1,000.00	
02/27/18	69779	cit010	City of White Bear Lake	4170-101-000	GIS System Maint. & Equipment	987.02	
02/27/18	69780	cit011	City of Roseville			6,074.73	
				4325-101-000	IT/Website/Software		302.82
				4325-101-000	IT/Website/Software		1,047.09
				4325-101-000	IT/Website/Software		2,211.00
				4325-101-000	IT/Website/Software		2,211.00
				4325-101-000	IT/Website/Software		302.82
				4325-101-000	IT/Website/Software		
02/27/18	69781	ecs001	ECSI	4342-101-000	Utilities/Bldg. Contracts	360.00	

Ramsey Washington Metro Watershed Dist.
Cash Disbursements Journal
For the Period From February 1, 2018 - February 28, 2018

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail
02/27/18	69782	fit001	Fitzgerald Excavating & Trucking, Inc.	4630-516-000	Construction-Maint. & Rep.	32,400.00	
02/27/18	69783	fre001	Freshwater Society	4683-101-000	Outside Program Support	500.00	
02/27/18	69784	gal001	Galowitz Olson, PLLC			1,324.76	
				4130-101-000	Atty Gen. Permits-General		430.00
				4131-516-000	Atty Gen.-Maint. & Repair		394.76
				4131-520-000	Atty Gen.-Flood Damage		500.00
02/27/18	69785	gru001	Grubers Power Equipment	4670-101-000	Natural Resources Project-General	26.99	
02/27/18	69786	ham002	Hamline University	4683-101-000	Outside Program Support	10,000.00	
02/27/18	69787	ing002	INGCO International, Inc.	4371-101-000	Communications & Marketing	100.00	
02/27/18	69788	inn002	Innovative Office Solutions, LLC	4320-101-000	Office Supplies-General	15.60	
02/27/18	69789	inn003	Innovational Concepts, Inc.	4342-101-000	Utilities/Bldg. Contracts	206.75	
02/27/18	69790	int001	Office of MN, IT Services	4310-101-000	Telephone-General	55.40	
02/27/18	69791	kla001	Christine G. Klatt	4020-101-000	Employee Expense-General	8.18	
02/27/18	69792	lea003	L. Tracy Leavenworth	4370-101-000	Educational Program-General	3,980.47	
02/27/18	69793	maw002	MAWD	4338-101-000	Dues & Publications-General	7,500.00	
02/27/18	69794	mel001	Michelle L. Melser			60.42	
02/27/18				4335-101-000	Printing-General		34.48
02/27/18				4020-101-000	Employee Expense-General		25.94
02/27/18	69795	met004	Metro Sales, Inc.	4335-101-000	Printing-General	510.91	
02/27/18	69796	mid003	Roseville Midway Ford	4840-101-000	Vehicle Misc.-General	1,016.88	
02/27/18	69797	min008	Minnesota Native Landscapes, Inc.	4630-520-000	Construction-Flood Damage	848.68	
02/27/18	69798	nsp001	Xcel Energy			2,088.31	
				4342-101-000	Utilities/Bldg. Contracts		1,582.47
				4650-101-000	Project Operations-General		505.84
02/27/18	69799	pci001	Pci Roads, LLC	4630-549-000	Construction-Beltline/Battle	664,864.00	
02/27/18	69800	qwe001	CenturyLink	4650-101-000	Project Operations-General	223.17	
02/27/18	69801	red002	Redpath & Company, Ltd	4110-101-000	Auditor/Accounting	3,126.82	
02/27/18	69802	sel001	Select Synthetics	4343-101-000	Bldg./Site Maintenance	250.00	
02/27/18	69803	sod001	Nichole Soderholm	4040-101-000	Employee Benefits-General	40.00	
02/27/18	69804	tim002	Timesaver Off-Site Secretarial, Inc.	4365-101-000	Committee/Board Meeting Expense	211.00	

Ramsey Washington Metro Watershed Dist.
Cash Disbursements Journal
For the Period From February 1, 2018 - February 28, 2018

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail
02/27/18	69805	umn001	UMN	4350-101-000	Training & Education-General	80.00	
02/27/18	69806	usb002	U.S. Bancorp			3,219.24	
				4338-101-000	Dues & Publications-General		75.00
				4325-101-000	IT/Website/Software		29.00
				4325-101-000	IT/Website/Software		90.88
				4350-101-000	Water QM Staff-General		37.44
				4365-101-000	Committee/Board Meeting Expense		35.95
				4350-101-000	Water QM Staff-General		(25.99)
				4350-101-000	Water QM Staff-General		(25.99)
				4670-101-000	Natural Resources Project-General		22.25
				4670-101-000	Natural Resources Project-General		49.97
				4365-101-000	Committee/Board Meeting Expense		35.95
				4365-101-000	Committee/Board Meeting Expense		35.95
				4530-101-000	Training & Education-General		342.10
				4703-101-000	Equipment Expense		487.98
				4320-100-000	Office Supplies-General		43.81
				4350-101-000	Water QM Staff-General		103.03
				4320-101-000	Office Supplies-General		92.96
				4350-101-000	Water QM Staff-General		135.00
				4343-101-000	Building/Site Maintenance		38.00
				4365-101-000	Committee/Board Meeting Expense		35.95
				4372-101-000	Events		1,500.00
				4371-101-000	Communications & Marketing		80.00
02/27/18	69807	usb005	US Bank Equipment Finance	4335-101-000	Printing-General	285.67	
02/27/18	69808	vla001	Dave Vlasin			100.59	
				4020-101-000	Employee Expense-General		46.34
				4040-101-000	Employee Benefits-General		54.25
02/27/18	69809	voy001	US Bank Voyager Fleet Sys.	4830-101-000	Vehicle Fuel-General	197.70	
02/27/18	69810	wet003	Wetland Credit Agency, Inc.	4630-520-000	Construction-Flood Damage	7,311.24	
02/27/18	69811	wind002	Windmill Design Incorporated	4160-101-000	Outside Consulting Services	2,582.00	
						\$880,691.62	



**Summary of Professional Engineering Services During the Period
January 20, 2018 through February 16, 2018**

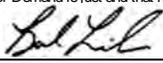
	Total Budget* (2018)	Total Fees to Date (2018)	Budget Balance (2018)	Fees During Period	District Accounting Code	Plan Imple- mentation Task Number
Engineering Administration						
General Engineering Administration	\$76,000.00	\$11,631.00	\$64,369.00	\$6,142.00	4121-101	DW-13
RWMWD Health and Safety/ERTK Program	\$2,000.00	\$0.00	\$2,000.00		4697-101	DW-13
Educational Program/Educational Forum Assistance	\$20,000.00	\$0.00	\$20,000.00		4698-101	DW-11
Engineering Review						
Engineering Review	\$55,000.00	\$8,222.00	\$46,778.00	\$4,082.00	4123-101	DW-13
Project Feasibility Studies						
Aquifer Recharge Site Search and Feasibility Study	\$15,000.00	\$0.00	\$15,000.00		4129-101	DW-10
Owasso County Park Stormwater Master Plan and Detailed Design: Phase 1 and Phase 2	\$75,000.00	\$270.00	\$74,730.00	\$270.00	4129-101	DW-5
Beltline Resiliency and Phalen Chain Water Level Management Study	\$250,000.00	\$1,037.50	\$248,962.50	\$1,037.50	4129-101	BELT-3
Beaver Lake Subwatershed Feasibility Study	\$15,000.00	\$124.50	\$14,875.50	\$124.50	4129-101	BL-1
Owasso Lake Subwatershed Feasibility Study	\$15,000.00	\$124.50	\$14,875.50	\$124.50	4129-101	LO-3
Battle Creek Lake Subwatershed Feasibility Study	\$15,000.00	\$480.22	\$14,519.78	\$480.22	4129-101	BCL-3
Create an Emergency Reponse Plan for Lake Owasso	\$5,000.00	\$3,132.00	\$1,868.00	\$479.00	4129-101	LO-2
FEMA Flood Mapping Update	\$100,000.00	\$0.00	\$100,000.00		4129-101	DW-9
West Vadnais Lake to East Vadnais Lake Water Quality Treatment	\$24,400.00	\$6,288.00	\$18,112.00	\$4,920.50	4129-101	DW-9
Snail Lake to Sucker Lake Reverse Pumping Evaluation	\$9,100.00	\$9,715.50	-\$615.50	\$8,336.50	4129-101	DW-9
Snail, Grass, and West Vadnais outlet permitting with the MnDNR	\$10,000.00	\$4,480.50	\$5,519.50	\$1,706.00	4129-101	DW-9
Modeling of 95% Confidence Limit Atlas 14 District-wide (Climate Change Scenario); Flood Map Generation for Future Outreach Efforts	\$129,500.00	\$533.00	\$128,967.00	\$533.00	4129-101	DW-9
GIS Maintenance						
GIS Maintenance	\$5,000.00	\$0.00	\$5,000.00		4170-101	DW-13
Monitoring Water Quality/Project Monitoring						
Lake Water Quality Monitoring (Misc QA/QC)	\$10,000.00	\$63.00	\$9,937.00	\$63.00	4520-101	DW-2
Grass Lake WOMP station	\$10,000.00	\$0.00	\$10,000.00		4520-101	DW-3
Battle Creek longitudinal monitoring of TSS	\$15,000.00	\$801.00	\$14,199.00	\$751.50	4520-101	BC-3
Auto Lake monitoring systems (5)	\$50,000.00	\$2,115.92	\$47,884.08	\$2,115.92	4520-101	DW-18
Maplewood Mall Monitoring	\$10,000.00	\$713.00	\$9,287.00	\$713.00	4520-101	DW-12
Permit Processing, Inspection and Enforcement						
Permit Application Inspection and Enforcement	\$15,000.00	\$0.00	\$15,000.00		4122-101	DW-7
Permit Application Review	\$50,000.00	\$2,548.00	\$47,452.00	\$1,568.00	4124-101	DW-7
Lake Studies/WRPPs/TMDL Reports						
2018 Grant Applications	\$30,000.00	\$0.00	\$30,000.00		4661-101	--
Tanners Flood Response Tool Model Update	\$3,000.00	\$42.00	\$2,958.00	\$42.00	4661-101	TaL-1
Evaluate water quality benefit of removing accumulated sediment from south end of Wakefield Lake to improve Lake Phalen water quality	\$10,000.00	\$0.00	\$10,000.00		4661-101	WL-5
Research Projects						
New Technology Mini Case Studies (average 6 per year)	\$12,000.00	\$936.00	\$11,064.00	\$936.00	4695-101	DW-12
Kohlman Permeable Weir Test System - Implement Monitoring Plan	\$15,000.00	\$0.00	\$15,000.00		4695-101	DW-12
Project Operations						
2018 Tanners Alum Facility Monitoring	\$15,000.00	\$67.50	\$14,932.50	\$67.50	4650-101	TaL-3
Capital Improvements						
Wakefield Park/Frost Avenue Stormwater Project	\$25,000.00	\$1,982.00	\$23,018.00	\$1,899.50	4128-553	WL-1
Frost Kennard Spent Lime BMP	\$24,000.00	\$2,261.18	\$21,738.82	\$1,856.18	4128-550	WL-1
Commercial Sites Retrofit Projects 2018	\$55,000.00	\$0.00	\$55,000.00		4128-518	DW-6
School Sites Retrofit Projects 2018	\$55,000.00	\$1,100.00	\$53,900.00	\$825.00	4128-518	DW-6
Church Sites Retrofit Projects 2018	\$55,000.00	\$734.00	\$54,266.00	\$524.00	4128-518	DW-6
BMP Incentive Fund: General BMP Design Assistance and Review	\$30,000.00	\$4,965.00	\$25,035.00	\$2,618.00	4682-529	DW-6
BMP Incentive Fund: Faith-Based Organizations	\$20,000.00	\$918.00	\$19,082.00		4128-528	DW-6
Willow Pond CMAC Implementation	\$100,000.00	\$14,844.00	\$85,156.00	\$8,875.00	4128-554	BeL-4
Grass Lake Berm Construction Administration	\$75,000.00	\$14,333.57	\$60,666.43	\$2,430.00	4128-520	GrL-1
Phase 1 implementation from Owasso Basin Improvements Feasibility Study	\$75,000.00	\$1,416.00	\$73,584.00	\$27.00	4128-520	GC-3
District Office Solar Energy Retrofit	\$20,000.00	\$9,567.00	\$10,433.00	\$476.00	4128-519	DW-13
CIP Project Repair & Maintenance						
2017-2018 Beltline Repairs Construction Services	\$360,000.00	\$358,597.25	\$1,402.75	\$31,857.86	4128-549	BELT-2
Routine CIP Inspection and Unplanned Maintenance Identification	\$75,000.00	\$1,846.00	\$73,154.00	\$845.00	4128-516	DW-5
2018 CIP Maintenance and Repairs	\$90,000.00	\$52,780.90	\$37,219.10	\$13,780.24	4128-516	DW-5
2019 CIP Maintenance and Repairs	\$150,000.00	\$0.00	\$150,000.00		4128-516	DW-5

*For projects carried over from previous years, the total budget reflects the total project budget, and not just the 2018 portion.

Subtotal \$100,506.42

TOTAL PAYABLE FOR PERIOD 1/20/2018 - 2/16/2018 \$100,506.42

Barr declares under the penalties of Law that this Account,
Claim, or Demand is just and that no part has been paid.



 Bradley J. Lindaman, Vice President

Application for Payment No. 11
Beltline and Battle Creek Repairs
Ramsey-Washington Metro Watershed District

Owner: Ramsey-Washington Metro Watershed District

Contractor: PCI Roads, LLC

Engineer: Barr Engineering, Co.

For work accomplished through the date of February 17, 2018

1.0	Completed to Date:	<u>\$2,551,308.53</u>
2.0	Less Previously Billed:	<u>\$1,886,444.53</u>
3.0	Amount Completed This Period:	<u>\$664,864.00</u>
4.0	Amount Previously Retained:	<u>\$166,145.80</u>
5.0	Amount Retained This Period (See Note 1):	<u>\$0.00</u>
6.0	Total Amount Retained:	<u>\$166,145.80</u>
7.0	Retainage Released Through This Period:	<u>\$0.00</u>
8.0	Less Total Retainage Remaining:	<u>\$166,145.80</u>
9.0	Less Amounts Previously Paid:	<u>\$1,720,298.73</u>
10.0	Amount Due This Estimate:	<u>\$664,864.00</u>

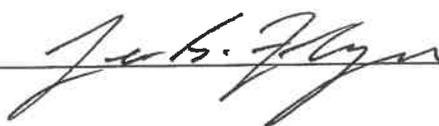
Note 1: The specifications require 10% to be retained up to 50% of the project costs.

CONTRACTOR's Certification

The undersigned CONTRACTOR certifies that: (1) all previous progress payments received from OWNER on account of Work done under the Contract referred to above have been applied to discharge in full all obligations of CONTRACTOR incurred in connection with Work covered by prior Applications for Payment numbered 1 through 10 inclusive; (2) title to all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all liens, claims, security interest and encumbrances (except such as are covered by Bond acceptable to OWNER indemnifying OWNER against any such lien, claim, security interest or encumbrance); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective as that term is defined in the Contract Documents.

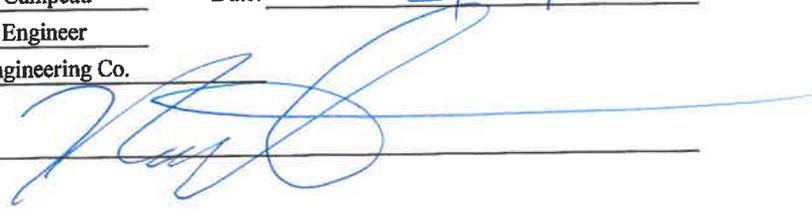
SUBMITTED BY:

Name: Leo Flynn Date: 2/20/18
 Title: Project Coordinator
 Contractor: PCI Roads, LLC

Signature: 

RECOMMENDED BY:

Name: Nathan Campeau Date: 2/20/18
 Title: Project Engineer
 Engineer: Barr Engineering Co.

Signature: 

APPROVED BY:

Name: Marj Ebensteiner Date: _____
 Title: President
 Owner: Ramsey-Washington Metro Watershed District

Signature: _____

Beltline and Battle Creek Repairs
Ramsey-Washington Metro Watershed District
Summary of Work Completed Through February 17, 2018 for Progress Payment No. 11

Item	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	PCi Roads, LLC		(1) Total Completed This Period		(2) Total Completed Previous Periods		(3) Total Completed To Date	
				UNIT COST	EXTENSION	Quantity		Quantity		Quantity	
A	Mobilization	LS	1	\$ 280,000.00	\$ 280,000.00	0	\$0.00	0.928571	\$260,000.00	0.928571	\$260,000.00
B	Water Management	LS	1	\$ 5,000.00	\$ 5,000.00	0.1	\$500.00	0.8	\$4,000.00	0.9	\$4,500.00
C	Erosion Control	LS	1	\$ 35,000.00	\$ 35,000.00	0.15	\$5,250.00	0.75	\$26,250.00	0.9	\$31,500.00
D	Traffic Control	LS	1	\$ 25,000.00	\$ 25,000.00	0.15	\$3,750.00	0.75	\$18,750.00	0.9	\$22,500.00
E	Cold Joint Orientation Core Hole	EA	90	\$ 440.00	\$ 39,600.00	0	\$0.00	0	\$0.00	0	\$0.00
F	Crack Repair - Hydrophobic	LF	12500	\$ 65.00	\$ 812,500.00	4194.5	\$272,642.50	6103.9	\$396,753.50	10298.4	\$669,396.00
F	Crack Repair - Hydrophilic	LF	5000	\$ 65.00	\$ 325,000.00	63.25	\$4,111.25	3385	\$220,025.00	3448.25	\$224,136.25
G	Chemical Grout – Hydrophobic	GAL	3000	\$ 50.00	\$ 150,000.00	459	\$22,950.00	1393	\$69,650.00	1852	\$92,600.00
G	Chemical Grout – Hydrophilic	GAL	1200	\$ 50.00	\$ 60,000.00	8	\$400.00	630	\$31,500.00	638	\$31,900.00
H	Concrete Surface Repair*	SF	13000	\$ 63.00	\$ 819,000.00	3817.75	\$240,518.25	2030	\$127,890.00	5847.75	\$368,408.25
I	Cementitious Mortar Patch	EA	20	\$ 1,000.00	\$ 20,000.00	13	\$13,000.00	1	\$1,000.00	14	\$14,000.00
J	Manhole Steps	EA	391	\$ 84.00	\$ 32,844.00	0	\$0.00	287	\$24,108.00	287	\$24,108.00
K	Root Removal	LS	1	\$ 5,000.00	\$ 5,000.00	0	\$0.00	0	\$0.00	0	\$0.00
L	Encrustation Demolition and Disposal	LS	1	\$ 35,000.00	\$ 35,000.00	0	\$0.00	1	\$35,000.00	1	\$35,000.00
M	Precast Joint Repairs	LF	200	\$ 56.00	\$ 11,200.00	0	\$0.00	440.3	\$24,656.80	440.3	\$24,656.80
N	Rubble Removal (Station 14+94)	LS	1	\$ 5,000.00	\$ 5,000.00	0	\$0.00	0	\$0.00	0	\$0.00
N	Rubble Removal (Station 15+87)	LS	1	\$ 2,000.00	\$ 2,000.00	0	\$0.00	1	\$2,000.00	1	\$2,000.00
N	Rubble Removal (Station 89+76)	LS	1	\$ 2,000.00	\$ 2,000.00	0	\$0.00	0	\$0.00	0	\$0.00
N	Rubble Removal (Station 454+65)	LS	1	\$ 2,000.00	\$ 2,000.00	0	\$0.00	1	\$2,000.00	1	\$2,000.00
N	Rubble Removal (Station 454+94)	LS	1	\$ 2,000.00	\$ 2,000.00	0	\$0.00	1	\$2,000.00	1	\$2,000.00
O	Point Repair	EA	27	\$ 900.00	\$ 24,300.00	0	\$0.00	18	\$16,200.00	18	\$16,200.00
O	Point Repair (Station 50+61)	EA	1	\$ 1,585.00	\$ 1,585.00	1	\$1,585.00	0	\$0.00	1	\$1,585.00
O	Point Repair (Station 79+65)	EA	1	\$ 1,585.00	\$ 1,585.00	1	\$1,585.00	0	\$0.00	1	\$1,585.00
O	Point Repair (Station 446+15)	EA	1	\$ 1,585.00	\$ 1,585.00	0	\$0.00	1	\$1,585.00	1	\$1,585.00
O	Point Repair (Station 449+12)	EA	1	\$ 1,585.00	\$ 1,585.00	0	\$0.00	1	\$1,585.00	1	\$1,585.00
O	Point Repair (Station 44+97)	EA	1	\$ 1,585.00	\$ 1,585.00	0	\$0.00	0	\$0.00	0	\$0.00
P	Invert Repair (Station 63+92)	SF	15	\$ 1,000.00	\$ 15,000.00	0	\$0.00	0	\$0.00	0	\$0.00
P	Invert Repair (Station 450+94)	SF	64	\$ 500.00	\$ 32,000.00	0	\$0.00	78	\$39,000.00	78	\$39,000.00
Q	Uncover Manhole	EA	4	\$ 1,800.00	\$ 7,200.00	0	\$0.00	4	\$7,200.00	4	\$7,200.00
R	Adjust Manhole Height	EA	4	\$ 1,800.00	\$ 7,200.00	0	\$0.00	0	\$0.00	0	\$0.00
S	CCTV Inspection	LS	1	\$ 35,000.00	\$ 35,000.00	0	\$0.00	0	\$0.00	0	\$0.00
BASE BID TOTAL				\$ 2,796,769.00		\$566,292.00		\$1,311,153.30		\$1,877,445.30	

Beltline and Battle Creek Repairs
Ramsey-Washington Metro Watershed District
Summary of Work Completed Through February 17, 2018 for Progress Payment No. 11

				PCi Roads, LLC		(1) Total Completed This Period		(2) Total Completed Previous Periods		(3) Total Completed To Date	
Item	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT COST	EXTENSION	Quantity		Quantity		Quantity	
BID ALTERNATE #1: REINFORCEMENT STEEL											
Item	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT COST	EXTENSION						
T	Reinforcement Seal - 6 in.	EA	264	\$ 12.00	\$ 3,168.00	987	\$11,844.00	687	\$8,244.00	1674	\$20,088.00
T	Reinforcement Seal - 12 in.	EA	2197	\$ 24.00	\$ 52,728.00	995	\$23,880.00	743	\$17,832.00	1738	\$41,712.00
T	Reinforcement Seal - 24 in.	EA	882	\$ 48.00	\$ 42,336.00	726	\$34,848.00	265	\$12,720.00	991	\$47,568.00
T	Reinforcement Seal - 36 in.	EA	252	\$ 70.00	\$ 17,640.00	400	\$28,000.00	136	\$9,520.00	536	\$37,520.00
BID ALTERNATE #1					\$ 115,872.00		\$98,572.00		\$48,316.00		\$146,888.00
TOTAL BASE BID PLUS BID ALTERNATE #1					\$ 2,912,641.00		\$664,864.00		\$1,359,469.30		\$2,024,333.30
CHANGE ORDER - ADDITIONAL ITEMS											
1-2	Deep Concrete Surface Repair*	SF	3,000	\$ 87.00	\$ 261,000.00	0	\$0.00	3000	\$261,000.00	3000	\$261,000.00
2-2	Beaver Lake Branch Deep Concrete Surface Repair Exceeding 3,000 SF	SF	0	\$ 63.00	\$ -	0	\$0.00	1831.75	\$115,400.25	1831.75	\$115,400.25
2-3	Repair a Void at Station 440+95	LS	1	\$ 14,600.00	\$ 14,600.00	0	\$0.00	1	\$14,600.00	1	\$14,600.00
3-1	Beaver Lake Branch Crack Sealing	LS	1	\$ 119,724.98	\$ 119,724.98	0	\$0.00	1	\$119,724.98	1	\$119,724.98
4-2	Additional Battle Creek Point Repairs	EA	23	\$ 650.00	\$ 14,950.00	0	\$0.00	25	\$16,250.00	25	\$16,250.00
SUBTOTAL CHANGE ORDERS					\$ 410,274.98		\$0.00		\$526,975.23		\$526,975.23
TOTAL BASE BID PLUS BID ALTERNATE #1, PLUS CHANGE ORDERS					\$ 3,322,915.98		\$664,864.00		\$1,886,444.53		\$2,551,308.53
RETAINAGE (10% Retainage, up to 50% of Work Completion)					\$ 166,145.80		\$0.00		\$166,145.80		\$166,145.80
TOTAL AMOUNT DUE:							\$664,864.00		\$1,720,298.73		\$2,385,162.73

*Change Order 1-2 results in an estimated reduction of Item H of 3,000 SF, for an estimated reduction of \$189,000. This results in an estimated net increase of \$72,000.

**Capital Improvement Project Maintenance/Repairs 2018
Progress Payment Number 1**

1.0	Total Completed Through This Period:	<u>\$36,000.00</u>	
2.0	Total Completed Previously Completed:		<u>\$0.00</u>
3.0	Total Completed This Period:		<u>\$36,000.00</u>
4.0	Amount Previously Retained:		<u>\$0.00</u>
5.0	Amount Retained This Period (See Note 1):		<u>\$3,600.00</u>
6.0	Total Amount Retained (See Note 2):		<u>\$3,600.00</u>
7.0	Retainage Released Through This Period:		<u>\$0.00</u>
8.0	Total Retainage Remaining:		<u>\$3,600.00</u>
9.0	Amounts Previously Paid:	<u>\$0.00</u>	
10.0	Amount Due This Estimate:		<u><u>\$32,400.00</u></u>

Note 1: At rate of 10% until Completed to Date equals 50% of current Contract Price and a rate of 0% thereafter.

Note 2: Maximum amount is 5% of current Contract Price (\$277,822.00)

SUBMITTED BY:

Name: Jason Fitzgerald Date: _____
 Title: President
 Contractor: Fitzgerald Excavating & Trucking, Inc.

Signature: _____

RECOMMENDED BY:

Name: Brad Lindaman Date: _____
 Title: District Engineer
 Engineer: Barr Engineering Company

Signature: _____

APPROVED BY:

Name: Marj Ebensteiner Date: _____
 Title: President
 Owner: Ramsey-Washington Metro Watershed District

Signature: _____

Capital Improvement Project Maintenance/Repairs 2018
Ramsey-Washington Metro Watershed District
Summary of Work Completed Through February 20, 2018 for Progress Payment Number 1

1.04 Item	Description	Unit	Estimated Quantity	Unit Price	Extension	(1) Total Completed Through This Period		(2) Total Completed Previous Period		(3) Total Completed This Period	
						Quantity	Amount	Quantity	Amount	Quantity	Amount
A	Mobilization/Demobilization	L.S.	1	20,000.00	20,000.00		\$0.00	0	\$0.00	0	\$0.00
Site 1 – Lower Afton Road, St. Paul											
B	Sediment/Muck Cleanout of Drainageway (Landfill Disposal)	L.S.	1	4,000.00	4,000.00		\$0.00	0	\$0.00	0	\$0.00
B	Site Restoration (Seeding and Erosion Control Blanket)	S.Y.	220	4.00	880.00		\$0.00	0	\$0.00	0	\$0.00
Site 2 – Tanners Boat Ramp, Oakdale											
B	Sediment/Muck Cleanout from Pond (Landfill Disposal)	L.S.	1	8,000.00	8,000.00		\$0.00	0	\$0.00	0	\$0.00
D	Construction of Sedimentation Barrier (Mn/DOT Super Duty Silt Fence 3886.1)	L.F.	80	15.00	1,200.00		\$0.00	0	\$0.00	0	\$0.00
C	Site Restoration (Seeding and Erosion Control Blanket)	S.Y.	150	4.00	600.00		\$0.00	0	\$0.00	0	\$0.00
Site 3 – Tanners Wetland Weir Maintenance, Oakdale											
E	Permeable Weir Maintenance (Reopening Drainage Slots and Remove all Brush and Debris)	L.F.	580	10.00	5,800.00		\$0.00	0	\$0.00	0	\$0.00
Site 4 – 5TH Street Wetland, Oakdale											
F	Excavation/Dredging and Removal of Sediment from Treatment Basin (Disposal on Site)	L.S.	1	20,000.00	20,000.00		\$0.00	0	\$0.00	0	\$0.00
E	Permeable Weir Maintenance (Reopening Drainage Slots and Remove all Brush and Debris)	L.F.	65	10.00	650.00		\$0.00	0	\$0.00	0	\$0.00
C	Site Restoration (Seeding and Erosion Control Blanket)	S.Y.	210	4.00	840.00		\$0.00	0	\$0.00	0	\$0.00
Site 5 – Hills & Dales/County Road B, Maplewood											
G	Pipe and Structures Cleanout Sediment/Muck Removal (Disposal at Landfill)	L.S.	1	4,000.00	4,000.00		\$0.00	0	\$0.00	0	\$0.00
C	Site Access Restoration (Seeding and Erosion Control Blanket, Repair Wood Chip Path)	S.Y.	50	4.00	200.00		\$0.00	0	\$0.00	0	\$0.00
Site 6 – Tamarac Swamp PFS Basins Paver Cleaning and Sweeping, Woodbury											
H	Sediment Log (6-Inch Diameter)	L.F.	60	4.00	240.00		\$0.00	0	\$0.00	0	\$0.00
B	Sediment/Muck Cleanout (Tier 2 & 3 Landfill Disposal)	L.S.	1	2,000.00	2,000.00		\$0.00	0	\$0.00	0	\$0.00
I	Paver Sweeping	S.Y.	1400	2.00	2,800.00		\$0.00	0	\$0.00	0	\$0.00
C	Site Restoration (Native Seeding and Erosion Control Blanket)	S.Y.	100	4.00	400.00		\$0.00	0	\$0.00	0	\$0.00
Site 7 – Gervais Creek, Little Canada											
J	Removal of Trees, Brush, Deadfalls, and Debris (Disposal Off Site)	L.S.	1	5,000.00	5,000.00		\$0.00	0	\$0.00	0	\$0.00
B	Sediment/Muck Cleanout (Disposal at Landfill)	L.S.	1	5,000.00	5,000.00		\$0.00	0	\$0.00	0	\$0.00
C	Site and Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	650	4.00	2,600.00		\$0.00	0	\$0.00	0	\$0.00
Site 8 – Owasso Basin, Little Canada											
B	Sediment/Muck Cleanout (Disposal at Landfill)	L.S.	1	6,000.00	6,000.00		\$0.00	0	\$0.00	0	\$0.00
L	Excavate and Regrade Channel Inlet Basin (Landfill Disposal)	L.S.	1	8,000.00	8,000.00		\$0.00	0	\$0.00	0	\$0.00
M	Riprap Channel Basin and Inlet Pipe, MnDOT Class 4	Ton	14	50.00	700.00		\$0.00	0	\$0.00	0	\$0.00
C	Site and Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	300	4.00	1,200.00		\$0.00	0	\$0.00	0	\$0.00
Site 9 – Johnson Pond, Maplewood											
N	Remove and Replace Existing Guardrail for Access	L.S.	1	500.00	500.00		\$0.00	0	\$0.00	0	\$0.00
H	Cleanout Debris, Sediment/Muck From Structures and Pipe (Disposal at Landfill)	L.S.	1	4,000.00	4,000.00		\$0.00	0	\$0.00	0	\$0.00
C	Site Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	244	4.00	976.00		\$0.00	0	\$0.00	0	\$0.00
Site 10 – Maplewood Mall, Maplewood											
O	Repair Catch Basin and Sinkhole	L.S.	1	2,000.00	2,000.00		\$0.00	0	\$0.00	0	\$0.00

Capital Improvement Project Maintenance/Repairs 2018
Ramsey-Washington Metro Watershed District
Summary of Work Completed Through February 20, 2018 for Progress Payment Number 1

1.04 Item	Description	Unit	Estimated Quantity	Unit Price	Extension	(1) Total Completed Through This Period		(2) Total Completed Previous Period		(3) Total Completed This Period	
						Quantity	Amount	Quantity	Amount	Quantity	Amount
Site 11 – Battle Creek Lower Ravine Park, St. Paul											
H	Cleanout/Remove Debris from Pipe and Structures	L.S.	1	6,000.00	6,000.00		\$0.00	0	\$0.00	0	\$0.00
P	Televise and Inspect Storm Sewer Pipe (12", 15", 18" RCP)	L.F.	768	2.00	1,536.00		\$0.00	0	\$0.00	0	\$0.00
Q	Repair Manhole and Pipe with Cured-In-Place Pipe Liner	L.S.	1	4,000.00	4,000.00		\$0.00	0	\$0.00	0	\$0.00
R	Remove and Replace One (1) Trash Rack and Install Fasteners on The New Trash Rack and Two (2) Existing Trash Racks	L.S.	1	3,000.00	3,000.00		\$0.00	0	\$0.00	0	\$0.00
S	MnDOT Common Borrow 2105.1A.6 "Select Grading Material"	Ton	140	15.00	2,100.00		\$0.00	0	\$0.00	0	\$0.00
T	MnDOT 3149.2H Coarse Filter Aggregate	Ton	140	50.00	7,000.00		\$0.00	0	\$0.00	0	\$0.00
U	Topsoil Borrow	C.Y.	50	15.00	750.00		\$0.00	0	\$0.00	0	\$0.00
V	Futerra R45 HP Turf Reinforcement Mat	S.Y.	422	10.00	4,220.00		\$0.00	0	\$0.00	0	\$0.00
K	Site Restoration (Seeding and HP-FGM Hydro Mulch)	S.Y.	1125	4.00	4,500.00		\$0.00	0	\$0.00	0	\$0.00
Site 12 – Grass Lake, Shoreview											
B	(Site 12A) – Sediment/Muck and Vegetation Cleanout, Grass Lake Area (Unregulated Fill	L.S.	1	18,000.00	18,000.00	1	\$18,000.00	0	\$0.00	1	\$18,000.00
B	(Site 12B) - Sediment/Muck and Vegetation Cleanout, Wetland Triangle Area (Unregulated	L.S.	1	18,000.00	18,000.00	1	\$18,000.00	0	\$0.00	1	\$18,000.00
B	(Site 12C) - Sediment/Muck and Vegetation Cleanout, West Vadnais Lake Channel	L.S.	1	18,000.00	18,000.00		\$0.00	0	\$0.00	0	\$0.00
X	Remove and Replace Bituminous Trail	S.Y.	26	50.00	1,300.00		\$0.00	0	\$0.00	0	\$0.00
X	Remove and Replace Bituminous Roadway	S.Y.	80	88.00	7,040.00		\$0.00	0	\$0.00	0	\$0.00
Y	Remove Existing 12" CPEP	L.F.	60	15.00	900.00		\$0.00	0	\$0.00	0	\$0.00
Y	Remove existing 15" RC Pipe Apron	Each	1	200.00	200.00		\$0.00	0	\$0.00	0	\$0.00
Z	RC Transition Pipe Reducer	Each	2	1,500.00	3,000.00		\$0.00	0	\$0.00	0	\$0.00
AA	24" RC Pipe Apron and Trash Rack	Each	1	3,500.00	3,500.00		\$0.00	0	\$0.00	0	\$0.00
AB	44" Span RC Pipe Arch	L.F.	312	90.00	28,080.00		\$0.00	0	\$0.00	0	\$0.00
AC	44" Span RC Pipe Arch Apron	Each	6	2,000.00	12,000.00		\$0.00	0	\$0.00	0	\$0.00
M	Random Riprap Class III Fieldstone with Type 4 Filter Fabric	Ton	159	90.00	14,310.00		\$0.00	0	\$0.00	0	\$0.00
C	Site restoration (Seeding and Erosion Control Blanket)	S.Y.	3200	4.00	12,800.00		\$0.00	0	\$0.00	0	\$0.00
Site 12 - Sylvan Pond Sediment Cleanout											

Total of Extensions = \$ 277,822.00 \$36,000.00 \$0.00 \$36,000.00

Galowitz Olson, PLLC
10390 39th Street North
Lake Elmo, Minnesota 55042
Office: (651) 777-6960
Fax: (651) 777-8937

Ramsey-Washington Metro Watershed District
C/O Tina Carstens
2665 Noel Drive
Little Canada MN 55117

Page: 1
February 21, 2018
File No: 9M

	Balance
General Account	\$260.00
RWMWD BID SOLICITATION	\$94.76
2017 CIP	-\$240.00
Grass Lake Emergency Project	\$500.00
Website Privacy Policy Review	\$170.00
Frost/Kennard	\$540.00
	<u>\$1,324.76</u>

* * * * *

Permit Program

* * * * *

Permit Application Coversheet

Date March 07, 2018

Project Name 3M North Parking Lot/11th Street

Project Number 18-05

Applicant Name Mary Carlson-Lenzmeier, 3M Company

Type of Development Mixed Use

Property Description

This project is located at 3M Road & 11th Street on the 3M campus in the City of Maplewood. The applicant is proposing to reconstruct 11th St and portions of Innovation Boulevard. In addition, a parking lot will be constructed on the southwest corner of 3M Rd & 11th St. Volume reduction will be partially achieved through construction of an underground infiltration system. Pretreatment will include sumped manholes, baffles, and an isolator row within the chamber system. The applicant is planning to utilize 6,120 cubic feet in banked volume reduction credits from previously permitted projects (#16-27, #17-07). The proposed project decreases the amount of impervious area, so rate control requirements are met. A parking ramp planned for demolition currently sits in the location of the proposed infiltration system, thus soil borings could not be completed in advance. The applicant will conduct soil borings during construction when site conditions permit and submit the results to District staff. In case of poor soils, the applicant has submitted Alternate Bid 1 that includes design for two underground filtration systems to meet District rules.

Watershed District Policies or Standards Involved:

- | | |
|------------------------------------------------------------------|-------------------------------------------------------------------------|
| <input type="checkbox"/> Wetlands | <input checked="" type="checkbox"/> Erosion and Sediment Control |
| <input checked="" type="checkbox"/> Stormwater Management | <input type="checkbox"/> Floodplain |

Water Quantity Considerations

The proposed stormwater management plan is sufficient to handle the runoff from this site.

Water Quality Considerations

Short Term

The proposed erosion and sediment control plan is sufficient to protect downstream water resources during construction.

Long Term

The proposed stormwater management plan is sufficient to protect the long term quality of downstream water resources.

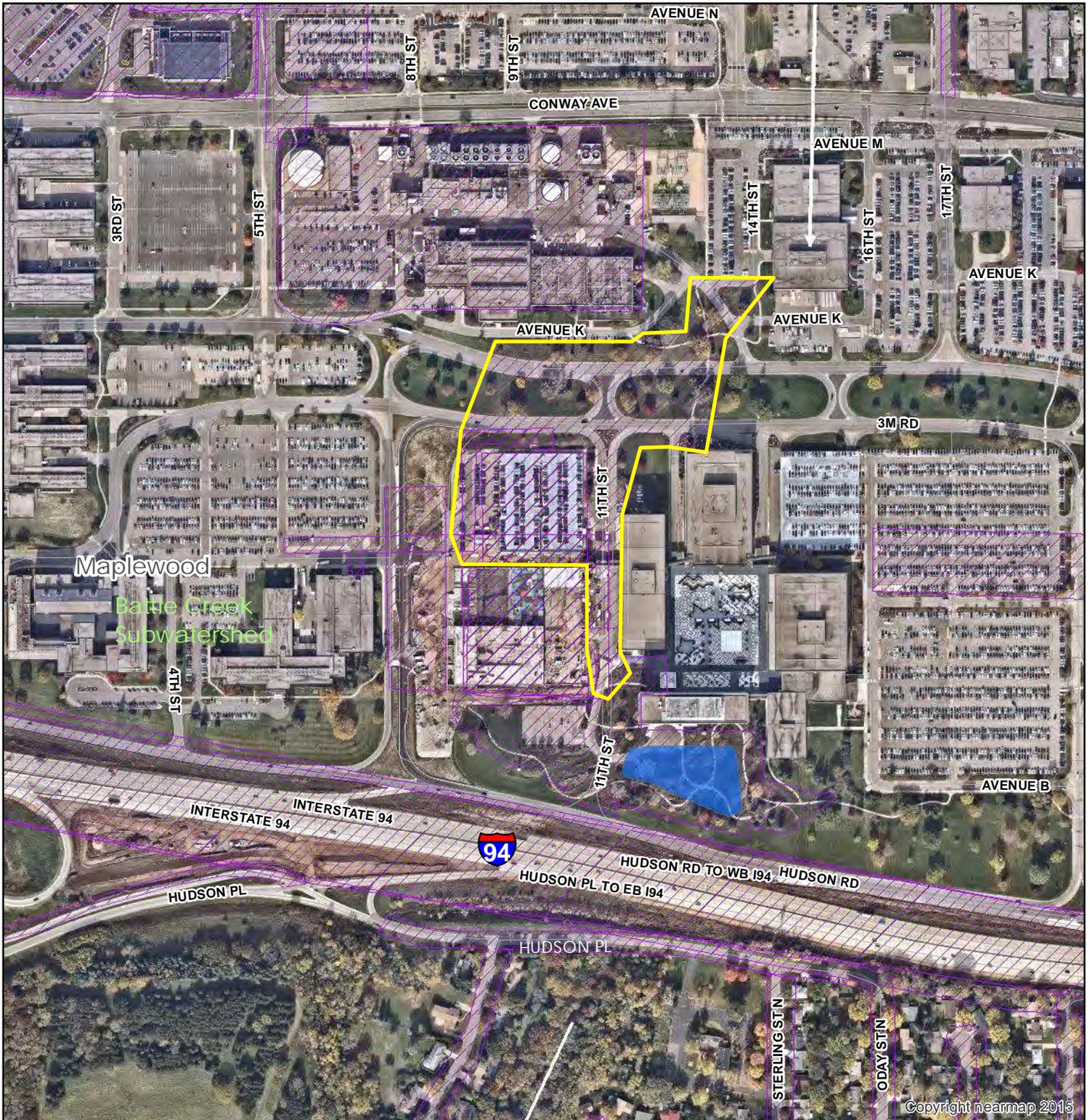
Staff Recommendation

Staff recommends approval of this permit with the special provisions.

Attachments:

- Project Location Map**
- Project Grading Plan**

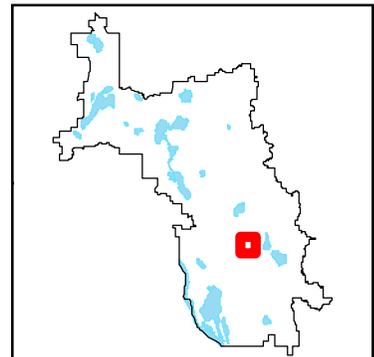
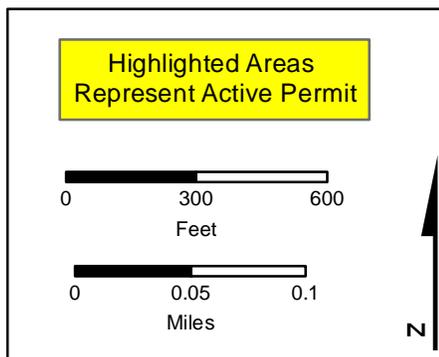
#18-05 3M North Parking Lot/11th Street



Wetlands

■	Manage A
■	Manage B
■	Manage C
■	Lake
■	Sediment Pond
■	Not Assessed

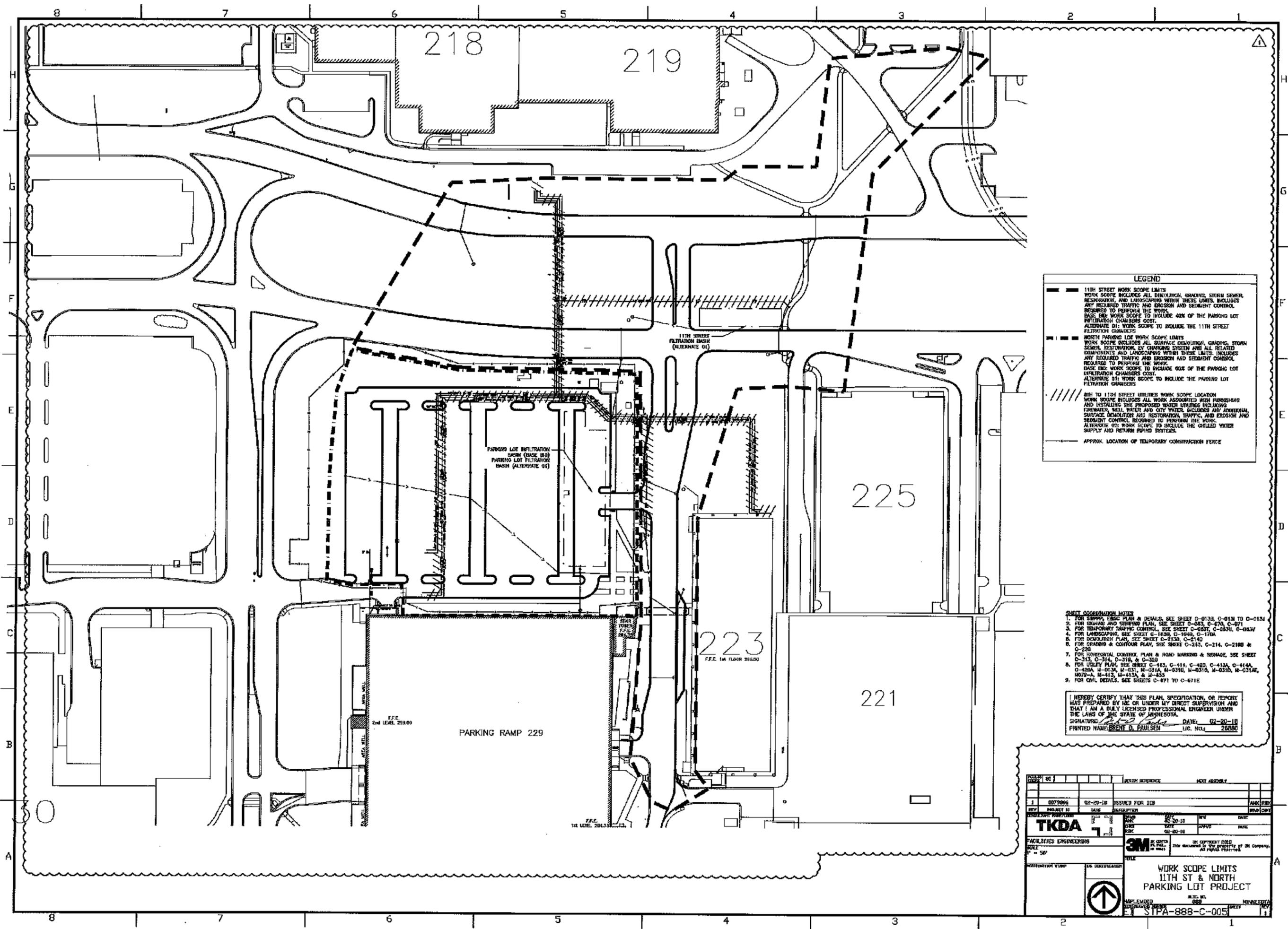
	RWMWD Boundary
	Flow Arrows
	Major Flow Arrows
	Subwatersheds
	Creeks
	Permits
	City Boundaries



18-05

Special Provisions

1. The applicant shall submit the escrow fee of \$56,500.
2. The applicant shall submit a final, signed copy of the construction plans.
3. The applicant shall submit an executed joint maintenance agreement with the City of Maplewood.
4. The applicant shall provide contact information for the trained erosion control coordinator responsible for implementing the Stormwater Pollution Prevention Plan (SWPPP).
5. The applicant shall submit a copy of the approved Minnesota Pollution Control Agency's NPDES Phase 2 Construction Permit.



LEGEND

- 11TH STREET WORK SCOPE LIMITS
WORK SCOPE INCLUDES ALL DEMOLITION, GRADING, STORM SEWER, RESURFACING, AND LANDSCAPING WITHIN THESE LIMITS. INCLUDES ANY REQUIRED TRAFFIC AND EROSION AND SEDIMENT CONTROL REQUIRED TO PERFORM THE WORK.
BASE BID WORK SCOPE TO INCLUDE 40% OF THE PARKING LOT INFILTRATION CHAMBERS COST.
ALTERNATE 01: WORK SCOPE TO INCLUDE THE 11TH STREET INFILTRATION CHAMBERS
- NORTH PARKING LOT WORK SCOPE LIMITS
WORK SCOPE INCLUDES ALL SURFACE DEMOLITION, GRADING, STORM SEWER, RESTORATION, STORM SEWER SYSTEM AND ALL RELATED COMPONENTS AND LANDSCAPING WITHIN THESE LIMITS. INCLUDES ANY REQUIRED TRAFFIC AND EROSION AND SEDIMENT CONTROL REQUIRED TO PERFORM THE WORK.
BASE BID WORK SCOPE TO INCLUDE 40% OF THE PARKING LOT INFILTRATION CHAMBERS COST.
ALTERNATE 01: WORK SCOPE TO INCLUDE THE PARKING LOT INFILTRATION CHAMBERS
- 8TH TO 11TH STREET UTILITIES WORK SCOPE LOCATION
WORK SCOPE INCLUDES ALL WORK ASSOCIATED WITH FURROWSHED AND INSTALLING THE PROPOSED WATER UTILITIES INCLUDING FIREWATER, WELL WATER AND CITY WATER. INCLUDES ANY ADDITIONAL SURFACE DEMOLITION AND RESTORATION, TRAFFIC, AND EROSION AND SEDIMENT CONTROL REQUIRED TO PERFORM THE WORK.
ALTERNATE 02: WORK SCOPE TO INCLUDE THE CHILLED WATER SUPPLY AND RETURN PIPING SYSTEMS.
- APPROX. LOCATION OF TEMPORARY CONSTRUCTION FENCE

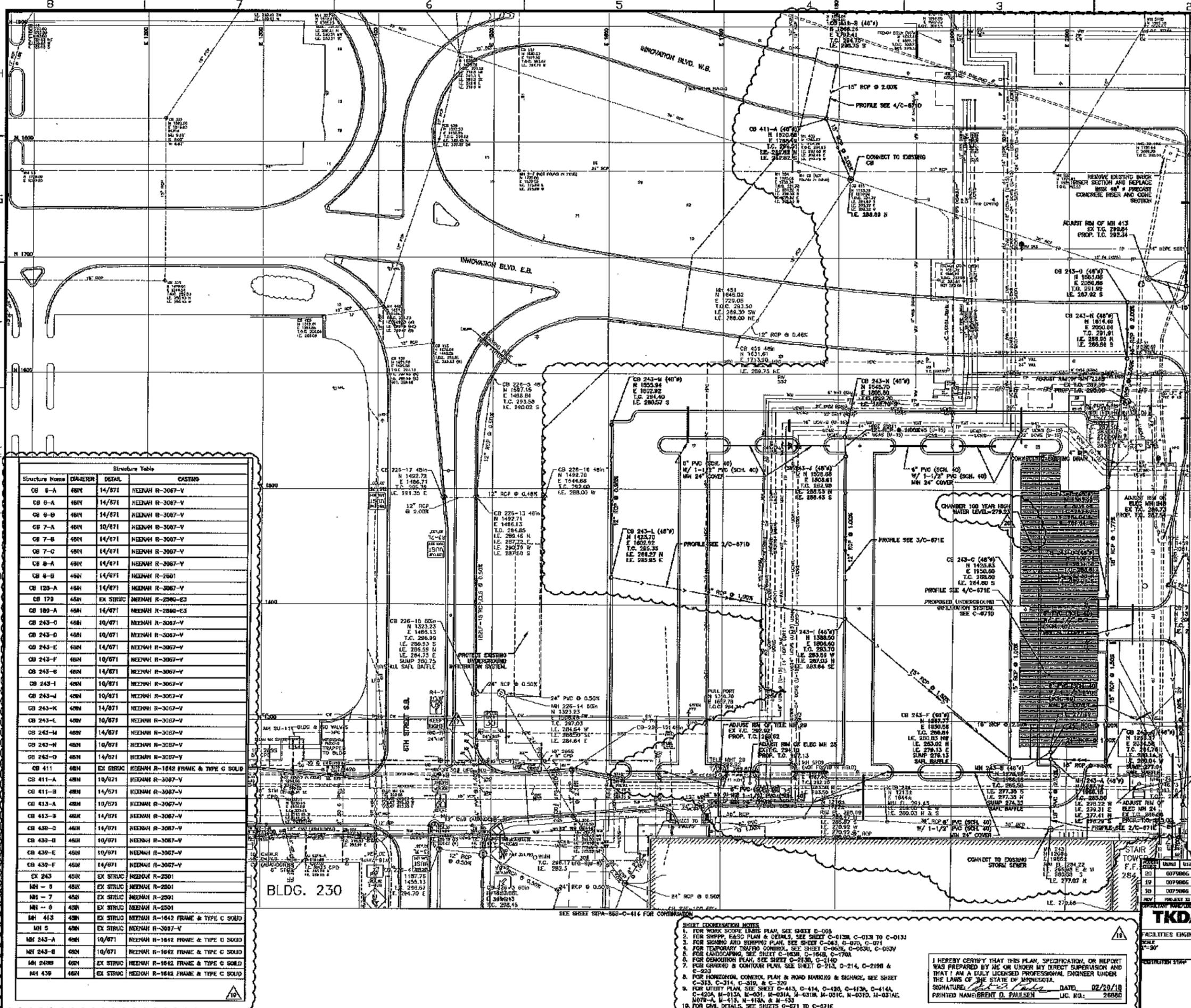
- SHEET COORDINATION NOTES**
1. FOR SWPPP, EROSION PLAN & DETAILS, SEE SHEET C-0138, C-0139, C-013A TO C-013M
 2. FOR SIGNAGE AND SIGNING PLAN, SEE SHEET C-083, C-070, C-071
 3. FOR TEMPORARY TRAFFIC CONTROL, SEE SHEET C-080T, C-080U, C-080V
 4. FOR LANDSCAPING, SEE SHEET C-100S, C-100A, C-100B
 5. FOR DEMOLITION PLAN, SEE SHEET C-2130, C-2140
 6. FOR GRADING & CONTOUR PLAN, SEE SHEET C-213, C-214, C-2100 & C-210
 7. FOR HORIZONTAL CONTROL PLAN & ROAD MARKING & SIGNAGE, SEE SHEET C-313, C-314, C-315, & C-320
 8. FOR UTILITY PLAN, SEE SHEET C-413, C-414, C-415, C-416, C-417A, C-417B, C-420A, M-013A, M-031, M-031A, M-031B, M-031C, M-031D, M-031E, M-031F, M-031G, M-031H, & M-031I
 9. FOR CIVIL DETAILS, SEE SHEETS C-071 TO C-071E

HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 SIGNATURE: *Brent D. Paulsen* DATE: 02-20-18
 PRINTED NAME: BRENT D. PAULSEN LIC. NO.: 26880

NO.	DATE	DESCRIPTION	BY	CHKD	DATE
1	02-20-18	ISSUED FOR BID			

FACILITIES ENGINEERING 50'	3M CERTIFIED THIS DOCUMENT IS THE PROPERTY OF 3M COMPANY. ALL RIGHTS RESERVED.

	WORK SCOPE LIMITS 11TH ST & NORTH PARKING LOT PROJECT
PROJECT NO. STPA-888-C-005	SHEET NO. 005



- CONSTRUCTION NOTES**
1. PRIOR TO ANY EXCAVATION, CONTACT OWNER STATE ONE CALL FOR PUBLIC UTILITY LOCATES AND COORDINATE WITH OWNER'S DESIGNATED REP FOR PRIVATE UTILITY LOCATES.
 2. ALL UTILITIES NOT SHOWN FOR REMOVAL OR ABANDONMENT SHALL REMAIN IN SERVICE THROUGHOUT CONSTRUCTION. PROTECT IN PLACE.
 3. PROVIDE TEMPORARY BYPASS PUMPING AS NECESSARY TO ENSURE CONTINUED SERVICE DURING CONSTRUCTION.
 4. COORDINATE WITH OWNER FOR TEMPORARY SHUT OFFS.
 5. FOR STORM SEWER STRUCTURE DETAIL SEE 10/971.
 6. UNDERGROUND INFILTRATION SYSTEM SHALL REMAIN OFFLINE UNTIL TERTIARY AREA HAS BEEN PERMANENTLY STABILIZED. FURNISH, INSTALL AND MAINTAIN SCREENS CONTINUOUSLY AROUND THE PERIMETER AND AT ALL INLETS.
 7. NOTIFY WATERSHED DISTRICT STAFF A MINIMUM OF 48 HOURS BEFORE CONSTRUCTION OF THE UNDERGROUND INFILTRATION SYSTEM.
 8. CONTRACTOR SHALL CONTACT THE CIVIL ENGINEER ONCE THE CHAMBER SURFACE HAS BEEN EXPOSED. CONTRACTOR SHALL COORDINATE A VISUAL INSPECTION OF THE CHAMBER PRIOR TO PLACING ROCK, CHAMBERS OR CONCRETE PAD.
- BASE BID SEWER**
- THE BASE BID STORM SEWER AND CHAMBERS INCLUDES STORM SEWER AND ONE SURFACE CHAMBER THE NORTH PARKING LOT. SEE SHEETS C-413, C-414, C-415, C-416, C-417, C-418 AND C-419. CH 438 AND ATTACHED STORM SEWER SHALL REMAIN IN PLACE.
- NO ALTERNATE OF SEWER**
- NO ALTERNATE OF SEWER INCLUDES TWO FILTRATION CHAMBERS THE NORTH PARKING LOT AND 11TH STREET. SEE SHEETS C-413-A, C-414-A, C-415-A, AND C-417-A. CH 439 AND A PORTION OF THE ATTACHED STORM SEWER WILL BE REMOVED. SEE SHEET C-210.

LEGEND:

- APPROXIMATE CONSTRUCTION LIMITS
- - - EXISTING STORM SEWER
- PROPOSED STORM SEWER

Structure Name	DIAMETER	DETAIL	CASTING
CB 8-A	48IN	14/97E	HEENAH R-3067-V
CB 8-A	48IN	14/97E	HEENAH R-3067-V
CB 9-B	48IN	14/97I	HEENAH R-3067-V
CB 7-A	48IN	10/97I	HEENAH R-3067-V
CB 7-B	48IN	14/97I	HEENAH R-3067-V
CB 7-C	48IN	14/97I	HEENAH R-3067-V
CB 8-A	48IN	14/97I	HEENAH R-3067-V
CB 8-B	48IN	14/97I	HEENAH R-3067-V
CB 120-A	48IN	14/97I	HEENAH R-3067-V
CB 170	48IN	EX STRUC	HEENAH R-2590-E3
CB 180-A	48IN	14/97I	HEENAH R-2590-E3
CB 243-C	48IN	10/97I	HEENAH R-3067-V
CB 243-D	48IN	10/97I	HEENAH R-3067-V
CB 243-E	48IN	14/97I	HEENAH R-3067-V
CB 243-F	48IN	10/97I	HEENAH R-3067-V
CB 243-G	48IN	14/97I	HEENAH R-3067-V
CB 243-I	48IN	10/97I	HEENAH R-3067-V
CB 243-J	48IN	10/97I	HEENAH R-3067-V
CB 243-K	48IN	14/97I	HEENAH R-3067-V
CB 243-L	48IN	10/97I	HEENAH R-3067-V
CB 243-M	48IN	14/97I	HEENAH R-3067-V
CB 243-N	48IN	10/97I	HEENAH R-3067-V
CB 243-O	48IN	14/97I	HEENAH R-3067-V
CB 411	48IN	EX STRUC	HEENAH R-1642 FRAME & TYPE G SOLID
CB 411-A	48IN	10/97I	HEENAH R-3067-V
CB 411-B	48IN	14/97I	HEENAH R-3067-V
CB 413-A	48IN	10/97I	HEENAH R-3067-V
CB 413-B	48IN	14/97I	HEENAH R-3067-V
CB 430-C	48IN	14/97I	HEENAH R-3067-V
CB 430-D	48IN	10/97I	HEENAH R-3067-V
CB 430-E	48IN	10/97I	HEENAH R-3067-V
CB 430-F	48IN	14/97I	HEENAH R-3067-V
EX 243	48IN	EX STRUC	HEENAH R-2591
MH - 5	48IN	EX STRUC	HEENAH R-2591
MH - 7	48IN	EX STRUC	HEENAH R-2591
MH - 8	48IN	EX STRUC	HEENAH R-2591
MH 413	48IN	EX STRUC	HEENAH R-1642 FRAME & TYPE C SOLID
MH 5	48IN	EX STRUC	HEENAH R-3067-V
MH 243-A	48IN	10/97I	HEENAH R-1642 FRAME & TYPE D SOLID
MH 243-B	48IN	10/97I	HEENAH R-1642 FRAME & TYPE C SOLID
MH 2499	48IN	EX STRUC	HEENAH R-1642 FRAME & TYPE C SOLID
MH 439	48IN	EX STRUC	HEENAH R-1642 FRAME & TYPE C SOLID

BLDG. 230

- SHEET COORDINATION NOTES**
1. FOR WORK SCOPE LIMITS PLAN, SEE SHEET C-008
 2. FOR SWPPP, EASC PLAN & DETAILS, SEE SHEET C-012R, C-013N, C-013A
 3. FOR SIGNING AND PERMITTING PLAN, SEE SHEET C-041, C-070, C-071
 4. FOR TEMPORARY TRAFFIC CONTROL, SEE SHEET C-063E, C-063A, C-063V
 5. FOR LANDSCAPING, SEE SHEET C-160B, C-160A, C-170A
 6. FOR DISMOUNT PLAN, SEE SHEET C-210, C-210D
 7. FOR GRADING & CONTOUR PLAN, SEE SHEET C-210, C-214, C-218E & C-220
 8. FOR HORIZONTAL CONTROL PLAN & ROAD MARKING & SIGNAGE, SEE SHEET C-313, C-314, C-319, & C-320
 9. FOR UTILITY PLAN, SEE SHEET C-413, C-414, C-430, C-413A, C-414A, C-415A, C-416A, C-417A, C-418A, C-419A, M-031R, M-031C, M-031D, M-031E, M-031F, M-031G, M-031H, M-031I, M-031J, M-031K, M-031L, M-031M, M-031N, M-031O, M-031P, M-031Q, M-031R, M-031S, M-031T, M-031U, M-031V, M-031W, M-031X, M-031Y, M-031Z
 10. FOR CIVIL DETAILS, SEE SHEETS C-071 TO C-071E

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

SIGNATURE: *Robert D. Paulsen* DATE: 02/20/19
 PRINTED NAME: ROBERT D. PAULSEN LIC. NO.: 26880

TKDA 7.1

FACILITIES ENGINEERING

SCALE: 1"=30'

CONSTRUCTION STAFF

NO.	ISSUE	DATE	DESCRIPTION	BY	CHKD.
01	ISSUE	02-27-19	BULLETIN #1	RPV	AWH
02	ISSUE	02-28-19	ISSUE FOR BID	RPV	AWH
03	ISSUE	02-17-17	ISSUES FOR WATERSHED REVIEW	RPV	B.J.

SEWER PLAN
 11TH ST & NORTH
 PARKING LOT PROJECT

DATE: 02/20/19
 SHEET: S1PA-888-C-413



RAMSEY-WASHINGTON

METRO WATERSHED DISTRICT

MEMORANDUM

Date: March 7, 2018
To: Board of Managers and Staff
From: Nicole Soderholm, Permit Coordinator
Subject: February Enforcement Action Report

During February 2018:

Number of Violations: 0

Ongoing Activities:

Erosion/sediment control inspections have been sporadic due to winter conditions and a decrease in construction activity. Staff assisted engineers, local government, and developers with permitting and completed monthly permit review with Barr Engineering. Staff responded to inquiries on projects in the District and assisted applicants and city staff with Wetland Conservation Act (WCA) administration/procedures. Staff attended a DNR-sponsored training on FEMA floodplain mapping, and information is being compiled to complete the 2017 Annual MS4 Report to be submitted to the MPCA by June.

Project Updates:

Permit #15-23 Woodbury High School Parking Lot Improvements

District staff sent a second invoice to South Washington County Schools. During a permitted parking lot reconstruction in 2015, the applicant failed to construct a stormwater treatment BMP as required by the permit approval. Due to budgetary restrictions and poor soils on the site, the applicant has requested to pay \$168,400 into the Stormwater Impact Fund over a period of 5 years. The first payment was received in February 2017. The permit will remain open until the Stormwater Impact Fund payment is received in full in the year 2021.

Permits Closed in February 2018:

None

* * * * *

Stewardship Grant Program

* * * * *

BMP Incentive Application Summary

Project Name: Caulfield

Application Number: 18-02 CS

Board Meeting Date:

Applicant Name: Rebecca Caulfield

Residential

Commercial/Government

Project Overview:

This project is located just west of Bennett Lake off Lexington Avenue and Oakcrest Avenue in the City of Roseville. The applicant is proposing to install a curb cut rain garden in their front yard. The rain garden will capture and filter street runoff before it drains to Bennett Lake.

This project is eligible for 75% coverage up to \$15,000.

BMP type(s):

Rain Garden(1)

Grant Request:

\$5,000.00

Recommendation:

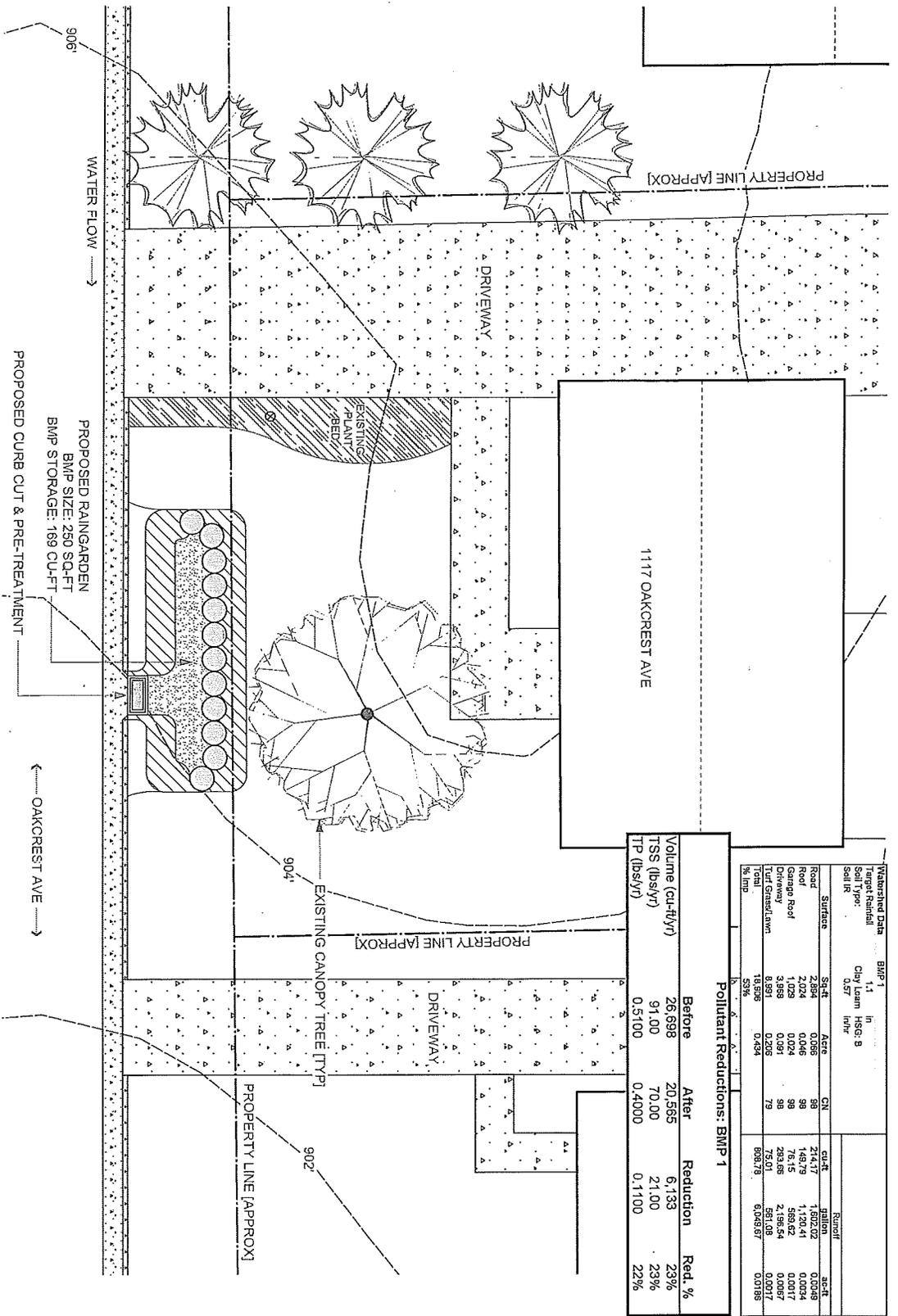
Staff recommends approval of this application.

Subwatershed:

Bennett Lake

Location Maps:





NOTE:
 1. CONTRACTOR MUST ACQUIRE A RIGHT-OF-WAY PERMIT WITH CITY OF ROSEVILLE
 2. PRIVATE RETAINING WALL OWNED AND MAINTAINED BY PROPERTY OWNER

Watershed Data		BMP 1		HSG: 8		Runoff	
Surface	Sq-ft	Acres	CN	cu-ft	gallon	ac-ft	
Road	2,894	0.066	98	214.17	1,602.02	0.0048	
Roof	2,024	0.046	98	148.79	1,124.41	0.0034	
Driveway	3,958	0.091	98	293.85	2,196.54	0.0067	
Total Grass/Lawn	18,936	0.434	79	15,011	561.08	0.0017	
Total				8,687.9	6,049.87	0.0188	
% Imp		53%				0.0188	

Pollutant Reductions: BMP 1			
	Before	After	Reduction
Volume (cu-ft/yr)	26,698	20,585	6,113
TSS (lbs/yr)	91.00	70.00	21.00
TP (lbs/yr)	0.5100	0.4000	0.1100
			23%
			23%
			22%

Ramsey
 Conservation District
 RAMSEY CONSERVATION DISTRICT
 1425 PAUL KIRKWOOD DR
 ARDEN HILLS, MN 55112
 651-266-7274
www.ramseyconservation.org

PROJECT: CAUHFELD RESIDENCE
 LOCATION:
 1117 OAKCREST AVE
 ROSEVILLE, MN 55113
 WATERSHED DISTRICT:

DESIGNER: MPS
 DATE: 09/12/17
 REVISION:
 REVISION:
 REVISION:
 REVISION:
 REVISION:
 CHECKED BY:
 TAA:

NOTES:
 CONTRACTOR MUST ACQUIRE
 RIGHT-OF-WAY PERMIT WITH CITY OF
 ROSEVILLE
 UTILITIES WITHIN OR NEAR
 CONSTRUCTION AREA SHALL BE
 POTHOLED TO FIND EXACT LOCATION
 TRACK EQUIPMENT ONLY WITHIN
 PROJECT AREA.

11" x 11" SHEET SIZE
 SCALE: 1"=100'

L1.1

SITE PLAN

Stewardship Grant Program Budget Status Update

March 7, 2018

Homeowner	Coverage	Number of Projects	Funds Allocated
Habitat Restoration and rain garden w/o hard surface drainage	50% Cost Share \$15,000 Max	0	\$0
Rain garden w/hard surface drainage, pervious pavement, green roof	75% Cost Share \$15,000 Max	0	\$0
Shoreland Restoration (below 100-year flood elevation w/actively eroding banks)	100% Cost Share \$15,000 Max	0	\$0

Commercial, School, Government, Church, Associations, etc.	Coverage	Number of Projects	Funds Allocated
Habitat Restoration	50% Cost Share \$15,000 Max	1	\$230
Shoreland Restoration (below 100-year flood elevation w/actively eroding banks)	100% Cost Share \$100,000 Max	0	\$0
PRIORITY AREAS:	100% Cost Share \$100,000 Max	0	\$0
NON-PRIORITY AREAS:	75% Cost Share \$50,000 Max	0	\$0
Maintenance	50% Cost Share \$5,000 Max for 5 Years	1	\$500
Consultant Fees			\$12,572
Total Allocated			\$13,302

2018 Stewardship Grant Program Budget	
Budget	\$800,000.00
Total Funds Allocated	\$13,302.00
Total Available Funds	\$786,698.00

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Administrator's Report

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MEMO

TO: Board of Managers and Staff
FROM: Tina Carstens, Administrator
SUBJECT: March Administrator's Report
DATE: February 28, 2018

A. Meetings Attended

Wednesday, February 7	6:30 PM	Board Meeting
Thursday, February 8	8:00 AM	Water Resources Conference Planning
February 12-16	VARIOUS	Staff Performance Reviews
Tuesday, February 13	1:30 PM	Auto Monitoring Stations Meeting
Thursday, February 15	9:30 AM	Washington County CWF Meeting
Wednesday, February 21	9:00 AM	Metro-Inet Meeting
Thursday, February 22	1:30 PM	Ramsey County CWF Meeting
Monday, February 26	12:30 PM	New Board Member Orientation
Tuesday, February 27	9:30 AM	4M Fund Investment Meeting
Tuesday, February 27	11:00 AM	Administrator Meeting

B. Upcoming Meetings and Dates

Metro MAWD Meeting	Tuesday, April 17, 2018
CAC Meeting	Tuesday, April 24
WaterFest	Saturday, June 2
MAWD Summer Tour	June 20-21, 2018

C. Website Update

Promotion: Our new website launched on Feb. 13, initially promoted only to the Board, staff and our Citizen Advisory Committee. A week later, on Feb. 20, we began promoting the site publicly on social media (Facebook, Twitter, LinkedIn, Instagram) and in an email to partner organizations including other watershed districts, state agencies and city governments. Our Facebook video showing the "homepage makeover" was boosted to target people who currently like our page and their friends, and it has been viewed nearly 600 times as of Feb. 26. In the coming weeks, we plan use social media to promote specific pages on the new site – Stewardship Grants, WaterFest and Watershed Map to start with. These posts will be boosted to target a broader audience throughout the metro area.

Feedback: Response to the new site has been overwhelmingly positive. We have received multiple messages from partner organizations commending the new look and ease of navigation. We have made some minor layout changes based on suggestions from staff, and we are looking into a suggestion from the Citizen Advisory Committee to include more water quality data/current reports into the site.

Next steps: We have several new projects that will be added to the Explore section of the site. These include the Kennard/Frost Stormwater Filter, Willow Pond CMAC, Grass Lake Berm and several Legacy Amendment-funded rain gardens. In addition, we are meeting with a consultant March 13 to discuss potential ways to incorporate multi-lingual text into the site.

D. Watershed Based Funding Pilot Program

As we talked about last month, I am meeting with watershed and county representatives from both Ramsey and Washington counties to discuss the disbursement of funds for this pilot program. I have attached a number of information sheets for your review. You can also find more information here: <http://www.bwsr.state.mn.us/cleanwaterfund/>

In Ramsey County, the watershed organizations have met and discussed the possibility of disbursing the money based on land area of each watershed in the county. Ramsey County has been designated \$442,000 from the state. A convening meeting is being held on March 14th to discuss and make decision on the disbursement. Because cities are also eligible for the funding, an invite was sent from the Ramsey Conservation District to all of our cities.

In Washington County, similar discussions are happening. I have been meeting with the Washington County watershed representatives as well as the county staff. In Washington County, the county itself is also eligible for funds because they have an approved groundwater plan. The disbursement discussions have also discussed watershed area within the county, population, tax value, percent of water bodies in the districts, and impaired waters. In any case for Washington County, our piece will be small as we only have about 2.7% of the land area in Washington County. BWSR has said though that water disbursed in one county could be used in another if the collective watersheds agree. The convening meeting for Washington County is March 7th.

I will report back after the convening meeting have been held and a potential disbursement plan is in place for both counties. We will then have to designate projects to apply these grants funds towards. Each entity that received funds is required to enter into a grant agreement with BWSR and develop a work plan and budget for the designated project. Grant reporting will also be required as is standard for grant funds from the state. These funds are for both 2018-2019. The pilot program will then be evaluated before the next biennial funding cycle.

Watershed-based Funding: Overall vision



The Board of Water and Soil Resources (BWSR) is moving towards providing more systematic Clean Water Funding for local water management authorities on a watershed basis. The watershed-based funding model is intended to provide local governments throughout Minnesota with efficient, transparent and stable funding.

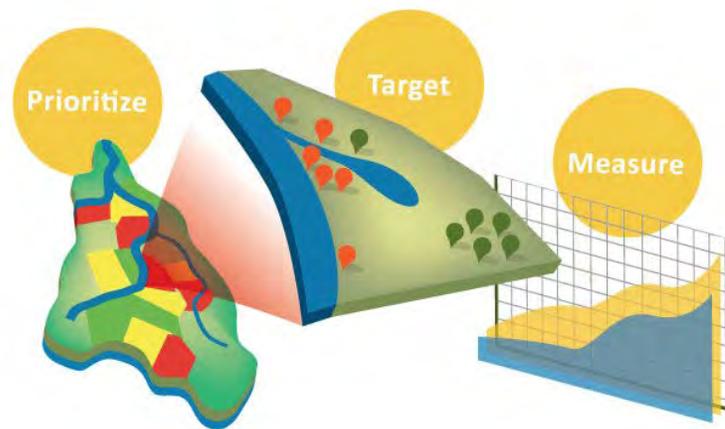
To achieve this, BWSR envisions transitioning from project by project competitive grants to a coordinated watershed funding approach designed to increase water management outcomes, enhance accountability, and improve consistency and efficiency across the state.

This approach will depend on comprehensive watershed management plans developed under the One Watershed, One Plan Program or the Metropolitan Surface Water Management Act to provide assurance that actions are prioritized, targeted, and measurable.

The efficiencies created by this change will benefit both organizations and landowners by streamlining processes, which will allow more projects to be implemented in a timely manner and ensure limited resources are spent where they are needed most.

Watershed-based funding may also provide greater opportunities for local governments to leverage federal and private funding.

The concept of watershed-based funding grew out of the Local Government Water Round table 2016 Fund Policy Paper and is grounded in the Minnesota Water Management Framework, a systematic watershed approach to water management that is now well under way across Minnesota.



Prioritized, targeted and measurable implementation are the goals of One Watershed, One plan and Watershed-based funding.

If you have questions about how watershed-based funding affects your organization, please contact

Marcey Westrick at marcey.westrick@state.mn.us or (651) 284-4153

Watershed-based Funding: Pilot program

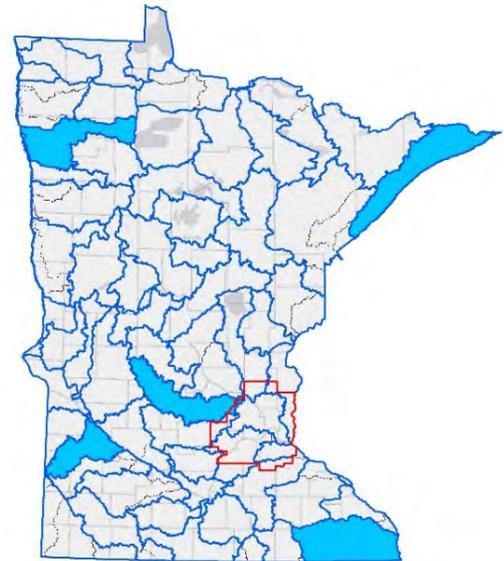
Background



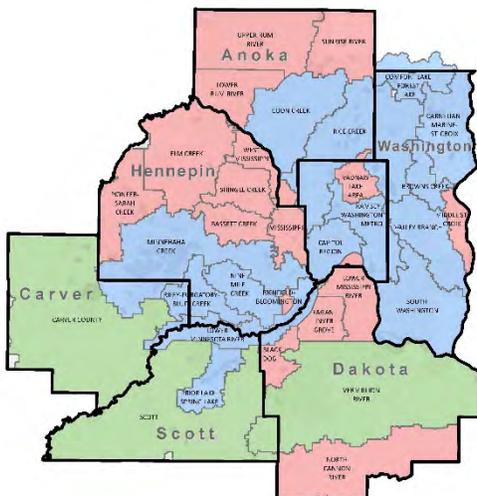
In 2017, the Board of Water and Soil Resources (BWSR), in partnership with the Local Government Water Round Table, began working with local governments across the state to develop a watershed-based funding pilot program.

In this pilot phase, funding is being distributed to watershed areas that have completed watershed management plans under the One Watershed, One Plan Program, the Metropolitan Surface Water Management Act or the Metropolitan Groundwater Management Act to implement activities identified in these plans.

The pilot areas include: Yellow Medicine, Root River, Red Lake River, Lake Superior North, the North Fork Crow River and the Seven County Metropolitan Area.



Watershed-based funding pilot area in blue. metro area in red.



Metro water management authorities.

For this program to be successful, both the state and local governments must be proactive in ensuring that watershed-based pilot funding is used as effectively and efficiently as possible to achieve measurable outcomes identified in watershed management plans.

Assurance measures

A component of the pilot program is evaluating a set of preliminary assurance measures in partnership with participating local governments to understand the results of watershed-based funding.

The information gathered through the pilot will be used by BWSR to further define how assurance measures will be applied in future program decisions.

What's next?

The pilot program started December 2017 and will continue through December 2021. During this time BWSR will work closely with the local government units participating in the pilot program to develop a long term coordinated funding approach and address challenges with preliminary assurance measures.

What will we measure?

- Did the effort leverage outside funds?
- Is the grant work plan being implemented as written?
- Are priority programs being implemented?
- Are practices being implemented in the priority areas identified in the plan?
- Are watershed goals and outcomes being achieved?

If you have questions about how watershed-based funding affects your organization, please contact

Marcey Westrick at marcey.westrick@state.mn.us or (651) 284-4153

Guiding Principles

Watershed-based Funding Pilot Program

Vision

BWSR's vision is to move towards more systematic Clean Water Funding for local water management (LWM) authorities on a watershed basis. This funding approach will result in greater efficiency and effectiveness for both LWM authorities and the state and is critical for Minnesota to reach its clean water goals. This funding model could also serve as a future framework for broadening funding to include other state funding sources associated with supporting LWM activities.



Purpose

The purpose of this document is to further outline this vision by providing the guiding principles that will direct and influence future policies and procedures for Clean Water Funds appropriated to the Board of Water and Soil Resources for the purposes of implementing comprehensive watershed management plans. Eligible watersheds are defined as those areas that have watershed management plans developed under the One Watershed, One Plan Program or the Metropolitan Surface Water Management Act.

- **Watershed-based funding will be used to implement activities identified in comprehensive watershed management plans developed under the One Watershed, One Plan program, the Metropolitan Surface Water Management Act, or the Metropolitan Groundwater Management Act.** These plans focus on results and an evidence-based decision-making process. Plans contain implementation timelines, milestones, and cost estimates that address the largest pollution threats and provide the greatest environmental benefits to each watershed.
- **Watershed-based funding must be based upon accountability and performance in achieving measurable progress towards elements of the comprehensive watershed management plan.** Requests for funding must include transparent standards of accountability and performance criteria to objectively evaluate and prioritize funding based on outcomes.
- **Watershed-based funding will be consistent with the Nonpoint Priority Funding Plan (NPPF).** Leadership from State agencies tasked with protection and restoration of Minnesota's water resources came together and agreed on a set of high-level State priorities and criteria to ensure Clean Water Funds are used effectively and efficiently. BWSR must allocate funding according to the priorities and criteria identified in the NPPF when Clean Water Funds are the source of funding.
- **Watershed-based funding envisions a holistic and flexible approach that includes both protection and restoration.** Recognizing that the level of government closest to the ground can best understand resource management needs and implement effective strategies, funding should not be strictly prescribed to a limited number of conservation practices but should allow the flexibility needed by local

water management authorities to address watershed-specific priorities identified in comprehensive watershed management plans consistent with the requirements of the available funding source(s).

- **Watershed-based funding envisions funding requests through a single watershed based work plan.** LWM authorities, as provided in their formal implementation agreement, submit a commitment to collaboratively pursue priority projects and, as identified within the implementation schedule of their approved comprehensive watershed management plans.
- **Watershed-based funding will require a non-state contribution.** A non-state match will be required from LWM authorities in order to have access to this state funding.

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Project and Program Status Reports

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Memorandum

To: Ramsey-Washington Metro Watershed District (RWMWD) board of managers and staff
From: Lulu Fang, Tyler Olsen, Kevin Menken, Bryan Oakley, Matt Metzger, Erin Anderson Wenz, and Brad Lindaman
Subject: Snail Lake overflow/Grass Lake optimization feasibility study, phase II(b), West Vadnais Lake to East Vadnais Lake water-quality treatment study
Date: March 2, 2018 **DRAFT**

Project team

RWMWD: Project manager: Tina Carstens
Barr: Principal in charge: Brad Lindaman, PE
Project manager: Brian LeMon, PE
Project team: Erin Anderson Wenz, PE; Lulu Fang; Tyler Olsen; Kevin Menken; Bryan Oakley, PE; Matt Metzger, PE

Scope of work

The purpose of this study is to screen the feasibility of discharging seasonal flood water from Grass Lake and West Vadnais Lake into East Vadnais Lake. The study presents background information, estimated costs, and possible permitting issues to inform discussions with St. Paul Regional Water Services (SPRWS), Vadnais Lakes Area Watershed Management Organization (VLAWMO), the Minnesota Department of Natural Resources (DNR), and other stakeholders. In general, the RWMWD proposes that SPRWS consider periodically accepting water from West Vadnais Lake and/or operate East Vadnais Lake at a lower lake level to accommodate flows from West Vadnais Lake and thereby reduce flooding concerns in the Grass Lake area. Grass Lake shares a lake level with West Vadnais Lake, and there is currently no surface flow from West Vadnais Lake to East Vadnais Lake.

East Vadnais Lake is part of SPRWS's chain of lakes that delivers water from the Mississippi River to the McCarrons water treatment plant in Maplewood, just south of Little Canada and just north of St. Paul. If water is to be moved into East Vadnais Lake, it may need to meet certain water-quality goals so that it does not disrupt SPRWS's water-quality goals for East Vadnais Lake, which are more stringent than Minnesota's normal water-quality standards for lakes. The current water quality in West Vadnais Lake does not meet SPRWS water-quality goals for East Vadnais Lake, and would likely need some form of treatment to allow for transfer into East Vadnais Lake.

This study is intended to provide the RWMWD and stakeholders with an initial screening of this approach's viability and feasibility, and provide a foundation for continuing discussions. Dialogue among stakeholders is ongoing, and information continues to be gathered to assess issues related to water quality, water balance, seasonal variations, SPRWS operational procedures, and other constraints and opportunities. The team continues to incorporate data and system information from SPRWS and the VLAWMO; future versions of this memorandum will add that information as it becomes available.

Background information

West Vadnais Lake has a normal water level at 881.8 feet and covers 213 acres with an average depth of 7 feet and maximum depth of 9 feet. Eurasian watermilfoil is present in West Vadnais Lake. West Vadnais Lake is within the VLAWMO and the city of Vadnais Heights.

East Vadnais Lake covers 389 acres with a maximum depth of 58 feet. Zebra mussels and Eurasian watermilfoil are present in East Vadnais Lake. East Vadnais Lake is within the VLAWMO in the city of Vadnais Heights. East Vadnais Lake is part of the SPRWS chain of lakes that delivers water from the Mississippi River to the McCarrons water treatment plant in Maplewood, just south of Little Canada and just north of St. Paul. West Vadnais Lake is separated from East Vadnais Lake by a narrow earthen berm and a paved bicycle path.

The proposed diversion from Grass Lake and West Vadnais Lake into East Vadnais Lake spans two cities (Shoreview and Vadnais Heights) and three water jurisdictions (the RWMWD, VLAWMO, and SPRWS).

If water is to be pumped into East Vadnais Lake from West Vadnais Lake, it will need to meet certain water-quality goals so that it does not disrupt SPRWS's treatment process. An oxygenation/aeration system, in conjunction with regular chemical treatment, is operated by SPRWS in the East Vadnais chain of lakes to reduce total phosphorus levels in the lake.

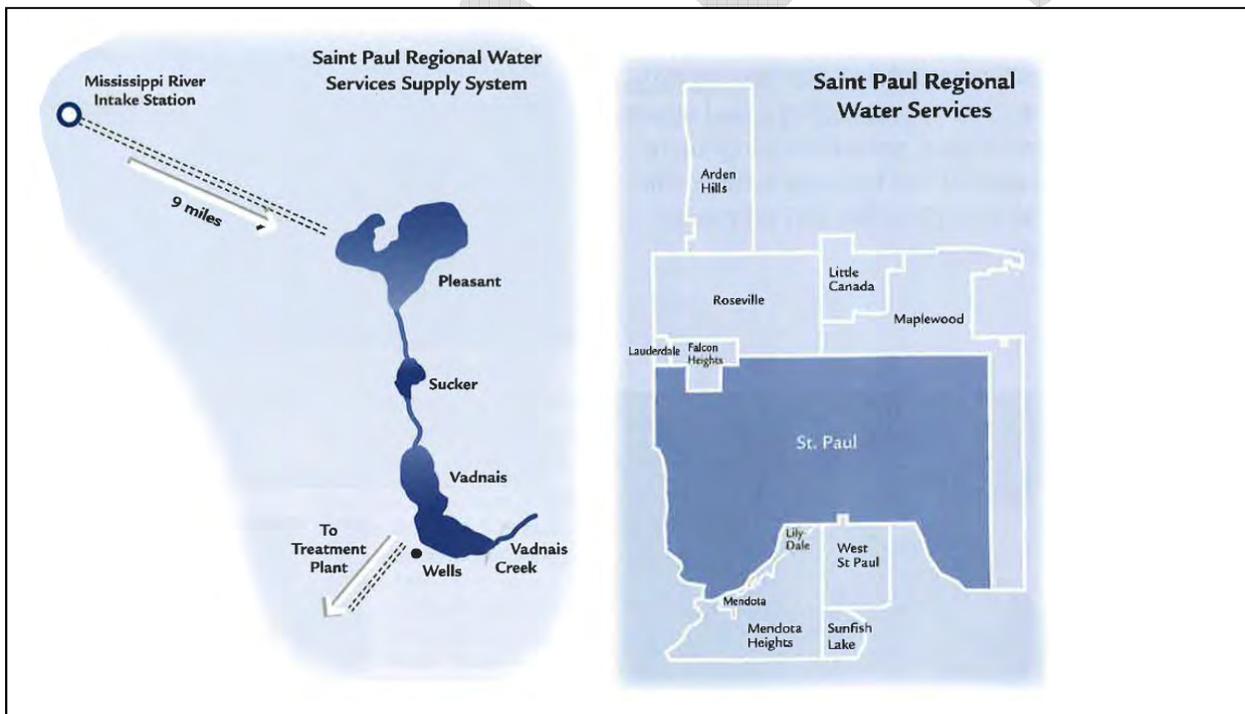


Figure 1: Overview: SPRWS supply system and service area

Image courtesy of Saint Paul Regional Water Services. The Saint Paul Regional Water System 2016 average annual water use was 14,603 million gallons, with a maximum pumping capacity of 144 million gallons per day for an average 2016 daily water use of 38.2 million gallons (59 cfs).

Task 1: Flow estimate/water balance

Hydrologic and hydraulic (H&H) modeling was performed using XP-SWMM to assess Grass Lake, West Vadnais Lake, and Snail lake levels drawdown under existing conditions versus under proposed pumping scenarios. The model extents available include the areas and lakes within the RWMWD. Areas within the VLAWMO have not yet been made available to the RWMWD for this assessment. The H&H model used is based on the previously validated model developed in 2017 and used for the previous Grass Lake and West Vadnais Lake alternatives evaluations. Water from Grass Lake in the RWMWD flows into West Vadnais Lake through a set of double culverts. The model baseline condition assumes that drawdown of Grass Lake and West Vadnais Lake is accomplished by the existing 15-inch culvert under I-694, directing flows south into the Phalen Chain of Lakes. The model baseline condition also incorporates the Grass Lake outlet expansion project, which is currently under construction, and the flap gated 15-inch culvert pipe from Snail Lake into Grass Lake. There is currently no surface-water connection between West Vadnais and East Vadnais Lakes.

In a typical summer season (May to August), annually averaged evaporation is applied to the simulations. Infiltration is not included in the model, which provides a conservative estimate consistent with conditions observed in recent years. The assumed critical event for this subwatershed, which is the 100-year, 96-hour rainfall event, would bring both Grass Lake and West Vadnais Lake to 884.5 feet at their peak water surface elevations, assuming the baseline condition and no pumping to East Vadnais Lake. With the different pumping rates listed below, the proposed pumping scenarios would reduce both Grass Lake and West Vadnais Lake's peak water-surface elevation (shown in table 1). The drawdown times for the proposed pumping scenarios from table 1 are shown in table 2.

Table 1: Peak water-surface elevations under proposed pumping scenarios

(source: RWMWD XP-SWMM model)

Scenarios	Existing condition, no pumping (feet)	Pumping 10 cfs from West to East Vadnais (feet)	Pumping 20 cfs from West to East Vadnais (feet)	Pumping 40 cfs from West to East Vadnais (feet)
Grass Lake	884.5	883.9	883.8	883.8
West Vadnais Lake	884.5	883.7	883.2	882.7
Snail Lake	884.3	884.3	884.3	884.3

Table 2: Drawdown times for Grass Lake to its normal water level at 881.8 feet

(source: RWMWD XP-WMM model)

Scenarios	Existing condition, no pumping (days)	Pumping 10cfs from West to East Vadnais (days)	Pumping 20cfs from West to East Vadnais (days)	Pumping 40cfs from West to East Vadnais (days)
Grass Lake drawdown time	137	59	63	72

The hydrographs of Grass Lake, West Vadnais Lake, and Snail Lake are shown in figures 2, 3 and 4, respectively.

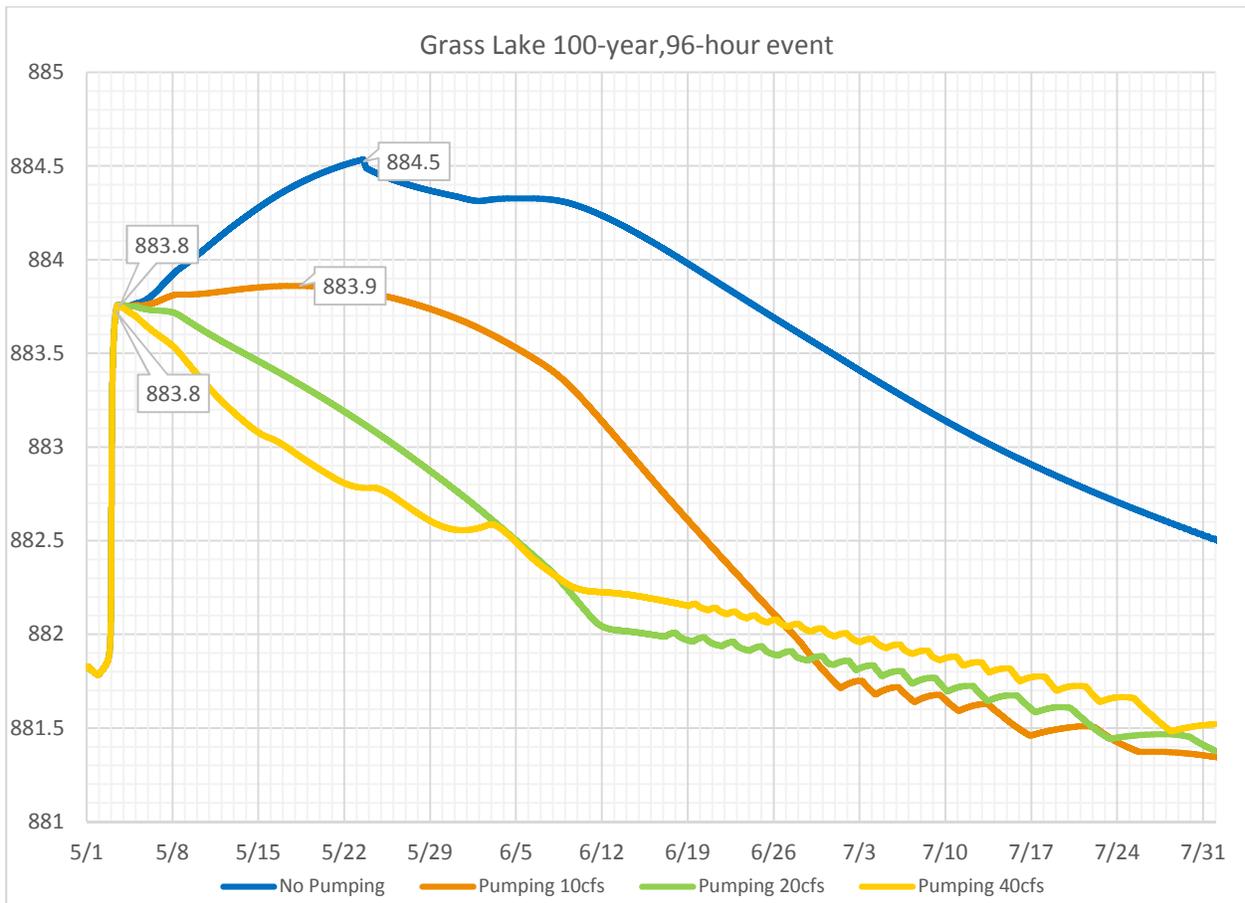


Figure 2: XP-SWMM hydrologic model results: typical Grass Lake water-surface elevation response to 100-year, 96-hour critical event and pumping from West Vadnais Lake to East Vadnais Lake

Figure 2 above illustrates the estimated Grass Lake peak water-surface elevation and estimated drawdown time in days to reach the normal water level at 881.8 feet. The no-pumping scenario estimates a peak lake level at 884.5 feet. The model scenarios of pumping 10 cfs and 20 cfs from West Vadnais Lake into East Vadnais Lake result in an estimated peak Grass Lake level of 883.8 to 883.9 feet. This estimate does not include any groundwater moving between the lakes.

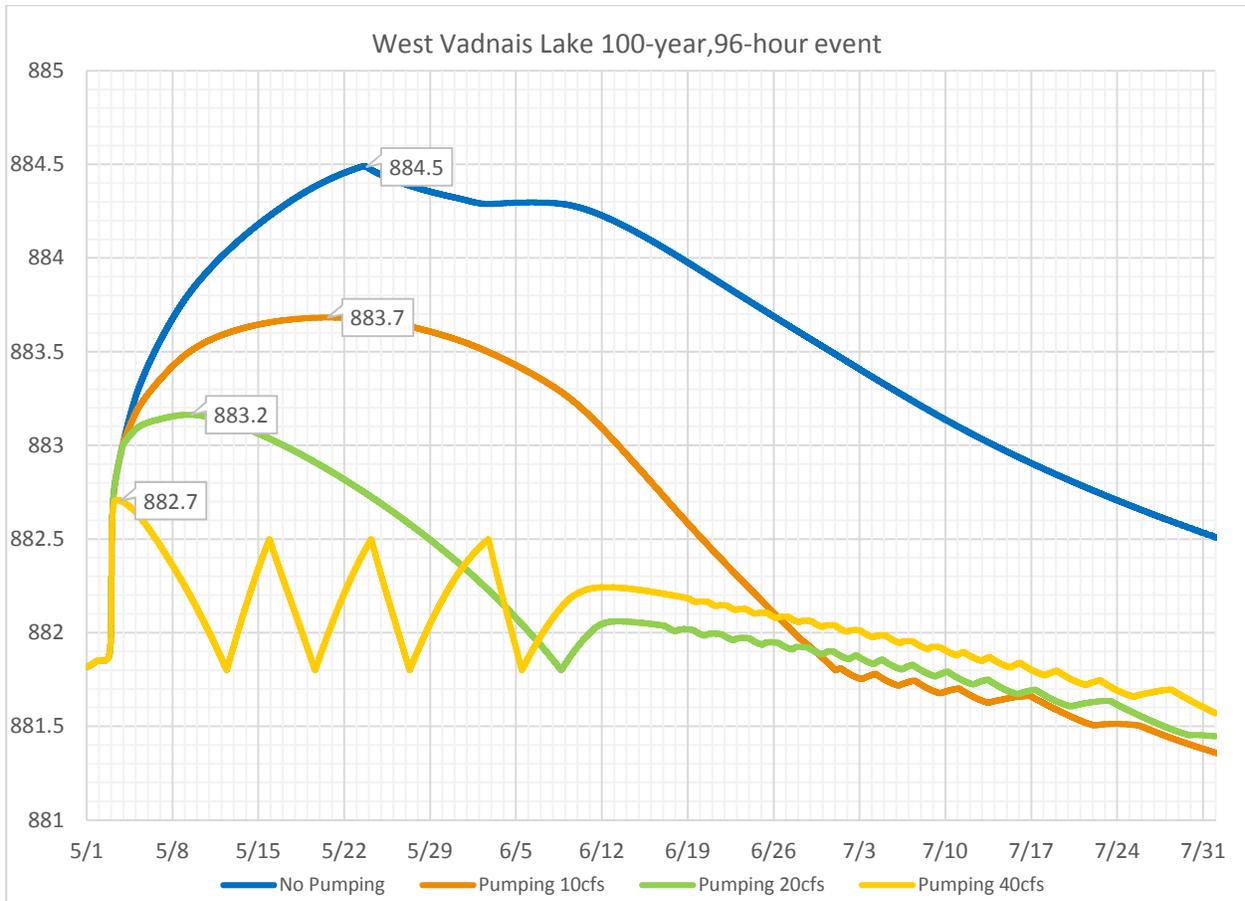


Figure 3: XP-SWMM hydrologic model results: typical West Vadnais Lake water-surface elevation response to 100-year, 96-hour critical event and pumping from West Vadnais Lake to East Vadnais Lake

Figure 3 above illustrates the estimated West Vadnais Lake peak water-surface elevation and estimated drawdown time in days to reach the normal water level at 881.8 feet. The no-pumping scenario estimates a peak lake level at 884.5 feet. The model scenarios of pumping 10 cfs and 20 cfs from West Vadnais Lake into East Vadnais Lake result in an estimated peak West Vadnais Lake level of 883.2 to 883.7 feet. The model results indicate that a pumping rate of 40 cfs may result in a cycle of lake drawdown and bounce, as pumps cycle on and off to manage the lake level down to 881.8 feet.

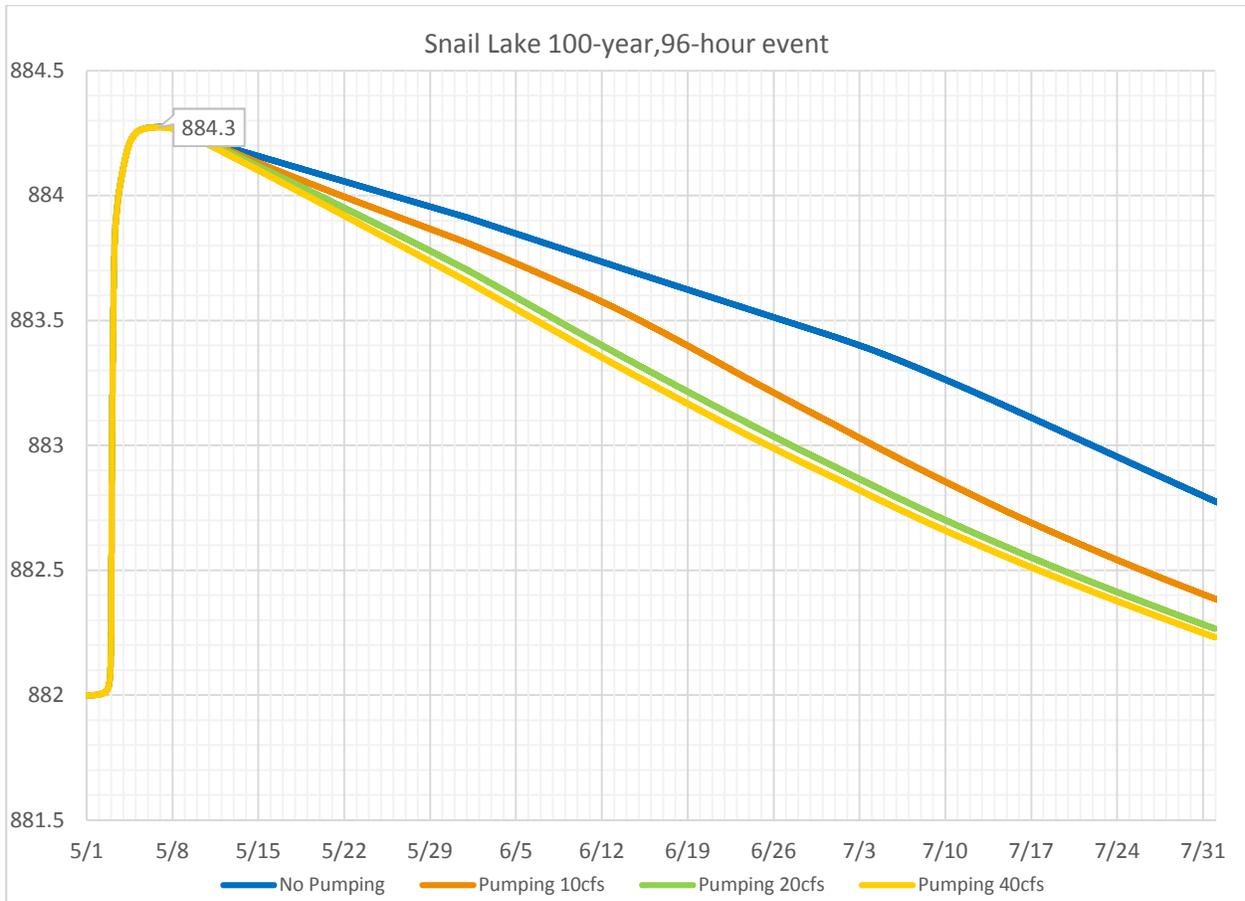


Figure 4: XP-SWMM hydrologic model results: typical Snail Lake water-surface elevation response to 100-year, 96-hour critical event and pumping from West Vadnais Lake to East Vadnais Lake

Figure 4 above illustrates how the pumping between West Vadnais Lake and East Vadnais Lake help reduce the peak water-surface elevation in Grass Lake and West Vadnais Lake, but the benefits to Snail Lake’s peak water-surface elevation is very minor. By contrast, a previous 2018 Barr study demonstrated that more direct drawdown of Snail Lake levels may be accomplished by pumping directly from Snail Lake to Sucker Lake.

The results of the H&H modeling indicate that a 10-cfs pumping rate from West Vadnais Lake to East Vadnais Lake may be assumed for the feasibility evaluation, pending input from the RWMWD board of managers about the target lake levels and drawdown times estimated for the different pumping rates.

Task 2: Concept-level water quality evaluation

A conceptual analysis of water quality in the system was conducted using publicly available water-quality monitoring data from the DNR, VLAWMO, and SPRWS. The evaluation focused on eutrophication-related parameters including total phosphorus (TP), orthophosphate (OP), chlorophyll A (Chl A), and nitrogen in the form of nitrate (NO₃) and nitrite (NO₂). Primarily, a comparison of TP in West Vadnais Lake and East Vadnais Lake was the catalyst for the different treatment options considered in this memo. Currently, SPRWS reports a target TP concentration in East Vadnais Lake of 25 µg/L, which is less than Minnesota’s deep-lake eutrophication standard of 40 µg/L. Based on East Vadnais Lake data, this goal has not been

met until recently, and would still be a major concern for any new inflow of water to East Vadnais Lake. The TP data is provided in table 3 for water bodies of interest, but data from East and West Vadnais lakes is bolded. Other eutrophication parameters are provided in table 5 at the end of this document.

These locations were chosen to compare to West Vadnais Lake water quality because they could represent different snapshots of water-quality conditions in the SPRWS system. The Mississippi River water at Fridley is the first influent water source in the system that eventually reaches the treatment facility through the chain of lakes. Pleasant Lake is the first major lake in the system, but is still upstream of the final plant intake. Sucker Lake is a direct inflow to East Vadnais Lake, and could be considered the threshold of water quality that SPRWS allows for influent water. East Vadnais Lake would be considered the final threshold of water quality, which would not need to be treated before entering the treatment facility. The plant effluent is the final water-quality goal for SPRWS after full treatment.

Table 3: TP ($\mu\text{g/L}$) in water bodies of interest (average annual concentration)

Year	Fridley	Pleasant Lake	Sucker Lake	East Vadnais Lake	West Vadnais Lake	SPRWS plant effluent
2009	57.3	414.3	39.6	31.9	185.2	14.4
2010	79.6	189.9	80.5	49.5	137.6	27.9
2011	53.8	118.1	-	30.6	137	10.9
2012	42.8	168.2	-	27.8	-	7.1
2013	46.9	191.8	-	16.5	79.1	-
2014	68.4	42.2	-	28.6	70.1	3.9
2015	52.6	58.9	-	26.6	88.2	7.0
2016	52.2	80.3	-	34.6	110.86	13.7
2017	-	37.3	-	25.7	130.4	-

Based on the data presented in table 3, TP in West Vadnais Lake is typically higher than in the other water bodies of interest. However, when considering the water volume proposed to be pumped from West Vadnais Lake to East Vadnais Lake, the total mass of phosphorus that could be transferred is a lower proportion than that being loaded to East Vadnais Lake from upstream in the chain of lakes. Using an example concentration of TP ($200 \mu\text{g/L}$) in West Vadnais Lake and a pumping rate of 20 cfs, approximately 900 pounds of phosphorus would be pumped from West Vadnais Lake to East Vadnais Lake when drawing down the 100-year, 96-hour critical event. If the average influent TP concentration to the chain of lakes is approximately $100 \mu\text{g/L}$, and a typical SPRWS pumping rate is 56 cfs, the total annual load of TP would be approximately 11,000 pounds, meaning that the 900-pound TP load from West Vadnais Lake could contribute an additional 8 percent of the total annual TP load into East Vadnais Lake. **Figure 4** presents a map summary of key water-quality considerations.

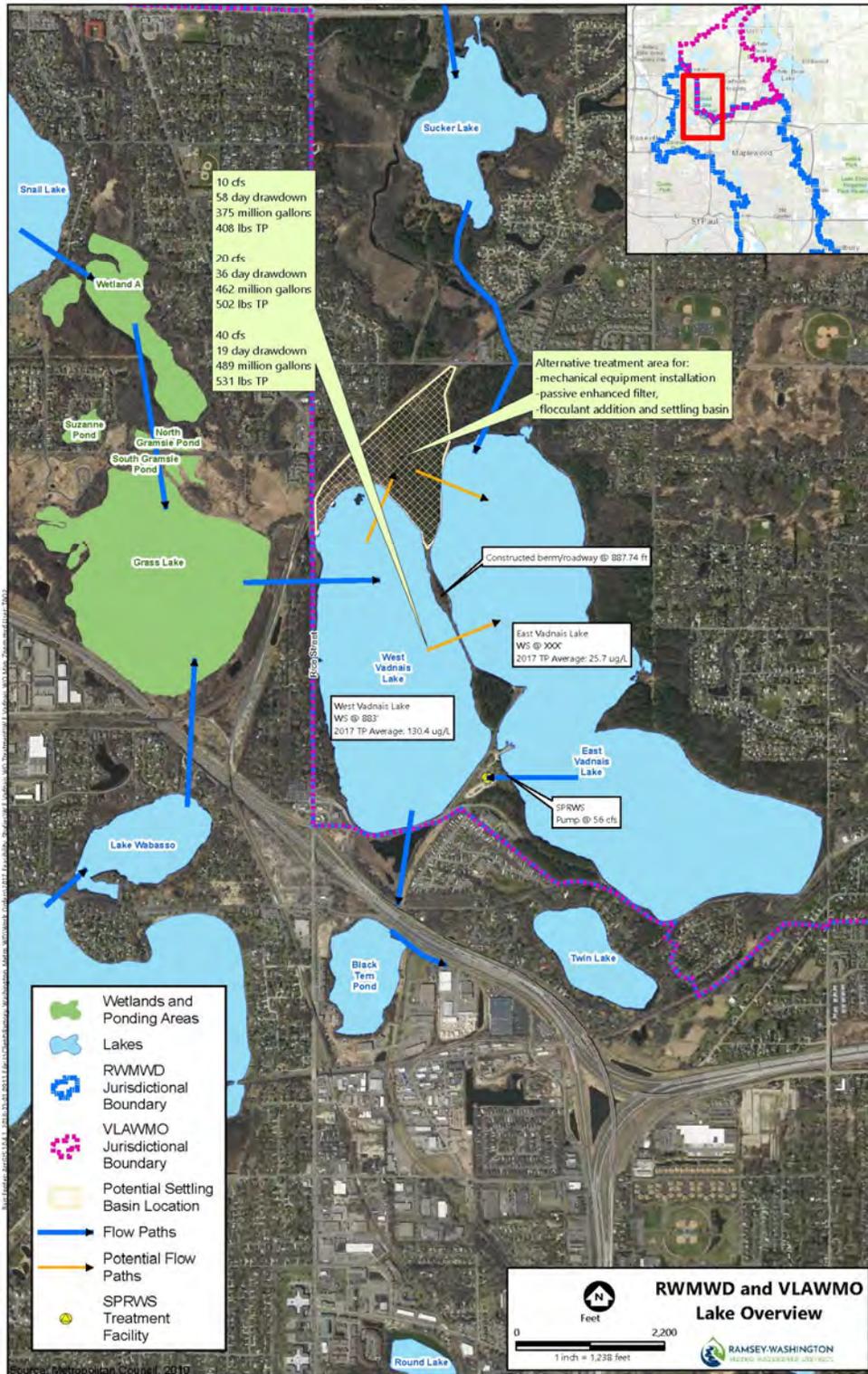


Figure 4: Key water-quality considerations in the Vadnais Lake system

The fact that East Vadnais receives water from the Mississippi River intake but has better water quality than West Vadnais Lake indicates the effectiveness of the existing treatment processes at the intake, through the upstream lakes, and in East Vadnais Lake.

The current treatment in the SPRWS chain of lakes consists of several ferric chloride (FeCl_3) injections as well as aeration to reduce nutrient concentrations (specifically phosphorus) and associated algal turbidity. Below is a summary of where these treatment practices take place:

- FeCl_3 addition at the Mississippi River pumping station
- Aerators in Pleasant Lake
- FeCl_3 addition directly to East Vadnais Lake
- Hypolimnetic aerators in East Vadnais Lake
- FeCl_3 addition to Lambert Creek inflow to East Vadnais Lake (east side of East Vadnais Lake)

Figure 5 presents a map summary of the existing SPRWS chain of lakes system and the location of several key water-quality parameters.

DRAFT

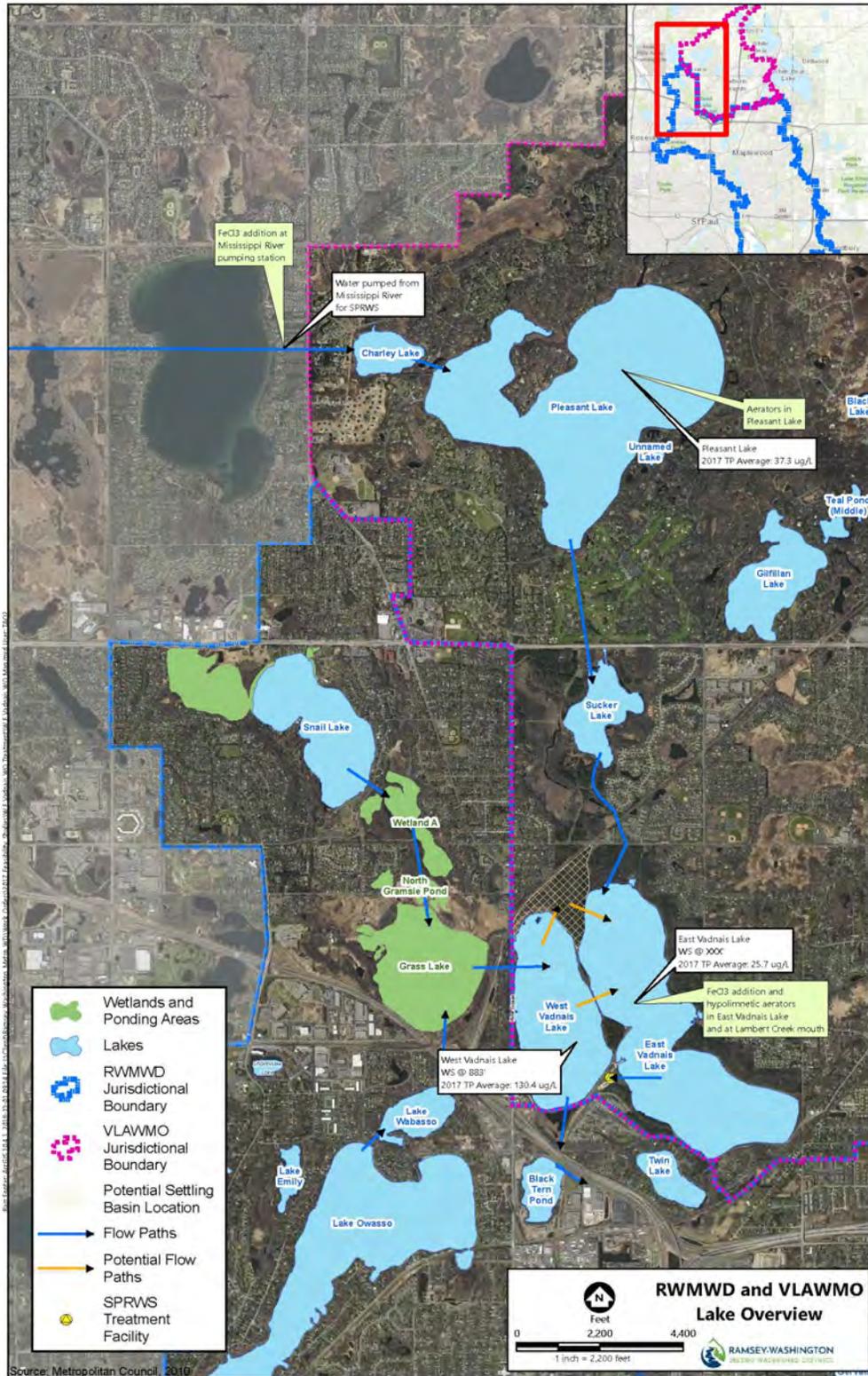


Figure 5: Existing SPRWS chain of lakes system and locations of key water-quality parameters

The addition of ferric chloride forms an iron floc, which sticks to particulate matter in the water and causes it to settle out more quickly. The chloride stays dissolved in the water. The ferric iron will also bind and remove a portion of the dissolved phosphorus in the water. The iron floc that settles to the bottom of the lakes has a high affinity to bind with phosphorus in the sediments at the bottom of the lake, thereby reducing the amount of phosphorus that is released back into the water column. In the absence of oxygen, the iron can be reduced to soluble ferrous iron, which no longer binds with phosphorus. Aeration in Pleasant Lake and East Vadnais Lake helps keep the iron in the oxidized ferric iron form. The SPRWS has not yet shared its methods for managing or removing floc from the lakes, if any.

Because West Vadnais Lake's water quality is typically significantly worse than East Vadnais Lake's with respect to TP, a reduction in phosphorus in West Vadnais Lake would most likely be needed depending on the limit of phosphorus mass that East Vadnais Lake can receive. These treatment options are considered in the alternatives section of this memo. SPRWS has not yet reviewed or weighed in on the trade-offs and feasibility of the treatment options presented.

In addition to water quality data, water level data for West Vadnais Lake was obtained from the DNR Lake Finder webpage to compare the quantity of water in the lake with East Vadnais Lake. Figure 6 shows the water level data in West Vadnais from 2003 to the present. The data suggests that water levels in West Vadnais Lake have been rising over the past decade. West and East Vadnais lakes are separated by a constructed earthen berm and roadway between them, at an elevation of approximately 887.7 feet. The material composition and permeability of the existing separation berm is not known. It has not been determined to what extent the two lakes might be hydraulically connected. No surface connection exists. Lake level data in East Vadnais Lake was provided by SPRWS from a staff gauge installed on the lake, and converted to elevation data with a surveyed benchmark on the lake (see figure 7).

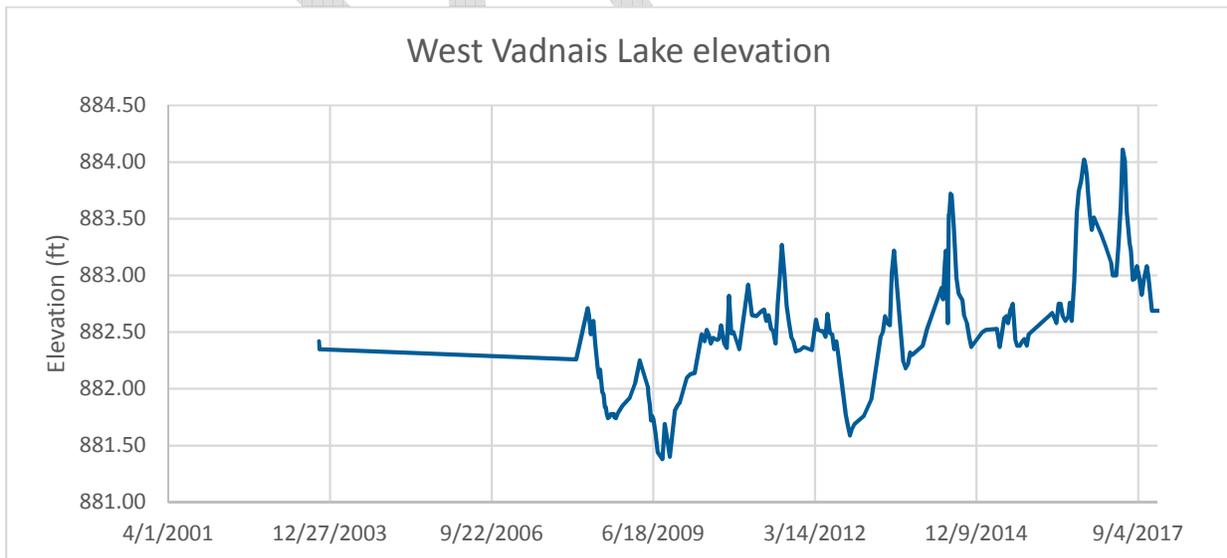


Figure 6: West Vadnais Lake historical elevation (source: Minnesota DNR Lake Finder)

Figure 6 above illustrates the recent increase in observed lake levels at West Vadnais Lake and Grass Lake. Factors that contribute to the recent increase in lake levels may have included vegetation constricting flow at Triangle Pond downstream of West Vadnais Lake and raising lake normal water level above the 881.8 feet elevation of the 15-inch outlet culvert at I-694, a wet pattern resulting in higher regional groundwater elevations and reduced infiltration from the lakes to regional groundwater. Figure 7 below shows the fluctuations in water surface elevation in East Vadnais Lake due to SPRWS's pumping requirements to meet water needs for the city of St. Paul. Generally, the elevation hovers around 883.3 feet annually, with seasonal changes shown in the sharp increases or decreases. Typically, the lake is pumped down to a certain elevation and is allowed to slowly rise for one or two months before being drawn down again.

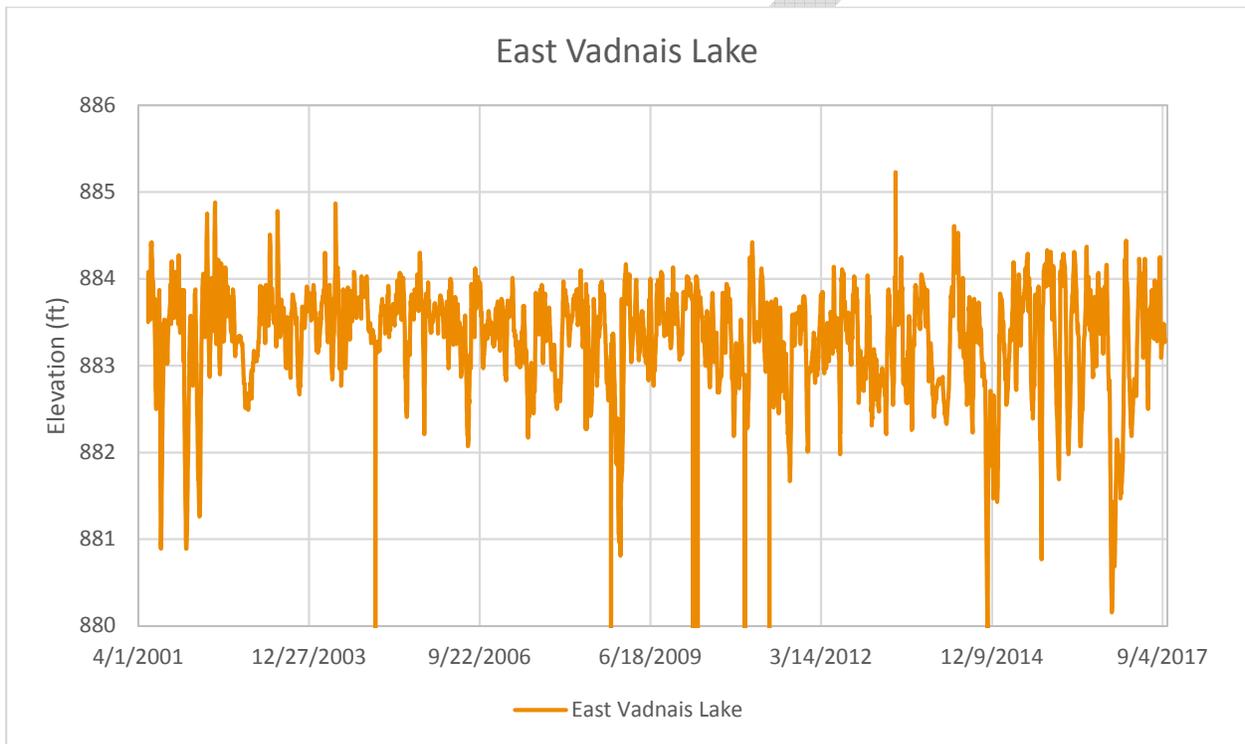
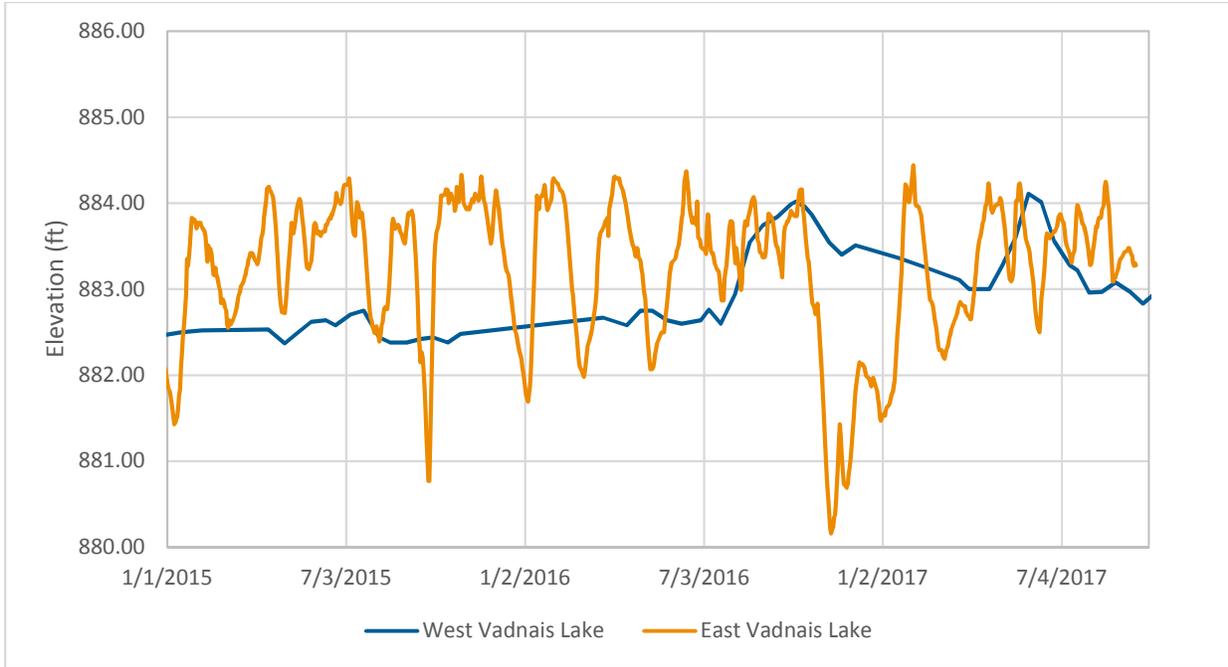


Figure 7: East Vadnais Lake historical elevation (source: SPRWS staff gage)

A comparison of both West and East Vadnais lake levels in the past three years is shown in figure 8 below. It is clear that while West Vadnais Lake is experiencing a rise in lake levels, East Vadnais Lake is maintained by SPRWS within a small range of elevation of approximately 2 to 3 feet. From the data, it is unclear whether the two lakes are hydraulically connected.



DRAFT

Task 3: Permitting review

Permit requirements for transferring water from Snail Lake to Sucker Lake were identified and are listed below.

Table 4: Permitting considerations

Approval entity	Permit/approval	Justification
U.S. Army Corps of Engineers (USACE)	Section 404 permit	Required for work activities below the ordinary high water level of waters/wetlands under agency jurisdiction
U.S. Fish and Wildlife Service	Section 7 (Endangered Species Act) compliance	Required as part of the USACE's Section 404 permitting process
Minnesota DNR	<ul style="list-style-type: none"> • Work in public waters permit • Water appropriations permit 	<ul style="list-style-type: none"> ▪ Required for work activities below the OHWL of a designated public water ▪ Required for withdrawing more than 10,000 gallons of water per day or 1 million gallons per year; also required to appropriate or transport any amount of infested water
Minnesota Pollution Control Agency	General stormwater permit for construction	Required for projects that result in more than 1 acre of ground disturbance
Minnesota Wetland Conservation Act	Project compliance	<ul style="list-style-type: none"> ▪ Required for impacts to wetlands that are not under jurisdiction of the USACE or DNR. ▪ Administered by the VLAWMO and RWMWD in their jurisdiction
State Historic Preservation Office	Section 106 (National Historic Preservation Act) compliance	Required as part of the USACE's Section 404 permitting process
City of Shoreview (Snail Lake is in Shoreview)	<ul style="list-style-type: none"> ▪ Erosion/excavating/grading permit ▪ Right-of-way excavation permit ▪ Floodplain management special district compliance ▪ Shoreland management special district compliance 	<ul style="list-style-type: none"> ▪ Project activities are expected to require movement of more than 10 cubic yards of soil and disturb an area of more than 1,000 square feet ▪ Construction would occur in a City of Shoreview right-of-way ▪ Required for projects in floodplain overlay district ▪ Applied to all projects within 1,000 feet of a protected water body
City of Vadnais Heights (Sucker Lake is in Vadnais Heights)	<ul style="list-style-type: none"> ▪ Excavation permit ▪ Engineering and public works approval ▪ Utilities approval ▪ Floodplain area approval ▪ Shoreland area approval 	<ul style="list-style-type: none"> ▪ Project activities are expected to require movement of over 6 cubic yards of soil ▪ Engineering and Public Works departments typically provide input on significant projects ▪ Project will require modifications to city utilities ▪ Required for projects that take place within designated floodplain area ▪ Required for all work within 1,000 feet of designated shoreland area
SPRWS (manages chain of Pleasant, Sucker, and East Vadnais lakes)	Update source water protection plan (SWPP)	<ul style="list-style-type: none"> ▪ Minnesota Department of Health required to complete source water assessments for public water systems ▪ SPRWS not required under Safe Drinking Water Act, but proactive in developing SWPP ▪ New source potentially being introduced from West to East Vadnais lakes (West Vadnais Lake outside of Vadnais Lake Source Water Protection Area)

The VLAWMO does not operate a regulatory program for development review applications. Member cities, townships, or MS4s with approved permits to discharge stormwater are responsible for National Pollutant Discharge Elimination System regulatory requirements.

The project was reviewed for applicability under the mandatory Environmental Assessment Worksheet (EAW) or Environmental Impact Statement categories established by Minnesota rules chapter 4410. Subpart 24 of chapter 4410.4300 identifies that an EAW is required for new appropriation for commercial or industrial purposes averaging 30,000,000 gallons per month. The project is anticipated to appropriate an average between 81 million gallons and 171 million gallons per summer season, depending on the pumping rate. If the average diversion per month is less than 30 million gallons per month, an EAW would likely not be required. If the average diversion per month is greater than 30 million gallons per month and the water would be used for municipal purposes rather than commercial or industrial purposes, an EAW would likely not be required.

Beyond permitting, several entities are anticipated to be engaged with project review, including:

- SPRWS and Board of Water Commissioners
- RWMWD and board of managers
- VLAWMO
- City of Saint Paul (landowner of Vadnais-Snail Lakes Regional Park)
- Ramsey County Parks and Recreation (for work on property owned by Ramsey County Parks and Recreation)
- Ramsey County Public Works Department
- Xcel Energy (electricity and gas in Shoreview, gas in Vadnais Heights)
- Connexus (electricity in Vadnais Heights)
- CenturyLink and Comcast communication utilities in Shoreview
- Communication utilities in Vadnais Heights

It should be noted that the DNR may be interested in the project due to its proximity to White Bear Lake and ongoing concerns related to the effects that water appropriations may have on lake levels.

Alternatives being considered

The results of the H&H modeling indicate that a 10-cfs pumping rate from West Vadnais Lake to East Vadnais Lake may be assumed for the feasibility evaluation, pending input from the RWMWD board of managers about the target lake levels and drawdown times estimated for the different pumping rates.

The alternatives presented assume that a 10-cfs seasonal diversion of floodwaters out of West Vadnais Lake is implemented to manage the normal water level of Grass Lake and West Vadnais Lake at 881.8 feet and manage the peak lake level for the 100-year, 96-hour event below 884.0 feet. A screening-level estimate of capital costs for designing and constructing this system was developed. Costs include allowances for construction, planning, engineering and design and construction management.

Five alternatives are presented below for potential treatment options, considerations, and order-of-magnitude opinions of cost to improve water quality from West Vadnais Lake prior to or during discharge into the SPRWS supply system. These alternatives are conceptual in nature and have not yet been reviewed or endorsed by SPRWS, the VLAWMO, or other stakeholders.

- 1) **Alternative 1:** No treatment of West Vadnais Lake discharge to East Vadnais Lake. Construct a 10 cfs pump station.
 - a. Assumes West Vadnais Lake water quality is within a range that is acceptable to SPRWS, or that SPRWS's East Vadnais Lake treatment systems (FeCl_3 and aeration) can suitably address total suspended solids and nutrient loading from West Vadnais Lake.
 - b. It has not yet been assessed if seasonal water-quality variation and the effects of mixing/dilution are acceptable to SPRWS.
 - c. Opinion of cost: \$1 million to \$2 million capital cost
 - d. Consider whether this alternative with additional treatment would provide necessary level of treatment

- 2) **Alternative 2:** West Vadnais Lake in-lake chemical treatment to control sediment phosphorus release.
 - a. FeCl_3 addition to West Vadnais Lake could be considered and may require aeration to keep iron oxidized
 - b. Aluminum addition to West Vadnais Lake could be considered
 - c. It has not yet been evaluated if the existing depth of West Vadnais Lake (at low level) is adequate to minimize re-entrainment of alum solids
 - d. It has not yet been evaluated if West Vadnais Lake pH would typically be low enough for effective alum treatment
 - e. Opinion of cost: \$150,000 to \$500,000 annually
 - f. Consider whether this alternative with additional treatment would provide necessary level of treatment

- 3) **Alternative 3:** Construct a passive enhanced filter in the existing berm between West and East Vadnais lakes and manage East Vadnais Lake at a lower level than West Vadnais Lake to drive flow by gravity.
 - a. A permeable berm section with enhanced media for TP removal could be considered
 - b. It has not yet been verified if historical lake levels in East and West Vadnais lakes permit this option (available information indicates that they are very close to the same)

- c. It has not yet been evaluated if stopping or slowing the flow rate of the Mississippi River intake would negatively impact Pleasant Lake or Sucker Lake
 - d. Passive treatment processes to consider:
 - i. Enhanced filter media, retrofit into the existing berm separating the lakes
 - ii. Constructed wetland, constructed north of West Vadnais Lake
 - iii. Some combination of in-lake chemical treatment and passive treatment
- 4) **Alternative 4:** Chemical flocculant addition to West Vadnais Lake flow to East Vadnais Lake. Construct a 10 cfs pump station with chemical injection system.
- a. Iron flocculant: FeCl_3 addition to West Vadnais Lake water discharged to East Vadnais Lake
 - b. Aluminum flocculant: alum, sodium aluminate, or poly-aluminum chloride addition to West Vadnais Lake water discharged to East Vadnais Lake
 - c. Assumes floc will settle to bottom of East Vadnais, where Fe or Al will further act to control phosphorus release from lake sediments
 - d. It is assumed that a parcel of land immediately north of West and East Vadnais lakes and south of the railroad line would be available, at no significant cost to the RWMWD, to use for siting of constructed facilities
 - e. Opinion of cost: \$1.5 to \$2.5 million, or more, capital cost
 - f. Consider whether combining this alternative with additional treatment would provide necessary level of treatment
- 5) **Alternative 5:** Pump water from West Vadnais Lake to upstream lake (Sucker?) with direct treatment (FeCl_3 , alum, etc.) and precipitation of solids before West Vadnais Lake water enters Sucker Lake. Construct a 10 cfs pump station with chemical injection system. Construct a basin to settle out floc and manage periodic removal of accumulated sediment.
- a. FeCl_3 addition sufficient to treat influent West Vadnais Lake water, similar to the existing SPRWS system
 - b. It has not yet been evaluated if additional floc and solids loading to Sucker, Pleasant, or East Vadnais lakes create lake management issues for SPRWS
 - c. A sedimentation basin upstream of East Vadnais Lake could be considered to manage sediment floc outside of the chain of lakes
 - d. It has not yet been evaluated if screening for zebra mussel veliger exclusion might be required; the DNR has not yet advised on this issue
 - e. It is assumed that a parcel of land immediately north of West and East Vadnais lakes and south of the railroad line would be available, at no significant cost to the RWMWD, to use for siting of constructed facilities
 - f. Opinion of cost: \$2.0 to \$4.0 million, or more, capital cost
 - g. Consider whether combining this alternative with additional treatment would provide necessary level of treatment

Estimated capital costs have been developed for the pumping alternatives and should be considered screening-level, order of magnitude estimates, based on the limited level of project definition available at this time. The cost estimates are valid in the framework of a relative comparison of alternatives, therefore they should not be assumed as absolute values for given alternatives. These costs are intended to be used as a one assessment factor in evaluating alternatives' implimentability.

The anticipated cost for each alternative is based on screening level design. The opinion of cost should be considered a screening-level, order-of-magnitude estimate that generally corresponds to a Class 5 estimate based on standards established by the Association for the Advancement of Cost Engineering (AACE) and American Society for Testing and Materials (ASTM). A Class 5 cost estimate is characterized by limited project definition (less than 5%), wide-scale use of parametric models (i.e. making extensive use of order-of-magnitude costs from similar projects or proposals) to calculate estimated costs, and a high uncertainty. The estimated cost of each alternative is a point estimate within a range of possible costs for the alternative. The selected accuracy range for these point estimates is -50% to +100%.

The estimated costs include up-front costs associated with estimated planning, engineering, design, construction management, construction, land acquisition and contingency. A construction schedule or duration based on start dates and end dates is not used for this estimate. All costs presented are in February 2017 US dollars. Escalation, operation and maintenance costs are not included.

As indicated above, the opinion of probable cost for each alternative was developed for comparative purposes only using information from similar projects and the consulting team's experience and qualifications. The opinion of cost represents the team's best judgment as experienced and qualified professionals familiar with the project, based on project-related information available at this time, available cost information from other projects and a screening level design for each alternative. The opinion of probable cost will change as more information becomes available and the level of design detail is advanced. In addition, since the team has no control over the cost of labor, materials, equipment, or services furnished by others, or over the contractor's methods of determining prices, or over competitive bidding or market conditions, it can be expected that proposals, bids, or actual construction costs will vary from this opinion of probable cost. If a more accurate opinion of probable cost is desired, a more detailed study including a more detailed definition of the alternatives would be necessary.

Final memo report

The pumping scenarios indicate that Grass Lake elevation can be managed up to the 100-year, 96-hour event by pumping at either 10, 20, or 40 cfs. The drawdown times vary between pumping scenarios and will be the deciding factor when choosing a final pumping rate. The results of the H&H modeling indicate that a 10-cfs pumping rate from West Vadnais Lake to East Vadnais Lake may be assumed for the feasibility evaluation, pending input from the RWMWD board of managers about the target lake levels and drawdown times estimated for the different pumping rates.

The conceptual analysis of water-quality monitoring data indicates that West Vadnais Lake water quality is worse than East Vadnais Lake water quality in terms of in-lake TP concentrations. However, depending on the chosen pumping scenarios, the total poundage of phosphorus loaded to East Vadnais Lake from West Vadnais Lake may not be of concern when compared to the total annual load from the lakeshed.

Several alternatives have been detailed for the proposed treatment of water moving from West Vadnais Lake to East Vadnais Lake. More discussion and information from SPRWS, the VLAWMO, DNR, and other stakeholders will be needed to continue the feasibility dialogue. A collaborative process will be necessary to develop detailed assessment methodology; analyze alternatives; and decide whether moving forward with the project meets the needs of stakeholders, protects public safety, and serves the interests of the organizations affected by the proposed water management.

Identified areas of concern or risk that must be investigated further include the following:

- SPRWS will likely have requirements for supply water and certainty of quality, volume, timing of available water which could affect the system feasibility, configuration, and costs such as: Does using West Vadnais Lake water provide an emergency water supply, reduce well-water drawdown, or interfere with SPRWS management of lake levels for inspection and maintenance activities?
- Invasive species transport is a concern. Both East and West Vadnais lakes have been identified as having zebra mussel present. However, the two lakes share a water body ID through the DNR, and not enough information is available to know if zebra mussels are truly present in West Vadnais Lake.
- Local infrastructure relocations along proposed alignment(s) need to be evaluated in greater detail during detailed design, which could affect the system feasibility, configuration, and costs. Existing underground utilities have not been located yet and could present constraints.
- The perceptions of residents and stakeholders in the project area about changes to the lakes and groundwater as a result of implementing new pumping need to be actively managed. It will be important to keep the residents informed.
- If easement and property acquisitions are required, the effort to acquire property could add to the project's complexity and implementation timeframe, as well as increase capital costs.

Recommendation and next steps

The costs and feasibility issues associated with this conceptual option will be evaluated against and compared to the other conceptual options for managing Snail Lake listed below.

- The 2017 Grass Lake/Snail Lake optimization study: includes a concept for constructing a 15-inch gravity pipe system to deliver Snail Lake water to Grass Lake
- Snail Lake overflow/Grass Lake optimization feasibility study, phase II(a): Snail Lake to Sucker Lake pumping evaluation
- 2018 study (underway): Snail Lake overflow/Grass Lake optimization feasibility study, phase II(b): West Vadnais Lake to East Vadnais Lake water-quality treatment study

The proposed analysis and methodology development will depend on which alternative is chosen, and the path moving forward in regards to movement of water from West Vadnais Lake. More discussion with project stakeholders will be needed to move forward with the analysis that has already been completed.

We recommend the next steps include:

- Comparing and contrasting the alternatives after completion of the studies to select the option that best serves the RWMWD's needs and expectations
- Reaching out to SPRWS to understand what water supply constraints may need to be considered relative to water quality, water quantity, and seasonal availability and timing of water diversion into the SPRWS lakes
- Engaging permitting agencies, stakeholders, SPRWS, and the VLAWMO in discussions about design and operational constraints associated with diverting Snail Lake water (within the RWMWD and city of Shoreview) into Sucker Lake (within Vadnais Heights and the VLAWMO) and into the SPRWS water supply.
- If VLAWMO and SPRWS are agreeable to continued partnership to explore the pumping options, build upon the modeling work performed to date to better understand the system. Obtain available hydrologic and hydraulic modeling for East Vadnais chain of lakes. Perform continuous modeling simulations to investigate seasonal pumping and diversion volume and preferred pumping rate(s). Future work may be needed to investigate water quality parameters in addition to phosphorus (for example, TSS, nitrogen, algae, etc.).

Additional data

Table 5: Eutrophication water-quality parameters for water bodies of interest

Year	Fridley			Pleasant Lake			Sucker Lake		
	<i>Chl-A</i> ($\mu\text{g/L}$)	NO_2+NO_3 (mg/L)	OP ($\mu\text{g/L}$)	<i>Chl-A</i> ($\mu\text{g/L}$)	NO_2+NO_3 (mg/L)	OP ($\mu\text{g/L}$)	<i>Chl-A</i> ($\mu\text{g/L}$)	NO_2+NO_3 (mg/L)	OP ($\mu\text{g/L}$)
2009	-	0.76	35.1	15.4	0.3	114.3	-	0.28	32.3
2010	-	0.60	43.5	12.4	0.1	223.5	-	0.14	48.2
2011	-	0.80	23.3	-	0.4	94.7	-	-	-
2012	-	0.72	35.1	12.0	0.6	142.8	-	-	-
2013	-	0.56	60.7	9.4	0.1	0.0	-	-	-
2014	-	0.66	94.0	11.2	-	0.0	-	-	-
2015	-	0.58	35.3	18.1	-	21.3	-	-	-
2016	-	1.1	46.4	14.6	-	21.4	-	-	-
2017	-	-	-	-	-	-	-	-	-
Year	East Vadnais Lake			West Vadnais Lake			Plant Effluent		
	<i>Chl-A</i> ($\mu\text{g/L}$)	NO_2+NO_3 (mg/L)	OP ($\mu\text{g/L}$)	<i>Chl-A</i> ($\mu\text{g/L}$)	NO_2+NO_3 (mg/L)	TP ($\mu\text{g/L}$)	<i>Chl-A</i> ($\mu\text{g/L}$)	NO_2+NO_3 (mg/L)	OP ($\mu\text{g/L}$)
2009	6.5	0.19	16.8	-	0.10	-	-	-	10.9
2010	8.6	0.26	32.9	-	0.02	-	-	-	18.6
2011	12.8	0.37	17.1	-	0.03	-	-	-	5.0
2012	8.4	0.31	38.5	-	-	-	-	-	12.4
2013	10.9	0.23	22.6	58.7	0.02	-	-	0.35	4.0
2014	9.8	0.33	12.8	56.6	-	-	-	0.42	4.6
2015	10.5	0.22	12.1	108.2	-	-	-	0.35	5.9
2016	10.2	0.24	14.0	71	0.02	5.0	-	0.31	10.1
2017	-	-	-	54	0.03	-	-	-	-

Memorandum

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From: Tina Carstens and Brad Lindaman
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Project Feasibility Studies

System-wide evaluation of flood control options/Beltline resiliency study (Barr project manager: Erin Anderson Wenz; RWMWD project manager: Tina Carstens)

The purpose of this project is to evaluate system-level flood damage reduction options, including mechanical alteration of Lake Phalen and Keller Lake channel outlet structures (and potentially others) to actively manage stormwater runoff from flood-prone areas tributary to the Beltline storm sewer. The project will involve using the RWMWD stormwater model to simulate system-level modifications to evaluate how adjustments to outlet structures during a flood event may be able to optimize the existing system performance to reduce flooding impacts on homes adjacent to RWMWD-managed water bodies.

This period, staff scoped the first phase of the study. The project will be divided into phases to assess, in a stepwise manner, if and how the system can be optimized by adjusting outlet structures for RWMWD-managed lakes and streams throughout the system. The phases will be prioritized by the number of structures that Barr's calibrated model indicates would be impacted in flood-prone areas throughout the RWMWD during the 100-year, 96-hour storm event. Flood-prone areas are defined as locations where low home elevations (as estimated by LIDAR) are lower than the modeled 100-year, 96-hour flood elevation in the area.

Snail Lake/Grass Lake optimization study and berm raise project (Barr project manager: Brad Lindaman; RWMWD project manager: Tina Carstens)

The purpose of this study is to evaluate the potential for optimization of the existing Snail Lake/Grass Lake system (from Snail Lake to Grass Lake to Highway 694), with the goal of lowering flood levels in the system's water bodies in order to reduce the flood risk to habitable structures and lessen the impacts to surrounding properties.

Dredging near the outlet of Grass Lake between the lake and the path and between the path and the railroad berm is complete. The contractor has also partially completed the cleanout downstream of Rice Street at the discharge point into West Vadnais Lake.

In February, Barr began the second follow-up study, which the board authorized at the December meeting. As you may recall, the second study is a pre-feasibility study that evaluates the possibility of moving water from West Vadnais Lake to East Vadnais Lake and working with St. Paul Regional Water Services to operate East Vadnais Lake at a lower elevation to accommodate the added volume. A

presentation of the study results will be provided at the March 7 board meeting. The information provided in the study will be used in conjunction with other related pre-feasibility studies as flood damage reduction options in, near, and upstream of the Grass Lake system are considered.

Snail, Grass, and West Vadnais lakes outlet permitting with the Minnesota Department of Natural Resources (DNR) (Barr project manager: Erin Anderson Wenz; RWMWD project: Tina Carstens)

The purpose of this project is to coordinate permitting efforts for the proposed Snail, Grass, and West Vadnais lakes outlets with the DNR.

This period, Barr continued to investigate potential DNR concerns as the RWMWD considers the impacts of lowering the outlets (or, in the case of Snail Lake, creating an outlet) for these water bodies, in conjunction with exploring flood control options in the Grass Lake area.

Capital improvements

Wakefield Park/Frost Avenue stormwater project (Barr project managers: Erin Anderson Wenz and Fred Rozumalski; RWMWD project manager: Paige Ahlborg)

The purpose of this project is to work with the City of Maplewood and its consultants to develop a site plan that involves stormwater management features with associated educational elements for the northern portion of Wakefield Park.

This period, the RWMWD met with the City of Maplewood to discuss project roles, timeline, and coordination with the planned construction of the new community center in 2018 as well as the narrowing of Frost Avenue and its associated water quality projects. At the meeting, a charrette (design brainstorming meeting) involving key stakeholders from the RWMWD and city (including the parks department) was chosen as an appropriate starting point for the project. The charrette has been scheduled for March 16.

BMP incentive fund: general BMP design assistance and review (Barr project manager: Matt Kumka; RWMWD project manager: Paige Ahlborg)

The purpose of this project is to respond to requests for assistance to find cost-share opportunities from RWMWD partners and to seek out opportunities for cost-share projects throughout the RWMWD.

This period, Barr met with the City of Shoreview to discuss a potential project in the Shoreview Lake subwatershed. The project would capture and filter stormwater runoff from a large apartment complex that is directly tributary to Shoreview Lake, which is currently considered “at risk” of impairment for phosphorus. We also discussed a potential wetland restoration project for an area south of St. Odelia Church and west of Cottage Place (a cul-de-sac). Although still under evaluation, both projects may be valuable opportunities to partner with the City of Shoreview in 2018.

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Phase 1 implementation from Owasso Basin improvements feasibility study (Barr project manager: Erin Anderson Wenz; RWMWD project manager: Tina Carstens)

The purpose of this project is to evaluate flood control options for Owasso Basin and the surrounding area.

This period, Barr continued to use the RWMWD XP-SWMM hydrologic and hydraulic model of Grass Lake, Owasso Basin, and surrounding areas to evaluate how much additional storage would be required to keep the 100-year, 96-hour storm event (which was determined to be the critical event for the area) from overflowing the berm along the western edge of Owasso Basin, and from flooding the mobile-home park on the basin's south side. Various options were tested. Next steps involve evaluating options that would divert flows to other locations, but only if they do not raise the potential for further flooding downstream. Barr will provide a brief update on this study at the March 7 board meeting.

CIP project repair and maintenance

Beltline and Battle Creek tunnel repair construction services (Barr project manager: Nathan Campeau; RWMWD project manager: Dave Vlasin)

The purpose of this project is to perform ongoing maintenance and repairs of the Beltline tunnel system to significantly increase the service life of the tunnel.

During this period, PCIRoads performed repairs in the Beltline mainline and Mississippi branches including drilling ports, conducting crack injection with chemical grout, completing sealing exposed reinforcement, chipping poor concrete in preparation for concrete surface repairs, and performing concrete surface repairs (shotcreting). All work in the mainline is substantially complete. During the next period, PCIRoads plans to continue repairs in the Mississippi branch, perform punch-list repairs in the Beaver Lake and mainline branches, and complete manhole modifications in the Battle Creek tunnel.

Substantial completion for the project is March 15, 2018. However, repairs in Mississippi River branch are generating higher-than-estimated quantities due to the concrete. The additional work may result in a change order next month.

Regardless, the contingency for the project appears to be sufficient to cover the additional repairs and related additional engineering oversight.

CIP maintenance/repairs 2018 project (Barr project manager: Greg Nelson; RWMWD project manager: Dave Vlasin)

The purpose of this project is to maintain the existing systems and infrastructure owned and operated by the RWMWD and to assist and facilitate stormwater pond cleanouts to allow other public entities to meet their MS4 requirements.

Construction is now underway, with Fitzgerald Excavating & Trucking, Inc. already having finished several sites. The contractor began in January and has substantially completed work at Johnson Pond as well as channel cleaning in Grass Lake and downstream of the bituminous path. In addition, the

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contractor installed the new twin arch culverts in the bituminous path that will serve as the primary outlet for Grass Lake. The crew is currently finishing related grading and site restoration.

Payment application 1 is included in the bill list for consideration this month. In the near future, maintenance work will start at the Tanners Lake boat ramp pond.

Frost/Kennard enhanced water-quality treatment BMP (Barr project manager: Erin Anderson Wenz; RWMWD project manager: Paige Ahlborg)

The purpose of this project is to prepare plans and specifications, conduct project bidding, and observe construction for the water-quality BMP enhancement retrofit of the existing infiltration basin located on the parcel owned by the City of Maplewood. The parcel is located in the southwest quadrant of the intersection of Frost Avenue and Kennard Street.

On February 22, Barr held a preconstruction meeting with Minger Construction and the City of Maplewood. Construction on the spent-lime filter is expected to begin as early as mid-March, as soon as nearby homeowners have been notified about the project. As stated last month, homeowners were contacted early in the final design phase, and had no concerns regarding project renderings; the vantage point is limited, and the project is largely underground.

Willow Pond CMAC (Barr project manager: Erin Anderson Wenz; RWMWD project manager: Paige Ahlborg)

The purpose of this study is to evaluate the feasibility of using CMAC technology in a project that involves diverting flows from Willow Pond to a filter that will remove dissolved and particulate phosphorus to benefit Bennett Lake.

In preparation for a meeting with the City of Roseville, Barr developed 50-percent plans to represent the project's look and functions. The RWMWD then met with the city on February 13 to share the preliminary design and renderings and to discuss several aspects of the proposed project, including the proposed drawdown of Willow Pond to optimize the amount of water diverted to the filter.

The city has no reservations about the project at this time. Development of final plans and specifications and construction of the CMAC filtration system are expected to occur in spring and summer 2018.

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Natural Resources Update – Bill Bartodziej and Simba Blood

LakeLine Article – Lake Kohlman (attached)

We worked with the editor of LakeLine, an international journal produced by the North American Lake Management Society, to collaborate with authors and highlight four Minnesota lake management success stories. The winter issue includes articles on Lake Kohlman (see below), The Minneapolis Chain of Lakes, Bald Eagle Lake, and a statewide perspective of carp management.

Our paper first describes the RWMWD and the Phalen Chain of Lakes. We then characterize Lake Kohlman and discuss the history of management, going back to when the lake was placed on the Pollution Control Agency's 303(d) Impaired Waters List due to excessive phosphorus levels. We highlight the watershed and in-lake management practices that significantly improved the water quality in Kohlman, including the Maplewood Mall project, alum treatment, and carp management. We close by discussing the increase in aquatic plant coverage and balancing lake use. We mention that the watershed will be supporting a cost-share pilot project to assist with plant control, and stress the importance of public education.

Shallow Lakes Educational Video

Speaking of education, the first draft of the video was shared with our Citizen Advisory Committee; the feedback was very positive. Bill and other staff are working with Ben Hanson, the videographer, on completing a series of edits and producing a second draft. This is scheduled to be completed later this month. After a second round of reviews, the final product will be ready in spring. We are optimistic that this educational tool will help people understand shallow lake ecology and assist with setting reasonable shallow lake management goals.

A Minnesota Story: Urban Shallow Lake Management

William Bartodziej, Peter W. Sorensen, Przemyslaw G. Bajer, Keith Pilgrim, and Simba Blood

Carp, alum, water quality, and aquatic plants

Introduction

The Ramsey-Washington Metro Watershed District (RWMWD) manages surface waters in a 65-square-mile watershed located on the eastern side of the Twin Cities Metropolitan Area in Minnesota. As part of its directive, the RWMWD leads efforts to improve the water quality of lakes that are considered “impaired” by the Minnesota Pollution Control Agency (MPCA). Management efforts on one of these waters, Kohlman Lake, have substantially improved water quality while also creating the need to address citizen expectations regarding aquatic plant abundance in the lake.

When dealing with impaired lakes having excessive total phosphorus (P), the standard process involves Total Maximum Daily Load (TMDL) studies that look for management practices to reduce P inputs from both watershed and in-lake sources. In shallow Minnesota lakes, the two most common practices for reducing in-lake P inputs is alum treatment and the reduction of bottom feeding fish, such as the common carp (*Cyprinus carpio*). In the United States, carp is an invasive species that can significantly degrade lake systems. It feeds on the lake bottom, which uproots aquatic plants and increases water turbidity. This physical disturbance of the lake bottom can facilitate the release of P into the water. Carp also function as a “biological pump” by foraging on benthos and excreting metabolites into the water column.

In 2008, Kohlman Lake was placed on the MPCA’s 303(d) Impaired Waters List due to excessive P levels (growing season ten-year average of 98 µg/l). Here we provide a detailed account of the

alum treatment and carp management approaches used to address internal P loading in Kohlman Lake. We report results and relate these to MPCA standards that were set for the lake. We discuss how the change in lake water quality corresponded to an increase in aquatic plant cover, and the management challenges that now exist.

Characterizing Kohlman Lake

Kohlman is the northernmost lake of the Phalen Chain of Lakes in the eastern portion of the Twin Cities (Figure 1). Water flows from Kohlman Lake (residence time 30 days) to the south and eventually drains into the Mississippi River. Kohlman Lake is polymictic, small, and shallow (88 acres, maximum depth of 12 feet, and a mean depth of 4 feet), with the littoral area covering the entire lake surface. Approximately 50 percent of the shoreline is in private ownership, with 37 single-family homes sharing the water’s edge. A majority of these residents are members of the Kohlman Lake Association.

Kohlman is a popular lake for recreational boating, wildlife viewing and fishing. The lake supports several species of native fish, including bluegill (*Lepomis macrochirus*), black crappie (*Pomoxis nigromaculatus*), northern pike (*Esox lucius*), largemouth bass (*Micropterus salmoides*), and stocked tiger muskie (*Esox masquinongy x lucius*). Prior to management, even with a robust carp population and high P levels, Kohlman Lake was not in a perpetual algae-dominated state. Algal blooms did take place during the summer months, but the lake was still able to support a submersed aquatic plant community that

was dominated by the native coontail (*Ceratophyllum demersum*) and flatstem pondweed (*Potamogeton zosteriformis*), the invasive non-native Eurasian watermilfoil (*Myriophyllum spicatum*), and curly-leaf pondweed (*Potamogeton crispus*). In addition, a fringe of white water lily (*Nymphaea odorata*) encircled the lake. Plant control efforts focused on dock areas and boat channels (Figure 2).

The management plan

The RWMWD completed a comprehensive TMDL investigation for Kohlman Lake where both in-lake and watershed loading were estimated. The total P contribution from the watershed was estimated at 943 lbs. during an average precipitation year. From sediment core analyses, the maximum potential loading rate of P under anaerobic conditions was estimated to be 9.7 mg/m²/day. The loading rate of P from senescing curly-leaf pondweed in the lake was estimated at 1.54 mg/m²/day (James et al. 2001). These estimates were used to calculate a combined average seasonal internal P load of 290 lbs. The P release from carp feeding activity was not figured into these calculations.

For shallow lakes like Kohlman, the state standard for P is 60 µg/L. In order to reach this goal, we focused on reducing both watershed and internal loading. Mass balance modeling suggested that growing season reductions of 209 pounds (22 percent) of P from watershed loading and 255 pounds (88 percent) from internal loading would need to be achieved. The TMDL outlined numerous large-scale watershed BMP projects to be implemented in a stepwise manner over the next 20 years (Aichinger and Wentz 2012). Below, we provide detail regarding the in-lake alum treatment and carp



Figure 1. Map of the Phalen Chain of Lakes.

management that we used to address the internal P loading.

Alum treatment

In order to clear the lake bottom for the alum treatment, two large-scale (nearly whole lake) herbicide applications were conducted to reduce the abundance of two invasive species, curly-leaf

pondweed and Eurasian watermilfoil. In 2008, 95 percent of the lake area was treated with liquid endothall at a dose of 1.0 ppm to reduce curly-leaf pondweed. In addition, this same lake area was treated with liquid triclopyr at a dose of 0.5 ppm to reduce Eurasian watermilfoil. In spring 2009, Eurasian watermilfoil was not observed, but curly-leaf pondweed

was present. Hence, a repeat treatment of endothall (1.0 ppm covering 95 percent of the lake area) was conducted to treat the remaining curly-leaf pondweed. Spot treatments (total area equaling less than 10 acres) targeting these two species have taken place since the last whole lake treatment.



Figure 2. A 2006 aerial photo of Kohlman Lake showing a fringe of white water lily around the shore and maintained boat lanes to open water.

Approximately 33,000 gallons of liquid aluminum (Al) sulfate $[Al_2(SO_4)_3 \cdot 14(H_2O)]$ with 4.4 percent Al by weight, and 11,000 gallons of liquid sodium aluminate $[NaAl(OH)_4]$ in the hydrated form with 10.4 percent Al by weight composed one alum treatment. Two treatments were conducted, one in fall 2009, and one in spring 2010, when lake temperatures were above 50° F. Using a barge, alum was applied to the entire lake surface area except for a 50-foot buffer zone along the lake shoreline. A 3:1 ratio (3 gallons of aluminum sulfate for every 1 gallon of sodium aluminate) was used to ensure that the pH of the lake water was maintained between 6 and 9. A GPS mapping and dosing system ensured that the treatment was evenly distributed throughout the lake. In order to ensure acceptable lake pH, minor dosing rate changes were made based on continual in-lake pH monitoring.

Carp research and management

In 2009, the RWMWD began a study with the University of Minnesota to investigate common carp ecology and population dynamics in the Phalen Chain of Lakes. Carp biomass was estimated at 160 lb. ac⁻¹ for Kohlman Lake. Biomass over 100 lb. ac⁻¹ often has negative impacts to water quality through lake-

bottom disturbance and nutrient release (Bajer et al. 2016). In addition, Huser et al. (2016) found that carp mixed sediments to a depth of 6 inches, and this increased physical mixing could reduce the effectiveness of alum treatments. We also learned that bluegill sunfish, through carp egg and larvae predation, were inhibiting carp recruitment in the Phalen Chain (Silbernagel and Sorensen 2013). Mark-recapture studies revealed that young-of-year carp were migrating to the main lakes from nursery areas comprised of smaller connected shallow lakes and wetlands that experience fish winterkill (Bajer et al. 2012; Koch 2014).

Long-term management called for the reduction of adult carp in the main lakes to under 100 lb. ac⁻¹, while simultaneously eliminating carp in nursery areas and sustaining game fish communities as a natural carp bio-control. Beginning in 2010, we used winter netting under the ice to remove adult carp (Figure 3). Over



Figure 3. Commercial fisherman used seine nets under the ice to harvest common carp in the Phalen Chain of Lakes.

the last couple of years, we set baited box-nets in the summer to trap adult carp (Figure 4). Through these efforts, we reduced the adult carp population from 8,000 to 2,000 adults in the Phalen Chain, with a biomass currently estimated at 40 lb. ac⁻¹ in Kohlman Lake. We are now well under our 100 lb. ac⁻¹ management goal. Through winter drawdowns, we were also able to eliminate adult and young-of-year carp in connected spawning/nursery areas.

Kohlman Lake's response

Kohlman Lake's water quality has significantly improved since the commencement of the TMDL plan (Figure 5 a,b,c). Seasonal averages for P, chlorophyll-*a*, and Secchi depth were below the MPCA standards set for shallow lakes. In 2020, RWMWD lakes will again be assessed for impairment under MPCA guidelines. If Kohlman Lake's water quality remains consistent over the next few years, there is the possibility of "de-listing" this lake as an impaired water of the state for P.

The aquatic plant community responded to the herbicide treatments, carp biomass reduction, and the increase in water clarity. Eurasian watermilfoil and curly-leaf pondweed occurrence have remained at low levels (Figure 6), while coontail continued to express some of the highest frequency of occurrence levels. One native species, Canada elodea (*Elodea canadensis*), has become abundant after the TMDL implementation, with occurrence levels ranging from 30 to near 70 percent (Figure 7). Beginning in 2013, field observations indicated that mats of surfaced vegetation, consisting mainly of coontail and Canada elodea, were increasing, and these mats were typically colonized with large expanses of filamentous algae (Figure 8). In response to the increase in plant abundance, the RWMWD decided to support mechanical harvesting for two years on an experimental basis (Figure 9). Boating channels were cut and an open water area was maintained for recreation (Figure 10).

Water quality standards and citizen expectations

At the beginning of Kohlman Lake's TMDL management effort, there was widespread support for improving water



Figure 4. Common carp are harvested in the summer by using a baited box net.

quality and reducing invasive plant and animal species. The shallow lake water quality standards seemed to mesh quite well with citizen goals for Kohlman Lake. One of our educational messages at the beginning of the project was that aquatic plant cover would likely increase with improved water quality. This probable response was based on numerous published shallow lake studies that describe a "clear water state" where aquatic plants take advantage of increased water transparencies and become abundant. The key issue today with Kohlman Lake's condition has to do with exactly how the plant community responded to the increase in water quality. A modest increase of coontail and Canada elodea may have been tolerated by informed citizens. However, the presence of large expanses of surfaced plant mats with filamentous algae growing on top seemed to be the tipping point. Many residents around the lake were troubled by the look and described this type of algae as "bobbing expanses of green steel wool." Floating mats of coontail migrated around the lake and caused a nuisance for boaters, skiers, and severely clogged beach and dock areas. This plant response is not acceptable to a majority of the lake-users and frustration has become evident.

Aquatic plant management

The Kohlman Lake Association, while generally recognizing the improved water quality, is now seeking an agency to take the lead and develop a long-term solution to control aquatic plants and filamentous

algae. However, in Minnesota, there is not an agency that heads aquatic plant management in state waters. The Department of Natural Resources only permits aquatic plant control activities. Furthermore, the TMDL process does not address aquatic plant management, and the MPCA and watershed organizations are not legally obligated to take on plant management activities. Aquatic plant management is typically directed on a local level by lake associations, cities, and counties. As it stands now, if the shoreland owners wish to control plants in the central portion of Kohlman, this activity would need to be directed by the Lake Association. Frankly, members are quite aggravated about this bureaucratic situation.

Balancing lake use with water quality improvement

Although the RWMWD does not have a legal obligation to take on aquatic plant management, we believe that it is worthwhile to investigate solutions that will help satisfy both water quality and recreation-based goals. This effort is not motivated by hard rules, but rather goodwill towards the lake users. RWMWD's objective is to find a reasonable balance with water quality regulation, watershed management, ecological function, and human use of the lake resource.

One potential solution is the possibility of supporting aquatic plant harvesting through a RWMWD cost-share grant program, where the Kohlman

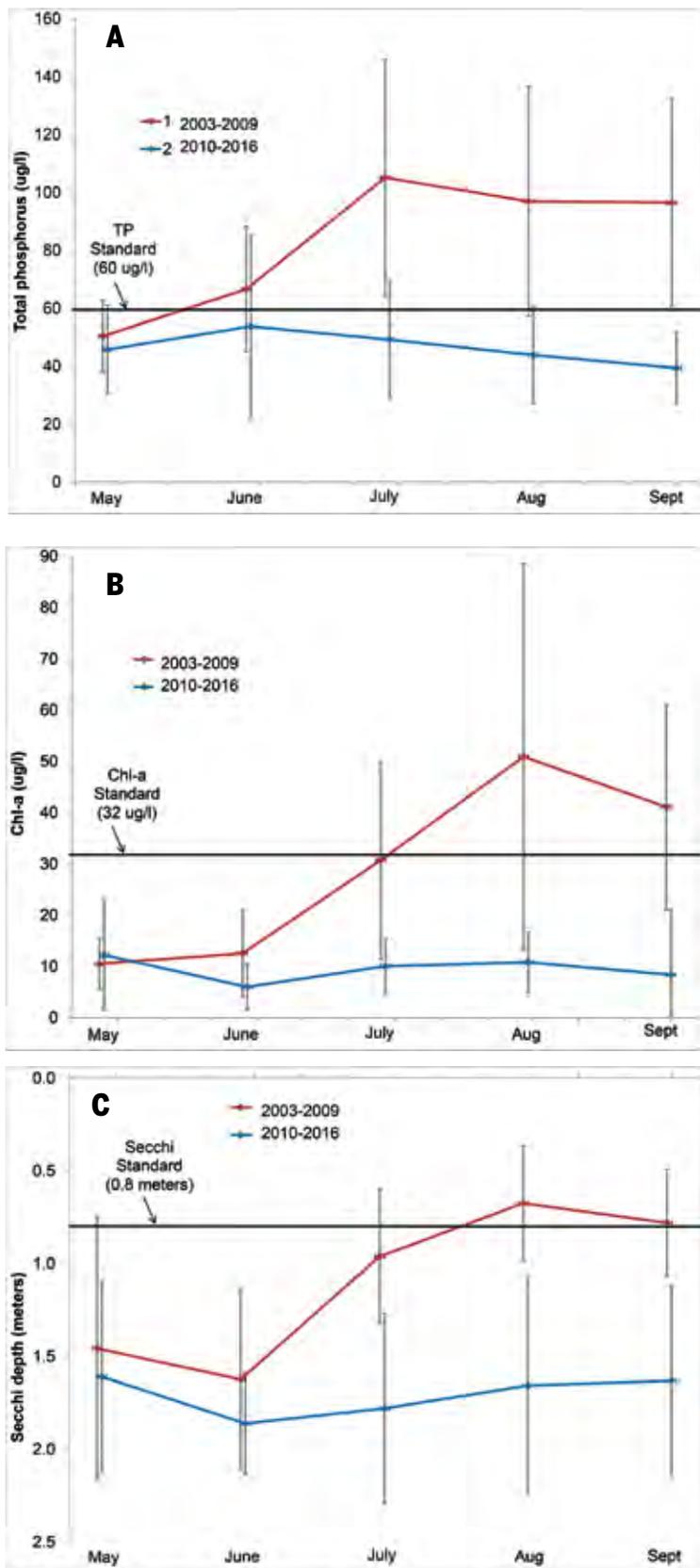


Figure 5. (A): Total phosphorus in Kohlman Lake reported for two periods, before (2003-09) and after (2010-16) alum treatment and carp control; (B): Chlorophyll-a in Kohlman Lake reported for two periods, before (2003-09) and after (2010-16) alum treatment and carp control; (C): Secchi depth in Kohlman Lake reported for two periods, before (2003-09) and after (2010-16) alum treatment and carp control.

Lake Association may be able to seek financial assistance. In a nearby shallow lake, Bartodziej et al. (2017) found that substantial quantities of total P were removed by plant harvesting at a reasonable cost. Strategic aquatic plant harvesting will certainly help with improving recreation and aesthetics, and will also remove phosphorus. Nutrient removal can be viewed as an ancillary benefit to harvesting. In Kohlman, this can be regarded as another tool to go along with several other P management activities.

By supporting thoughtful and effective aquatic plant management, our watershed district may help lake users to better accept the changes in the aquatic plant community brought about by improved water quality. Along with this management option, we believe that it is also important to continue to educate the residents of our watershed. Specifically, we must share straightforward water quality and ecological information on shallow lakes, and effectively communicate how shallow lakes are inherently different from our deep lakes. Over time, this will aid in formulating reasonable expectations for our shallow lakes.

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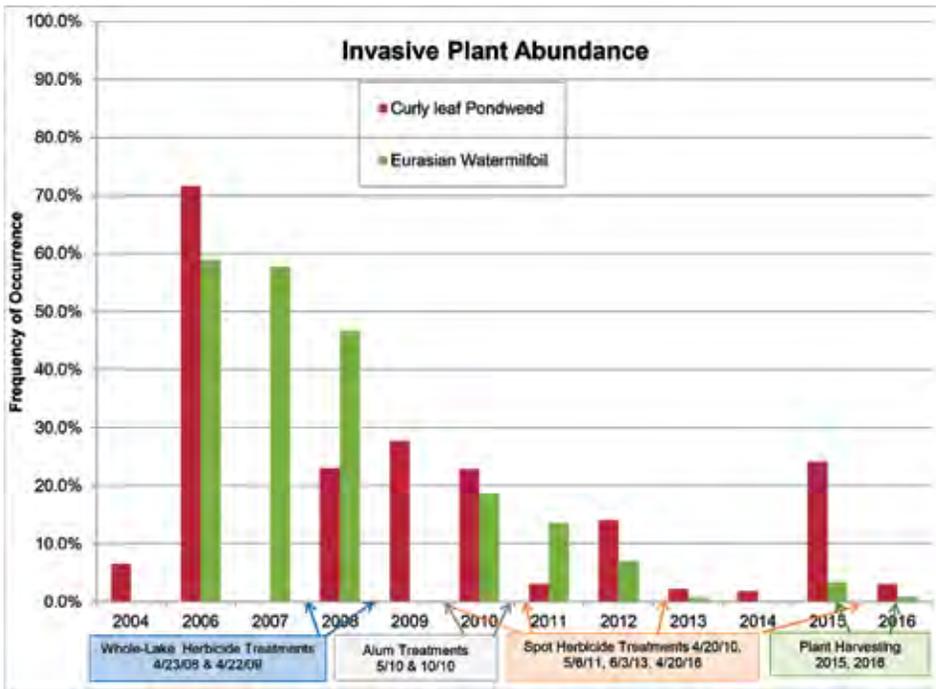


Figure 6. Curly-leaf pondweed and Eurasian watermilfoil percent frequency of occurrence.

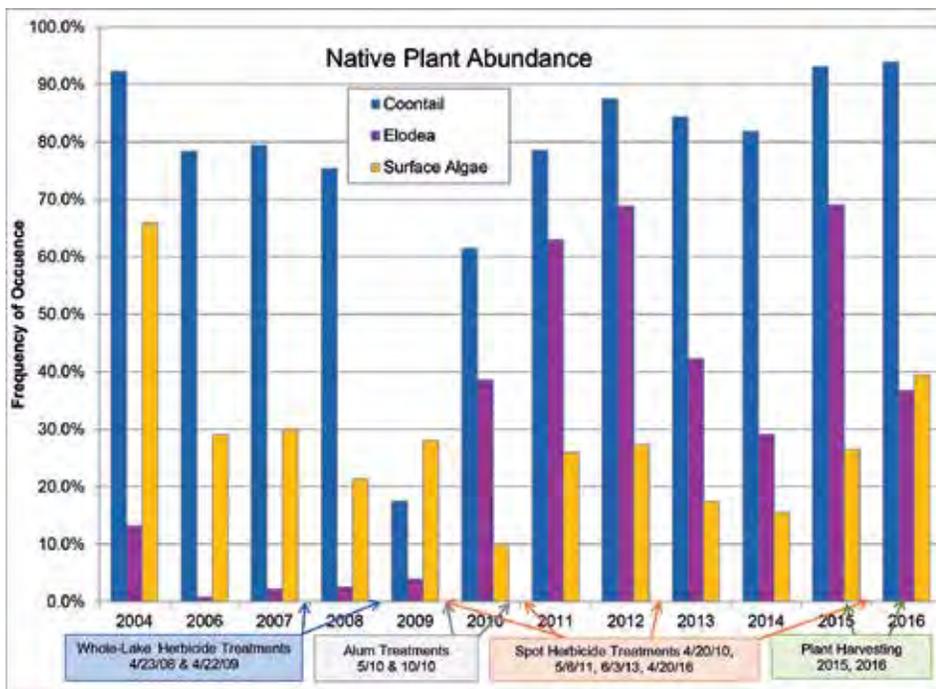


Figure 7. Coontail, Canada elodea, and surfaced filamentous algae percent frequency of occurrence.

Bill Bartodziej is a natural resources specialist with the Ramsey-Washington Metro Watershed District. He has the opportunity to meld ecological restoration with water resources management in an urban setting. He supports applied research involving common carp, aquatic plants, and lakeshore restoration.



Dr. Peter Sorensen is a professor in fisheries, wildlife and conservation biology at the University of Minnesota with an interest in fish biology and behavior. Carp have been focus of his for the past decade, especially how and why they are invasive, and often function as ecosystem engineers in the Midwest.



Dr. Przemek Bajer is a research assistant professor at the University of Minnesota. He studies various aspects of the life history of common carp to understand their success as an invasive species and to develop sustainable management strategies for carp.



Dr. Keith Pilgrim, a water resources scientist at Barr Engineering Company, has been captivated by the complexity and mysteries of lakes ever since his graduate days at the University of Minnesota. His work often involves developing custom models to interpret and understand monitoring data and to estimate the outcome of management decisions.



Simba Blood is the natural resources technician at the Ramsey-Washington Metro Watershed District. She leads field crews in ecological restoration, aquatic plant monitoring and carp management projects. She also enjoys teaching ecology and water management to citizen volunteers and school groups.



We'd like to hear from you! Tell us what you think of *LakeLine*. We welcome your comments about specific articles and about the magazine in general. What would you like to see in *LakeLine*?

Send comments by letter or e-mail to editor Bill Jones (see page 3 for contact information).



Figure 8. A typical mat of surfaced filamentous algae growing on top of coontail and Canada elodea.



Figure 9. An aquatic plant harvester was used to cut one foot under the water and collect a mix of filamentous algae and submersed vegetation.

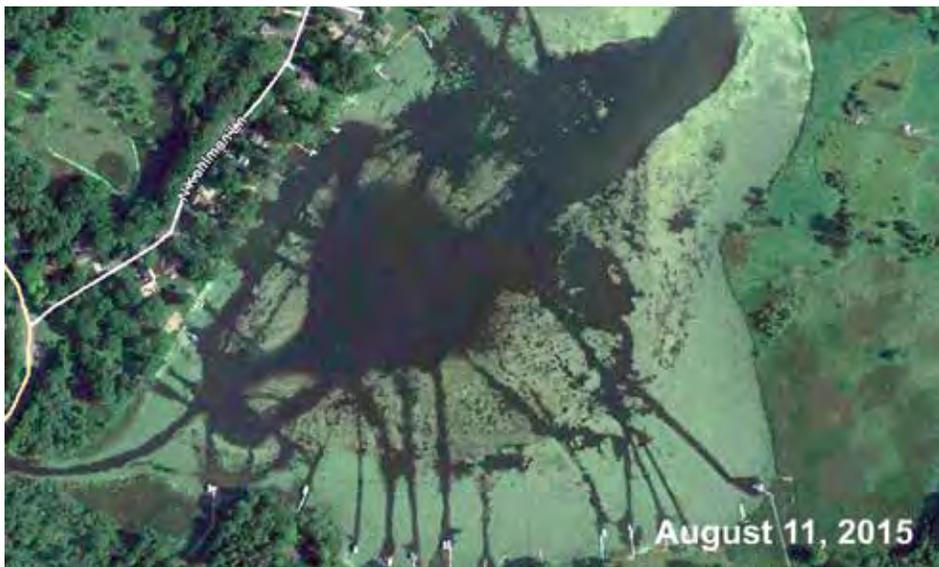


Figure 10. The aquatic plant harvester cut lanes to docks and also cleared an open water area in the center of the lake. Strips in the surfaced vegetation were evidence of the harvester's activity.

LAKE and RESERVOIR MANAGEMENT

A scientific publication of NALMS published up to four times per year solicits articles of a scientific nature, including case studies.



If you have been thinking about publishing the results of a recent study, or you have been hanging on to an old manuscript that just needs a little more polishing, now is the time to get those articles into your journal. There is room for your article in the next volume. Don't delay sending your draft article. Let the editorial staff work with you to get your article ready for publishing. You will have a great feeling of achievement, and you will be contributing to the science of managing our precious lakes and reservoirs.

Anyone who has made or plans to make presentations at any of the NALMS conferences, consider writing your talk and submitting it to the journal. It is much easier to do when it is fresh in your mind.

Send those articles or, if you have any questions at all, contact: Ken Wagner, Editor, *Lake and Reservoir Management*, kjwagner@charter.net.

If there is anyone who would like to read articles for scientific content, please contact Ken Wagner. The journal can use your help in helping the editorial staff in editing articles.



Public Involvement and Education Program – Sage Passi

Youth are the Backbone of Phalen Freeze Fest



Urban Roots youth created the puppet pageant, Shingebiss, at Lake Phalen with Ojibwe storyteller, Jenn Hall (second from right in middle row) and leader, David Woods (rear).

East St. Paul high school students from Johnson and Harding High Schools were the powerhouse behind this winter outdoor event on February 17. They helped with everything from setting up and assisting activities including ice fishing, fire building, the puppet pageant, passing out activity passports, preparing food, taking care of the Zero Waste station and the clean-up. Youth were busy for two hours ahead of time, getting the Story Walk set up on the ice for the St. Paul Library, helping Tips Outdoors put out equipment for fishing, hauling materials onto the ice for boot hockey and kick sleds, and setting up the fire barrels and activity signs, hiding the geocaches and then assisting with the activities throughout the afternoon.

Twenty-five Junior ROTC cadets from Harding and Johnson High Schools signed up to help. Several new youth organizations were also on the scene to help; the Harding Fishing Club and the St. Paul Junior Police Academy. They were very engaged in helping with ice fishing supported by St. Paul Police Officer Bergeron from the Community Engagement Unit who works with these two youth teams on community activities. Teens from Hazel Park Recreation Center assisted with the welcome table and Master Water Stewards and youth volunteers passed out Save the Date cards for WaterFest and Phalen Chain of Lakes water trail maps and solicited sign-ups for the District's monthly eNews.

One of the "teachable" opportunities that arose from this event was to drive home the message about Smart Salting. A large team of ROTC youth swept up the huge quantity of salt that had been spread everywhere on all levels by the boathouse right down to the steps leading to the water's, on steps and nearby sidewalks. *It took us two hours!* Education staff will be following up with St. Paul Parks and Recreation to see if we can engage their maintenance staff in a hands-on training to modify their salting practices to be more watershed-friendly.

Master Water Stewards Prepare for Capstones



The Rainscaping class attended by all Master Water Stewards is always a turning point in the training process when stewards start to get serious about what they will be doing for their capstone projects, both in terms of their outreach project and their “in the ground” project. This year, Matt Kumka, a Barr consultant, was hired by Freshwater Society to lead an all-day workshop on rain garden design and construction held at MWMO for all Master Water Stewards. Our Master Water Stewards also met outside the

regular classes to connect with last year’s Master Water Stewards from the Lake Phalen area to discuss potential outreach efforts in this neighborhood. On February 20, our Capitol Region, Rice Creek and RWMWD cohort Master Water Stewards began their last three class sessions held at our Watershed District office. The focus of these classes are Stormwater Management, BMP Maintenance, and a culminating Capstone Charette.

District Water Quality Staff Orient L’Etoile du Nord Students at Beaver Lake



It’s an annual event for L’Etoile du Nord fourth graders to walk a mile over to Beaver Lake in winter to learn first-hand about its water quality. Water Quality Technician, Lyndsey Provos and Natural Resources intern, Chris Klatt demonstrated the Sonde and Van Dorn sampler, collecting top and bottom samples from the lake, while three classes throughout the day arrived in shifts to watch from the boardwalk and record data about dissolved oxygen levels, pH, temperature and conductivity. Then they worked in groups to measure the first three parameters and added clarity to the tests they conducted on their own, comparing their results with the data collected by Watershed staff. The classes spent time in the fall at the lake learning about water quality problems and visited nearby rain gardens in the neighborhood. They will be working to develop a service-learning project this spring.

Outreach at Stonecrest Senior Residences in Woodbury



Master Water Stewards, Stephanie Wang, Anna Barker and Sage Passi are working with Renee Vaughan, Life Enrichment and Volunteer Director, to plan a series of watershed-related events in late spring and summer at Stonecrest, a senior living community in Woodbury located adjacent to Central Park, and the Stanford Library. We are anticipating an opportunity to work with residents who garden at their site to help replant the rain gardens in the parking lot at the library/Central Park. Prior to that, a talk is planned for residents about rain gardens, other projects in the area, watershed issues and the history and ecology of Tamarack Swamp. A tour is planned in July with stops at Trinity Presbyterian Church and Woodbury Elementary School to see their rain gardens and a visit to see Tamarack Nature Preserve. Another tour has been set for the public in the Battle Creek Lake neighborhood of Woodbury to visit the new rain gardens at Woodbury Elementary, a home rain garden above Battle Creek, with a stop at the lake to see how water quality monitoring is done by technicians. EMWREP is partnering with RWMWD for this event in June.



Master Gardeners and Master Naturalists engaged six classes at Farnsworth, L'Etoile Du Nord, Children's Discovery Academy and Maplewood Middle School in seed starting in February.

Maplewood Middle School is developing plans for a courtyard revitalization of an outdoor classroom originally built in the early 2000's and is beginning their first year of growing native seedlings. Children's Discovery Academy continues to grow plants to add native plants to their extensive butterfly garden. Farnsworth is growing plants for rain gardens and native gardens in various locations in their community. More classes will continue this activity in March.



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Informational Items

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Minnesota settles water pollution suit against 3M for \$850 million

Business Elizabeth Dunbar , Kirsti Marohn · Minneapolis · Feb 20, 2018



Minnesota DNR commissioner Tom Landwehr joined Minnesota Pollution Control Agency John Linc Stine and Attorney General Lori Swanson to talk about a settlement with 3M over PFC contamination in east metro groundwater. They spoke at a Capitol press conference on Feb. 21, 2018. Tim Nelson | MPR News

Minnesota Attorney General Lori Swanson on Tuesday announced an \$850 million settlement in the state's [lawsuit against 3M](#) over water contamination by perfluorochemicals, or PFCs, in several east Twin Cities suburbs.

A trial in the state's largest environmental lawsuit had been set to begin Tuesday with jury selection. The state [sought \\$5 billion](#) in punitive damages from 3M.

The state will use settlement funds for drinking water and water sustainability projects in areas affected by the contamination.



3M in St. Paul, Minn. Marlin Levison | Star Tribune via AP

Swanson said the money will come shortly in a single payment from 3M. The deal has been in the works for weeks, she said, with negotiations lasting through early Tuesday morning.

The money from 3M will go toward remedying the problems caused by PFCs in the east metro, Swanson said, which could include constructing new wells, connecting people on private wells to municipal water sources, or cleaning up existing water supplies. There will be a process created for deciding how to distribute and spend the money, Swanson said.

The trial was delayed a week following a Minnesota Department of Health report earlier this month that found [no unusually high rates of cancer](#) or adverse birth outcomes in the east metro, raising questions about the strength of the state's case.

Swanson said she found the health department's actions "very, very troubling," adding that they did not help her case.

While the \$850 million settlement is under a fifth of what the state sought in damages, it is more money than what 3M told the Securities and Exchange Commission it had in environmental liabilities as of the end of last year.



Minnesota Attorney General Lori Swanson announces a \$850 million settlement between the state and 3M at the Hennepin County Government Center on Feb. 20, 2018. Matt Sepic | MPR News

Swanson called the settlement a win, referencing a different settlement over groundwater contamination in West Virginia. In [that case](#), Dupont settled a series of suits over PFC leaks for \$671 million.

"We're pleased the settlement," Swanson said. "We think the settlement will help solve a problem for Minnesota. It's a problem that's been a long time in the making for many decades. These chemicals as I mentioned were put into the ground and we are very hopeful that this settlement can help fix that."

In a [statement announcing the settlement](#), 3M said it does not believe there are public health issues relating to PFCs, but it will work with the state on environmental projects anyway.

"This settlement reflects our commitment to acting with integrity and conducting business in a sustainable way that is in the best interest of all who live and work in Minnesota," 3M chief technology officer and senior vice president John Banovetz said in a statement. He added, "while we have never believed there is a PFC-related health issue, this agreement allows us to move past litigation and work together with the state on activities and projects to benefit the environment and our communities."

Commissioners for the state Department of Natural Resources and Pollution Control Agency praised the settlement in a statement Tuesday. The agencies will be trustees of the \$850 million fund.

MPCA head John Linc Stine said his agency will continue to work with east metro residents to ensure clean drinking water.

Part of the settlement could also go to improving water sustainability and wetlands in the area affected.

"We are pleased with the natural resources restoration and protection portion of the settlement and look forward to working with the impacted communities as we determine how best to invest these funds to restore and improve the area's water resources, fishing and wildlife habitat," DNR commissioner Tom Landwehr said in the news release.

Settlement ends years-long legal battle

The lawsuit, first filed in 2010, has been delayed many times. 3M had asked for yet another delay earlier this month after the health department report was released, saying it was a "game-changer." Lawyers representing the state refuted that characterization saying it was old news. The judge delayed the case by just a week.

- [Earlier: All eyes on Minnesota as state readies fight against 3M in water pollution trial](#)

Swanson brought the suit saying 3M knowingly contaminated groundwater with PFCs, putting east metro residents at risk of cancer and infertility.

3M made PFCs from the 1940s up until 2002, using them in many products like Scotchgard stain repellent, nonstick cookware and firefighting foam.

Up until the 1970s, 3M legally dumped the chemicals in landfills in the Twin Cities suburbs of Oakdale, Woodbury and Lake Elmo. Then, the chemicals leached into the groundwater.

Swanson argued in the suit that 3M willfully disregarded the potential harm of PFCs on the environment and citizens before it stopped making the chemicals. The suit also said 3M held back critical information on PFCs from federal authorities.

3M had said Minnesota's suit was a "misguided attempt" to pay for damages that don't really exist. The company has already spent more than \$100 million to clean up pollution in the Oakdale area.

"In some ways, it's not surprising to settle such a big case. There's really a lot at stake for both parties. Certainly, the original claim for billions of dollars is a lot of money for 3M, but also a lot of risk to the state if it doesn't go well," said Alexandra Klass, a professor at the University of Minnesota law school.

3M faces at least 24 similar suits alleging it polluted groundwater and Klass says the Minnesota settlement could have an impact nationally, either in cases of PFC contamination or other chemicals.

"Once you've brought one case like this, you have the experts, you've dealt with some of the legal issues. So maybe it provides a bit more of a playbook and a framework for other states to use," she said. "So I don't think that a case like this is unique, particularly as we learn more about different types of chemicals that in decades past we didn't necessarily think were harmful and now we're more concerned about them." The details of what will happen with the settlement money is expected to be spelled out in more detail in upcoming days. Swanson said the funds won't be available to state lawmakers for spending on pet projects.

Correction (Feb. 20, 2018): A previous version of this story incorrectly reported the year 3M stopped making PFCs. The story has been updated.

This story is part of [The Water Main](#) from MPR News, helping Minnesotans understand the value of water in our lives. Check out [@thewatermain](#) on Twitter.

ST. PAUL

Development of shuttered golf course could transform St. Paul neighborhood

Plan for closed golf course includes housing, restaurants, trails and community center

By Emma Nelson (<http://www.startribune.com/emma-nelson/261800211/>) Star Tribune

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In the northeastern corner of St. Paul, houses and streets give way to a tract of open, tree-studded land that rises to the highest point in the city. Now the owners of the former Hillcrest Golf Club have placed it on the market, creating a rare opportunity for developers to reshape an overlooked neighborhood.

The Hillcrest Golf Club operated for nearly a century on the East Side. At 110 acres, it's just 25 acres smaller than [the former Ford plant](https://www.stpaul.gov/departments/planning-economic-development/planning/ford-site-21st-century-community) (<https://www.stpaul.gov/departments/planning-economic-development/planning/ford-site-21st-century-community>) on the opposite end of town. But unlike at the Ford site, development at Hillcrest won't require major pollution cleanup — and so far, density-averse residents aren't planting signs in their front yards as they have in Highland Park.

"It's our Ford, with a lot fewer problems," said Council Member Jane Prince, who represents part of the East Side. "And accordingly, I hope it gets the same attention."

Steamfitters Pipefitters Local 455 bought Hillcrest for \$4.3 million in 2011 and operated the golf course until closing it in October (<http://www.startribune.com/hillcrest-golf-club-in-st-paul-to-close/436874433/>) after years of declining membership. Now, the union has plans to sell it for mixed-use development.

The plans come at a time when development is transforming closed golf courses across the metro area. [The area has lost more than 900 acres of golf course land since 2010](http://www.startribune.com/golf-courses-give-way-to-new-housing-amid-demand-for-land/437897933/) (<http://www.startribune.com/golf-courses-give-way-to-new-housing-amid-demand-for-land/437897933/>), according to the Metropolitan Council.

Development at Hillcrest would be a big change for the East Side, where mayoral candidates in 2017 promised to address a lack of investment. Residents and local leaders are eager to see development — whether it's multifamily housing, businesses looking to hire or good places to eat — and say Hillcrest seems like the place to do it.

"The location is ideal," said Council Member Dan Bostrom, who represents the area. "It's finding the right mix to fill it in and doing it in a responsible way."

Richard Magler Jr., business manager for the pipefitters, said the union hired a design firm about two years ago to sketch out ideas for the site. It came up with a plan for mixed-use development with housing and commercial space, as well as green space, 3 miles of trails and a community center or events center in the existing clubhouse, he said.

There's not a clear time line for when that development will begin. Magler said the hope is it will happen "as soon as possible."

Mayor Melvin Carter met with Magler on Feb. 15 to discuss the Hillcrest site. Magler said the union met with former Mayor Chris Coleman multiple times when he was in office, and the meeting with Carter was a chance to update the new mayor on the union's plans.

Hillcrest opened as a municipal golf course in 1921, and in 1945 became a private club for Jewish members. Membership had been unrestricted since the 1970s.

On a recent morning, the clubhouse was dark. Outside, wind churned across a deep layer of snow punctuated by bare trees.

Gary Unger has lived blocks from the golf course for most of his life, and he bookended a 35-year career at nearby 3M with stints as a caddie and then as a member of the grounds crew.

He knows what it's like to watch the seasons come and go at Hillcrest. He knows which birds fly over (scarlet tanagers, bluebirds, wrens and swallows) and how many trees there are (about 600). He knows the view of the city from the top of the highest hill, at Tee 14.



(http://stmedia.startribune.com/images/1519514130_10029361+hill)
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Gary Unger, a lifelong East Side resident who lives near the Hillcrest Golf Club site, wants development at Hillcrest but also is sad about

Unger, president of the area district council, wants development at Hillcrest. He said he'd like the site to become a destination, with restaurants — maybe something like Mancini's Char House on W. 7th Street — and other businesses that will create jobs.

But at the same time, there's a tinge of melancholy at what will be lost when streets cross through the old fairways and buildings spring up where trees once grew.

"It's been a golf course my whole life — it's been open space," Unger said. "It's kind of hard to envision anything there yet."

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