RAMSEY-WASHINGTON
METRO WATERSHED DISTRICT

February 2019
Board Packet

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Agenda

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RAMSEY-WASHINGTON
METRO WATERSHED DISTRICT

Regular Board Meeting Agenda

Wednesday, February 6, 2019
6:30 P.M.
District Office Board Room
2665 Noel Drive, Little Canada, MN

1. Call to Order – 6:30 PM
2. **Approval of Agenda**
3. **Consent Agenda**
    A. Approval of Minutes January 2, 2019
    B. District Liability Insurance Coverage Waiver
4. **Treasurer's Report and Bill List**
5. Visitor Presentations
6. Permit Program
    A. Applications
        i. **19-05 3M Innovation Blvd/19th St Reconstruction – Maplewood**
    B. Enforcement Action Report
    C. TAC Permit Rule Update
7. Stewardship Grant Program
    A. Applications - NONE
    B. Budget Status Update
8. Action Items
    A. Board of Managers Annual Meeting
    B. Snail Lake Shoreline Restoration Approval of Plans & Authorization to Advertise for Bid
    C. 2019-2020 BMP Maintenance Program Request for Qualifications
9. Administrator's Report
    A. Meetings Attended
    B. Upcoming Meetings and Dates
    C. District Office Updates
    D. Operations and Maintenance Conference Tour and Abstract Submittal
    E. MAWD Legislative Briefing, Reception, and Day at the Capitol

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10. Project and Program Status Reports
    A. Project Technical Reports and Presentation: Maplewood Mall 5 Year Project Inspection, Inventory, and Recommendations for Maintenance and Improvements – Matt Kumka, Barr Engineering
    B. Project Technical Memo: District Office Parking Lot Rehabilitation and Retrofit Options – Matt Kumka, Barr Engineering
    C. Ongoing Project and Program Updates
        i. Groundwater
        ii. Owasso Park Stormwater Master Plan
        iii. Beltline Resiliency Study
        iv. Subwatershed Feasibility Studies
        v. Lake Owasso Emergency Response Plan
        vi. FEMA Flood Mapping
        vii. West Vadnais Lake Outlet Permitting
        viii. 500-Year Atlas 14 Modeling
        ix. Auto Lake Monitoring Systems
        x. Wakefield Park/Frost Avenue Project
        xi. Targeted Retrofit Projects
        xii. Roseville High School Campus Project
        xiii. Willow Pond Spent Lime Filter
        xiv. Aldrich Arena Site Design
        xv. CIP Maintenance and Repair 2019 Project
        xvi. New Technology Review – Modular Wetland System Downspout
        xvii. Natural Resources Program
        xviii. Education Program
        xix. Communications Program
11. Informational Items
12. Report of Managers
    A. Summary of Closed Meeting held February 6, 2019 at 5:00 PM
13. **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
January 2, 2019

The Regular Meeting of January 2, 2019, 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, Treasurer
Lawrence Swope, Manager

ABSENT:
Dr. Pam Skinner, Secretary

ALSO PRESENT:
Tina Carstens, District Administrator
Paige Ahlborg, Project Manager
Bill Bartodziej, Natural Resource Specialist
Nicole Soderholm, Permit Inspector
Dave Vlasin, Water Quality Technician
Chris O'Brien, Communications Coordinator
Brad Lindaman, Barr Engineering
Tracey Galowitz, Attorney for District
Laurann Kirschner, Attorney for District
Randee Edmundson, Ames Lake Community
Shawn Murphy, McDonald's
Joe Bailey, McDonald's

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

2. APPROVAL OF AGENDA
Motion: Lawrence Swope moved, Cliff Aichinger seconded, to approve the agenda as presented. Motion carried 4-0 (Skinner absent).

3. CONSENT AGENDA
A. Approval of Minutes from December 5, 2018
Motion: Lawrence Swope moved, Cliff Aichinger seconded, to approve the consent agenda as presented. Motion carried 4-0 (Skinner absent).

4. TREASURER'S REPORT AND BILL LIST
Manager Aichinger noted that this is an informal year-end balance and asked for input on items that are potentially coming in under budget. Tina Carstens provided additional clarification, noting that the GIS item is in the maintenance phase and advised that the line-item budget has been decreased for 2019. She stated that the communications and marketing budget for 2018 was created before Chris O'Brien came on board and therefore that line item was done as an estimate and has now been better refined. She stated that she will follow up on the education and outreach line item.

Motion: Cliff Aichinger moved, Lawrence Swope seconded, to approve the January 2, 2019, bill list as submitted. Motion carried 4-0 (Skinner absent).

5. VISITOR PRESENTATIONS None.

6. PERMIT PROGRAM

A. Applications

Permit #19-01: McDonald's Suburban Ave – St. Paul

Nicole Soderholm stated that this is an update of an existing McDonald's and will utilize an underground filtration system.

Motion: Cliff Aichinger moved, Lawrence Swope seconded, to approve Permit #19-01. Motion carried 4-0 (Skinner absent).

Permit #19-02: Valley Creek Retail – Woodbury

Motion: Cliff Aichinger moved, Dianne Ward seconded, to approve Permit #19-02 with the variance and special provisions. Motion carried 4-0 (Skinner absent).

Permit #19-03: Keller Practice Range Phase 2 – Maplewood

Nicole stated that the stormwater plan was approved by the Board in May of 2018 and after it was conditionally approved, the design changed. She stated that the project was then split in two phases with only grading occurring in 2018 and the remainder to occur in 2019.

Motion: Dianne Ward moved, Lawrence Swope seconded, to approve Permit #19-03. Motion carried 4-0 (Skinner absent).

Permit #19-04: Hiway Federal Credit Union – Woodbury

Nicole stated that this is a standard redevelopment site. She stated that underground infiltration is proposed for this project.

Motion: Cliff Aichinger moved, Dianne Ward seconded, to approve Permit #19-04. Motion carried 4-0 (Skinner absent).

B. Monthly Enforcement Report

During December, zero notices were sent.

C. 2018 Permit Program Statistics and Technical Advisory Committee (TAC) Update

Nicole gave an overview of the 2018 permit program statistics. She stated that three most common violations are the items that require the most maintenance. She stated that the applications for construction are decreasing and the wetland applications saw a slight increase, although noted that most of the wetland applications were delineations. She noted that despite a similar number of violations, the violations were less critical this year which is encouraging.

Nicole also stated that in 2018 staff has begun a rule change process. She stated that staff will bring the rule revisions before the Board in February and will release for the formal comment period in March. She noted that once the comments have been reviewed, the rules would tentatively be approved by this Board and the Capital Regional Board in early summer. She noted that a TAC meeting was held in September and the member cities and counties have already seen the proposed increases. She noted that some of the large increases are because the District has not made increases in many years.

7. STEWARDSHIP GRANT PROGRAM

A. Applications

Permit #19-01 CS: North Park Condo Association – Infiltration Basin

Paige Ahlborg stated that this is a partnership of two townhome complexes which share a large drainage area. She stated that staff has been working with the applicants since 2016 and this would install a large infiltration system and installation of native plants to deter erosion. She stated that the Conservation District will also be contributing grant funds. President Ebensteiner noted that several homes are impacted, estimating perhaps 50 families, and therefore this will be a good improvement. Manager Swope asked the total project cost. Paige stated that some bids were received and thus far the lowest bid was $180,000. She stated that staff is requesting the maximum amount of $200,000 and confirmed that total amount may not be used. She stated that the Conservation District is contributing $30,000 as well.

Motion: Lawrence Swope moved, Dianne Ward seconded, to approve Permit #19-01 CS. Motion carried 4-0 (Skinner absent).

Permit #19-02 CS: DeVine – Shoreline Restoration

Paige Ahlborg stated that this is a shoreline restoration project on Kohlman Lake which will start this spring and finish in the fall. She stated that the homeowner is also signing up for two years of maintenance.
Motion: Cliff Aichinger moved, Lawrence Swope seconded, to approve Permit #19-02 CS. Motion carried 4-0 (Skinner absent).

Permit #19-03 CS: Ames Lake Community Sculpture – Public Art

Paige Ahlborg stated that this is a public art piece on Ames Lake. She stated that this would be a replacement for a stolen sculpture. She stated that the cost-share in the past has been 50 percent. She noted that there will be a lot of in-kind and volunteer donations along with outreach and therefore is requesting the District fully fund the sculpture at a cost of $6,000.

Randee Edmundson stated that Ames Lake restoration process occurred in the 1990's and stated that she and the artist that they are working with were both teachers during that time. S She stated that the original sculpture was installed in 2004 and then stolen in 2016. She stated that the Park and Recreation Commission is handling the installation and insurance costs for this replacement sculpture and is working with the artist to redesign the sculpture and make it less vulnerable to theft. She stated that Parks and Rec will also cover ongoing maintenance. She reviewed the other partners and the contributions that they will make. She stated that the District funds will cover the pouring of the sculpture.

Motion: Cliff Aichinger moved, Lawrence Swope seconded, to approve Permit #19-03 CS in the amount of $6,000. Motion carried 4-0 (Skinner absent).

B. Budget Status Update

Paige Ahlborg stated that the budget this year was increased to allow for some bigger projects that are anticipated.

8. ACTION ITEMS None.

9. ADMINISTRATOR'S REPORT

A. Meetings Attended Noted.

B. Upcoming Meetings and Dates

Chris O'Brien provided additional details on the upcoming Phalen Freeze Fest. He stated that the District will have a booth that will most likely focus on smart-salting.

C. Citizen Advisory Committee (CAC) Update – Carrie Magnuson Noted.

D. Annual Meeting Reminder Noted.

President Ebensteiner stated that it would be interesting to know prior to the meeting if a member of the Board is interested in holding an office.

E. Administrator's Review

Tina Carstens noted that she will send an email confirming availability of the Board.

10. PROJECT AND PROGRAM STATUS REPORTS

A. Project Technical Reports and Presentations: Battle Creek, Beaver and Owasso Lake Subwatershed Feasibility Studies – Josh Phillips, Barr Engineering

Brad Lindaman suggested that the discussion tonight focus on why the subwatershed feasibility studies are done and the potential projects that are identified in each subwatershed. He noted that the Board could discuss how the information will be used going forward. He stated that this information is meant to start the discussion on how the information is used going forward. He explained that they are looking for cost-effective and feasible alternatives that will slow the degradation of the water bodies within the subwatersheds. He stated that the at-risk water bodies at not impaired and asked how much the District should invest into the water bodies to ensure that they do not become impaired. He provided specific information on different water bodies beginning with Beaver Lake. He explained that once the potential sites for BMPs are identified on desktop, the sites must be narrowed by sites that would actually work with the real-world conditions. He explained that 56 sites were identified via desktop, which was narrowed to eight in real-world conditions, and further narrowed to five sites that could be feasible. Manager Aichinger stated that BMP 2 does not appear to provide any real benefit as the water would go through many wetlands before reaching Beaver Lake.

Brad stated that these studies provide a list of BMPs, but noted that does not mean the District will undertake these projects. He explained that the projects could be coupled with a city street project or another project or could be implemented as a capital improvement project.

President Ebensteiner asked if Hillcrest Golf Course would be a good site for a collaborative improvement project as that site redevelops. Tina Carstens confirmed that the District has been involved with the city of Saint Paul on the discussion for the redevelopment of that site.

Manager Aichinger noted that a living streets project with Saint Paul is another opportunity to improve the quality of the lake as well, similar to what has been done in Maplewood. He stated that in lake treatment for Beaver Lake would possibly be much more beneficial than reducing the contributions that come into the lake. Tina noted that will be discussed in the next year as well because that is also true for other lakes within the District. Manager Aichinger noted that this area is pretty much developed, with the exception of Hillcrest, and therefore that redevelopment should be closely watched, but there are not a lot of other development opportunities in that subwatershed.

Brad noted that the total load reduction that would be gained through the practical projects is small, but explained that there could be benefit if those are used as demonstration and educational projects. He provided additional information on the cost benefit analysis for the projects, noting that some of the potential projects have a higher cost per pound of removal.

Bill Bartodziej asked if there would be flood level benefits to the projects. Brad noted that it would be minimal. He explained that this was a water quality study and therefore flood reduction was not a focus of the Beaver Lake study. He moved on to the Lake Owasso study and provided background information on the lake and study area. He provided specific information on Lake Owasso. He stated that the desktop analysis began with 41 sites and was narrowed to ten sites. He stated that there were limited sites that would provide benefit and noted that perhaps those projects would be candidates for stewardship grant funds.

Manager Aichinger identified a site owned by Roseville that could be a potential site for a project. He stated that a small improvement to control the curly leaf pond weed could improve the water body. Tina noted that carp

management would also continue. Bill replied that curly leaf pond weed has been decreased in the last few years. He agreed that it is beneficial to continue to reduce the carp biomass in the lake.

Brad provided a cost benefit analysis of the potential projects, noting that the cost for some of the projects is near $10,000 per pound of reduction. He provided similar cost benefits of other District projects which range in $500 to $4,000 per pound of removal. Tina stated that the District typically looks for a cost benefit of less than $5,000 per pound for projects.

Brad reviewed the results of the Battle Creek Lake study and provided specific information on the water body. He stated that the list of projects the District has done in the subwatershed has helped to improve the water quality. He stated that watershed runoff remains the primary source of loading for the lake. He stated that 50 desktop sites were identified, which was narrowed to twelve sites which were visited and was then narrowed to five sites. He stated that four of the sites would be rain gardens, which do not provide a large reduction. He stated that the 694/494 interchange does present a substantial opportunity. He stated that a pond could be retrofitted and would provide a large load reduction.

Manager Aichinger noted that there are research studies regarding excavation of ponds and those results could be implemented in the District. He noted that continued inspections and maintenance will continue to play a large role as well. Tina noted that wetlands would also be an element along with ponds. Staff is looking at larger wetland systems and the potential to monitor them for phosphorus export.

Brad asked the threshold for future studies as projects are identified. He stated that it would be helpful to judge the projects against each other based on a unified approach. He stated that community engagement and education opportunities are harder to judge. Tina stated that even though a project may not make a huge water quality impact in its location, it may have educational value to the public. Brad explained that projects do help people to think about the amount of runoff that is generated and how that runoff could be reduced.

President Ebensteiner stated that spending $10,000 per pound for removal does not seem logical. She commented that some of the opportunities identified and would be highly visible deserve a first look because they do contribute to educational impact. Tina noted that other benefits would also be reviewed in addition to water quality, such as impervious surface removal and pollinator friendly projects. Manager Aichinger stated that if the cost exceeds $5,000 per pound, perhaps then in lake treatment options are reviewed. Tina stated that the District has a robust cost benefit database and staff could update the review of that to provide an average and range. Bill stated that phosphorus is just one element that is removed through projects like rain gardens and stated that other harmful elements are also removed.

Brad confirmed that the projects identified in these studies were simply a list of opportunities and is not a prioritized list. He explained that, while some could be considered as a capital improvement project, like the 694/94 interchange, other projects would be good candidates for the stewardship grant program.

Manager Swope asked if other benefits could be factored in, such as those mentioned by Bill Bartodziej. Brad confirmed those could be factored in when reviewing a potential project, it is simply not included in the modeling process. He confirmed that staff will take these potential opportunities along with the additional opportunities mentioned by the Board tonight to develop a scoring criteria that includes some of the other factors that have been mentioned to develop an opportunities list. Tina noted that the opportunity results from the other subwatershed studies that have been completed are all being compiled onto a list and GIS layer, noting that these will be added.

Brad reviewed some of the elements that have been implemented to address internal loading within the lakes, as well as things to consider moving forward. He stated that the Board will need to discuss how far they would like to go to protect some of the at-risk lakes in the future.

B. Ongoing Project and Program Updates

i. Owasso Park Stormwater Master Plan

ii. Beltline Resiliency Study

iii. District Office Parking Lot Retrofit

Brad Lindaman noted that Matt Kumka will provide an update at the next meeting on this item.

iv. Lake Owasso Emergency Response Plan

v. Grass Lake/Snail Lake Area Emergency Response Plan

vi. FEMA Flood Mapping

vii. West Vadnais Lake Outlet Permitting

viii. 500 Year Atlas 14 Modeling

ix. Auto Lake Monitoring Systems

x. Maplewood Mall Monitoring

Manager Aichinger referenced the Maplewood Mall monitoring, noting that the inspection phase has been completed and asked if staff have comments to share. Brad Lindaman noted that Barr Engineering will provide a presentation with recommendations at the next Board meeting. President Ebensteiner noted that there are some trees near the entrances and exits of the mall parking lot and it would be helpful to ensure sightlines are clear. Tina Carstens noted that staff can follow up with mall staff to discuss that issue.

xi. 2018 Grant Applications

Tina Carstens noted that this is in regard to the spent lime pond application project. She stated that Barr Engineering received the grant with the District as a partner.

xii. Kohlman Basin Weir Test System

xiii. Wakefield Park/Frost Avenue Project

xiv. Targeted Retrofit Projects

xv. Roseville High School Campus Project

xvi. BMP Design Assistance and Review

Paige noted that under shoreline restoration projects, Duck Lake should actually be Snail Lake.

xvii. Aldrich Arena Site Design

xviii. Beltline/Battle Creek Tunnel

xix. CIP Maintenance and Repair 2019 Project

xx. Natural Resources Program

Bill Bartodziej stated that the County selected a contractor for the Vadnais/Snail Regional Park project and some changes will occur over the winter season. He stated that there are five signs on key locations along the walking path and Chris O'Brien has been providing updates on the District website as well.

xxi. Education Program

xxii. Communications Program

11. INFORMATIONAL ITEMS No comments.

12. REPORTS OF MANAGERS

Manager Ward thanked staff for the holiday party, noting that it was a nice time.

13. ADJOURN

Motion: Dianne Ward moved, Cliff Aichinger seconded, to adjourn the meeting at 8:27 p.m. Motion carried 4-0 (Skinner absent).

Respectfully submitted,
Dr. Pam Skinner, Secretary

Consent Agenda Item

Board Meeting Date: February 6, 2019 **Agenda Item No.:** 3B

Preparer: Tina Carstens, Administrator

Item Description: District Liability Insurance Coverage Waiver

Background:
As required by our annual insurance renewal application, we need to stipulate whether the District waives the tort liability limits set by the legislature for government agencies. The District has historically chosen to not waive the liability limits, which limits our exposure to liability claims to the legislative limit of $500,000 per individual or $1,500,000 in total. I have completed the form accordingly and attached it to this request for board action.

Applicable District Goal and Action Item:

Goal: Manage effectively: The District will operate in a manner that achieves its mission while adhering to its core principles.

Action Item: Follow all legal requirements applicable to watershed districts.

Staff Recommendation:
Approve the Liability Coverage Waiver Form indicating the District does not waive the monetary limits on municipal tort liability.

Financial Implications:
There are no budget implications for this action at this time.

Board Action Requested:
Approve the Liability Coverage Waiver Form indicating the District does not waive the monetary limits on municipal tort liability.

LEAGUE OF MINNESOTA CITIES

CONNECTING & INNOVATING
SINCE 1913

LIABILITY COVERAGE – WAIVER FORM

Members who obtain liability coverage through the League of Minnesota Cities Insurance Trust (LMCIT) must complete and return this form to LMCIT before the member's effective date of coverage. Return completed form to your underwriter or email to pstech@lmc.org.

The decision to waive or not waive the statutory tort limits must be made annually by the member's governing body, in consultation with its attorney if necessary.

Members who obtain liability coverage from LMCIT must decide whether to waive the statutory tort liability limits to the extent of the coverage purchased. The decision has the following effects:

- *If the member does not waive the statutory tort limits*, an individual claimant could recover no more than $500,000 on any claim to which the statutory tort limits apply. The total all claimants could recover for a single occurrence to which the statutory tort limits apply would be limited to $1,500,000. These statutory tort limits would apply regardless of whether the member purchases the optional LMCIT excess liability coverage.

- *If the member waives the statutory tort limits and does not purchase excess liability coverage*, a single claimant could recover up to $2,000,000 for a single occurrence (under the waive option, the tort cap liability limits are only waived to the extent of the member's liability coverage limits, and the LMCIT per occurrence limit is $2,000,000). The total all claimants could recover for a single occurrence to which the statutory tort limits apply would also be limited to $2,000,000, regardless of the number of claimants.

- *If the member waives the statutory tort limits and purchases excess liability coverage*, a single claimant could potentially recover an amount up to the limit of the coverage purchased. The total all claimants could recover for a single occurrence to which the statutory tort limits apply would also be limited to the amount of coverage purchased, regardless of the number of claimants.

Claims to which the statutory municipal tort limits do not apply are not affected by this decision.

LMCIT Member Name: Ramsey-Washington Metro Watershed District

Check one:

☑ The member **DOES NOT WAIVE** the monetary limits on municipal tort liability established by Minn. Stat. § 466.04.

☐ The member **WAIVES** the monetary limits on municipal tort liability established by Minn. Stat. § 466.04, to the extent of the limits of the liability coverage obtained from LMCIT.

Date of member's governing body meeting: February 6, 2019

Signature: Tina Carstens Position: Administrator

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Bill List

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RWMWD BUDGET STATUS REPORT
Administrative & Program Budget
Fiscal Year 2019
1/31/2019

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	-	690.00	690.00	$5,810.00	10.62%
	Manager expenses	4360	3,500.00	-	-	-	3,500.00	0.00%
Committees	Committee/Bd Mtg. Exp.	4365	3,500.00	-	215.00	215.00	3,285.00	6.14%
Employees	Staff salary/taxes/benefits	4010	1,385,000.00	-	95,339.12	95,339.12	1,289,660.88	6.88%
	Employee expenses	4020	10,000.00	-	199.74	199.74	9,800.26	2.00%
	District training & education	4350	25,000.00	-	1,254.60	1,254.60	23,745.40	5.02%
Administration/	GIS system maint. & equip.	4170	15,000.00	-	-	-	15,000.00	0.00%
Office	Data Base/GIS Maintenance	4171	5,000.00	-	-	-	5,000.00	0.00%
	Equipment maintenance	4305	3,000.00	-	-	-	3,000.00	0.00%
	Telephone	4310	8,000.00	-	358.22	358.22	7,641.78	4.48%
	Office supplies	4320	5,000.00	-	-	-	5,000.00	0.00%
	IT/Internet/Web Site/Software Lic.	4325	45,000.00	-	2,346.98	2,346.98	42,653.02	5.22%
	Postage	4330	10,000.00	-	-	-	10,000.00	0.00%
	Printing/copying	4335	8,000.00	-	285.67	285.67	7,714.33	3.57%
	Dues & publications	4338	11,000.00	-	7,580.00	7,580.00	3,420.00	68.91%
	Janitorial/Trash Service	4341	17,000.00	-	743.27	743.27	16,256.73	4.37%
	Utilities/Bldg.Contracts	4342	20,000.00	-	1,851.61	1,851.61	18,148.39	9.26%
	Bldg/Site Maintenance	4343	300,000.00	-	294.50	294.50	299,705.50	0.10%
	Miscellaneous	4390	5,000.00	-	-	-	5,000.00	0.00%
	Insurance	4480	35,000.00	-	-	-	35,000.00	0.00%
	Office equipment	4703	40,000.00	-	-	-	40,000.00	0.00%
	Vehicle lease, maintenance	4810-40	43,000.00	-	88.03	88.03	42,911.97	0.20%
Consultants/	Auditor/Accounting	4110	55,000.00	-	-	-	55,000.00	0.00%
Outside Services	Engineering-administration	4121	93,000.00	-	4,945.50	4,945.50	88,054.50	5.32%
	Engineering-permit I&E	4122	10,000.00	-	63.00	63.00	9,937.00	0.63%
	Engineering-eng. review	4123	55,000.00	-	1,374.50	1,374.50	53,625.50	2.50%
	Engineering-permit review	4124	55,000.00	-	593.00	593.00	54,407.00	1.08%
	Project Feasibility Studies	4129	790,000.00	-	8,902.50	8,902.50	781,097.50	1.13%
	Attorney-permits	4130	10,000.00	-	-	-	10,000.00	0.00%
	Attorney-general	4131	40,000.00	-	-	-	40,000.00	0.00%
	Outside Consulting Services	4160	40,000.00	-	-	-	40,000.00	0.00%
Programs	Educational programming	4370	60,000.00	-	48.88	48.88	59,951.12	0.08%
	Communications & Marketing	4371	25,000.00		80.00	80.00	24,920.00	0.32%
	Events	4372	50,000.00	-	38.31	38.31	49,961.69	0.08%
	Water QM-Engineering	4520-30	300,000.00	-	3,258.33	3,258.33	296,741.67	1.09%
	Project operations	4650	160,000.00	-	581.48	581.48	159,418.52	0.36%
	SLMP/TMDL Studies	4661	68,000.00	-	-	-	68,000.00	0.00%
	Natural Resources/Keller Creek	4670-72	115,000.00	-	473.50	473.50	114,526.50	0.41%
	Outside Prog.Support/Weed Mgmt.	4683-84	67,000.00	-	1,884.60	1,884.60	65,115.40	2.81%
	Research Projects	4695	115,000.00	-	1,130.00	1,130.00	113,870.00	0.98%
	Health and Safety Program	4697	3,000.00	-	-	-	3,000.00	0.00%
	NPDES Phase II	4698	10,000.00	-	4,011.50	4,011.50	5,988.50	40.12%
GENERAL FUND TOTAL			**$4,124,500.00**	**$0.00**	**$138,631.84**	**$138,631.84**	**$3,985,868.16**	3.36%
CIP's	CIP Project Repair & Maintenance	516	1,120,000.00	-	87,517.05	87,517.05	1,032,482.95	7.81%
	Targeted Retrofit Projects	518	978,760.00	-	11,748.20	11,748.20	967,011.80	1.20%
	District Office Building Solar Energy Retrofit	519	-	-	-	-	-	---
	Flood Damage Reduction Fund	520	2,500,000.00	-	6,250.00	6,250.00	2,493,750.00	0.25%
	Debt Services-96-97 Beltline/MM/Battle Creek	526	399,113.00	-	274,856.15	274,856.15	124,256.85	68.87%
	Stewardship Grant Program Fund	528-529	1,250,000.00	-	8,920.50	8,920.50	1,241,079.50	0.71%
	Impervious Surface Volume Reduction Opportunity	531	1,500,000.00	-	-	-	1,500,000.00	0.00%
	Beltline & Battle Creek Tunnel Repair	549	-	-	-	-	-	---
	Frost/Kennard Enhanced WQ BMP	550	-	-	-	-	-	---
	Markham Pond Dredging & Aeration	551	65,000.00	-	-	-	65,000.00	0.00%
	Wakefield Park Project	553	1,100,000.00	-	1,309.50	1,309.50	1,098,690.50	0.12%
	Willow Pond CMAC	554	300,000.00		161.50	161.50	299,838.50	0.05%
	District Office Bond Payment	585	194,885.00	-	193,453.76	193,453.76	1,431.24	99.27%
CIP BUDGET TOTAL			**$9,407,758.00**	**-**	**$584,216.66**	**$584,216.66**	**$8,823,541.34**	6.21%
TOTAL BUDGET			**$13,532,258.00**	**$0.00**	**$722,848.50**	**$722,848.50**	**$12,809,409.50**	**5.34%**

Current Fund Balances:

Fund:	Unaudited Beginning Fund Balance @ 12/31/18	Fund Transfers	Year to date Revenue	Current Month Expenses	Year to Date Expense	Unaudited Fund Balance @ 01/31/19
101 - General Fund	$4,557,640.12	-	500.00	138,631.84	$138,631.84	$4,419,508.28
516 - CIP Project Repair & Maintenance	923,619.41	-	-	87,517.05	$87,517.05	$836,102.36
518 - Targeted Retrofit Projects	989,596.25	-	-	11,748.20	$11,748.20	$977,848.05
519 - District Office Building Solar Energy Retrofit	32,805.00	-	-	-	$0.00	$32,805.00
520 - Flood Damage Reduction Fund	1,884,578.15	-	-	6,250.00	$6,250.00	$1,878,328.15
526 - Debt Services-96-97 Beltline/MM/Beltline-Battle Creek Tunnel Repair	381,542.55	-	-	274,856.15	$274,856.15	$106,686.40
528/529 - Stewardship Grant Program Fund	398,854.69	-	-	8,920.50	$8,920.50	$389,934.19
531 - Impervious Surface Volume Reduction Opportunity	1,484,215.00	-	-	-	$0.00	$1,484,215.00
549 - Beltline & Battle Creek Tunnel Repair	815,166.67	-	-	-	$0.00	$815,166.67
550 - Frost/Kennard Enhanced WQ BMP	(154,661.36)	-	-	-	$0.00	($154,661.36)
551 - Markham Pond Dredging & Aeration	110,379.00	-	-	-	$0.00	$110,379.00
553 - Wakefield Park Project	1,112,709.01	-	-	1,309.50	$1,309.50	$1,111,399.51
554 - Willow Pond CMAC	(29,932.08)	-	-	161.50	$161.50	($30,093.58)
580 - Contingency Fund	476,100.94	-	-	-	$0.00	$476,100.94
585 - Certificates of Participation	131,513.82	-	-	193,453.76	$193,453.76	($61,939.94)
Total District Fund Balance	**$13,114,127.17**	**-**	**$ 500.00**	**$ 722,848.50**	**$722,848.50**	**$12,391,778.67**

RWMWD BUDGET STATUS REPORT
Administrative & Program Budget
Fiscal Year 2018
12/31/18-Unaudited/Updated-1/29/19

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	-	255.00	4,180.00	$2,320.00	64.31%
	Manager expenses	4360	3,500.00	-	165.79	948.38	2,551.62	27.10%
Committees	Committee/Bd Mtg. Exp.	4365	3,500.00	-	313.79	3,140.53	359.47	89.73%
Employees	Staff salary/taxes/benefits	4010	1,300,000.00	-	91,477.19	1,216,927.95	83,072.05	93.61%
	Employee expenses	4020	10,000.00	-	1,091.31	5,741.86	4,258.14	57.42%
	District training & education	4350	25,000.00	-	2,491.11	22,430.34	2,569.66	89.72%
Administration/	GIS system maint. & equip.	4170	15,000.00	-	-	4,101.02	10,898.98	27.34%
Office	Data Base/GIS Maintenance	4171	15,000.00	-	-	1,300.00	13,700.00	8.67%
	Equipment maintenance	4305	3,000.00	-	277.00	1,707.83	1,292.17	56.93%
	Telephone	4310	8,000.00	-	662.22	3,694.18	4,305.82	46.18%
	Office supplies	4320	5,000.00	-	216.72	4,183.30	816.70	83.67%
	IT/Internet/Web Site/Software Lic.	4325	42,000.00	-	8,018.25	35,050.82	6,949.18	83.45%
	Postage	4330	10,000.00	-	142.47	3,417.06	6,582.94	34.17%
	Printing/copying	4335	8,000.00	-	285.67	5,100.46	2,899.54	63.76%
	Dues & publications	4338	11,000.00	-	344.00	10,152.00	848.00	92.29%
	Janitorial/Trash Service	4341	17,000.00	-	1,138.15	13,067.44	3,932.56	76.87%
	Utilities/Bldg.Contracts	4342	18,000.00	-	2,279.68	16,863.70	1,136.30	93.69%
	Bldg/Site Maintenance	4343	70,000.00	-	1,710.06	30,171.82	39,828.18	43.10%
	Miscellaneous	4390	5,000.00	-	74.99	400.18	4,599.82	8.00%
	Insurance	4480	35,000.00	-	-	34,295.00	705.00	97.99%
	Office equipment	4703	40,000.00	-	-	14,892.97	25,107.03	37.23%
	Vehicle lease, maintenance	4810-40	43,000.00	-	157.92	33,728.33	9,271.67	78.44%
Consultants/	Auditor/Accounting	4110	50,000.00	-	3,574.94	48,370.67	1,629.33	96.74%
Outside Services	Engineering-administration	4121	93,000.00	-	11,346.52	75,832.59	17,167.41	81.54%
	Engineering-permit I&E	4122	15,000.00	-	3,441.58	6,596.58	8,403.42	43.98%
	Engineering-eng. review	4123	55,000.00	-	4,325.50	54,018.06	981.94	98.21%
	Engineering-permit review	4124	50,000.00	-	4,344.50	41,375.00	8,625.00	82.75%
	Project Feasibility Studies	4129	735,000.00	-	27,800.25	315,189.57	419,810.43	42.88%
	Attorney-permits	4130	10,000.00	-	-	1,161.28	8,838.72	11.61%
	Attorney-general	4131	40,000.00	-	3,480.00	17,282.47	22,717.53	43.21%
	Outside Consulting Services	4160	40,000.00	-	-	7,832.00	32,168.00	19.58%
Programs	Educational programming	4370	60,000.00	-	2,336.06	32,223.57	27,776.43	53.71%
	Communications & Marketing	4371	25,000.00		156.17	6,691.37	18,308.63	26.77%
	Events	4372	50,000.00	-	72.65	37,313.06	12,686.94	74.63%
	Water QM-Engineering	4520-30	513,000.00	-	26,137.45	164,897.81	348,102.19	32.14%
	Project operations	4650	140,000.00	-	763.05	92,067.57	47,932.43	65.76%
	SLMP/TMDL Studies	4661	115,000.00	-	-	18,725.17	96,274.83	16.28%
	Natural Resources/Keller Creek	4670-72	100,000.00	-	11,981.82	98,014.59	1,985.41	98.01%
	Outside Prog.Support/Weed Mgmt.	4683-84	70,000.00	-	4,275.14	42,791.41	27,208.59	61.13%
	Research Projects	4695	100,000.00	-	25,324.00	65,834.63	34,165.37	65.83%
	Health and Safety Program	4697	2,000.00	-	-	2,747.54	(747.54)	137.38%
	NPDES Phase II	4698	20,000.00	-	836.84	10,261.90	9,738.10	51.31%
	Atlas 14 Watershed Modeling	4732	-	-	-	-	-	0.00%
GENERAL FUND TOTAL			**$3,976,500.00**	**$0.00**	**$241,297.79**	**$2,604,722.01**	**$1,371,777.99**	65.50%
CIP's	CIP Project Repair & Maintenance	516	1,000,000.00	-	22,676.82	745,707.12	254,292.88	74.57%
	Targeted Retrofit Projects	518	800,000.00	-	113,135.59	201,734.79	598,265.21	25.22%
	District Office Building Solar Energy Retrofit	519	150,000.00	-	-	96,818.00	53,182.00	64.55%
	Flood Damage Reduction Fund	520	2,000,000.00	-	973.78	84,730.93	1,915,269.07	4.24%
	Debt Services-96-97 Beltline/MM/Battle Creek	526	448,951.00	-	435.00	426,929.68	22,021.32	95.09%
	Stewardship Grant Program Fund	528-529	800,000.00	-	77,036.24	577,482.73	222,517.27	72.19%
	Impervious Surface Volume Reduction Opportunity	531	1,500,000.00	-	-	-	1,500,000.00	0.00%
	Beltline & Battle Creek Tunnel Repair	549	-	-	454.50	1,592,817.33	(1,592,817.33)	---
	Frost/Kennard Enhanced WQ BMP	550	400,000.00	-	188.00	299,171.21	100,828.79	74.79%
	Markham Pond Dredging & Aeration	551	25,000.00	-	32.00	32.00	24,968.00	0.13%
	Wakefield Park Project	553	1,100,000.00	-	2,527.20	52,493.13	1,047,506.87	4.77%
	Willow Pond CMAC	554	400,000.00		22,651.95	429,881.50	(29,881.50)	107.47%
	District Office Bond Payment	585	194,885.00	-	-	196,983.53	(2,098.53)	101.08%
CIP BUDGET TOTAL			**$8,818,836.00**	**-**	**$240,111.08**	**$4,704,781.95**	**$4,114,054.05**	53.35%
TOTAL BUDGET			**$12,795,336.00**	**$0.00**	**$481,408.87**	**$7,309,503.96**	**$5,485,832.04**	**57.13%**

Current Fund Balances:

Fund:	Beginning Fund Balance @ 12/31/17	Fund Transfers	Year to date Revenue	Current Month Expenses	Year to Date Expense	Unaudited Fund Balance @ 12/31/18
101 - General Fund	$4,329,903.56	-	2,832,458.57	241,297.79	2,604,722.01	4,557,640.12
516 - CIP Project Repair & Maintenance	615,041.00	-	1,054,285.53	22,676.82	745,707.12	923,619.41
518 - Targeted Retrofit Projects	836,989.00	-	354,342.04	113,135.59	201,734.79	989,596.25
519 - District Office Building Solar Energy Retrofit	129,623.00	-	-	-	96,818.00	32,805.00
520 - Flood Damage Reduction Fund	1,118,749.00	-	850,560.08	973.78	84,730.93	1,884,578.15
526 - Debt Services-96-97 Beltline/MM/Beltline-Battle Creek Tunnel Repair	359,578.00	-	448,894.23	435.00	426,929.68	381,542.55
528/529 - Stewardship Grant Program Fund	561,388.00	-	414,949.42	77,036.24	577,482.73	398,854.69
531 - Impervious Surface Volume Reduction Opportunity	1,484,215.00	-	-	-	-	1,484,215.00
549 - Beltline & Battle Creek Tunnel Repair	2,407,984.00	-	-	454.50	1,592,817.33	815,166.67
550 - Frost/Kennard Enhanced WQ BMP	119,513.00	-	24,996.85	188.00	299,171.21	(154,661.36)
551 - Markham Pond Dredging & Aeration	110,411.00	-	-	32.00	32.00	110,379.00
553 - Wakefield Park Project	351,874.00	-	813,328.14	2,527.20	52,493.13	1,112,709.01
554 - Willow Pond CMAC	-	-	399,949.42	22,651.95	429,881.50	(29,932.08)
580 - Contingency Fund	476,100.94	-	-	-	-	476,100.94
585 - Certificates of Participation	133,637.00	-	194,860.35	-	196,983.53	131,513.82
Total District Fund Balance	**$13,035,006.50**	**-**	**$ 7,388,624.63**	**$ 481,408.87**	**$7,309,503.96**	**$13,114,127.17**

Ramsey Washington Metro Watershed Dist.
Check Register
For the Period From Jan 1, 2019 to Jan 31, 2019

Check #	Date	Payee ID	Payee	Description	Amount
EFT	01/01/19	met008	MetLife	Employee Benefits	1,200.26
EFT	01/15/19	hea002	HealthPartners	Employee Benefits	11,795.85
70485	01/16/19	ada002	Adam's Pest Control, Inc.	Utilities/Bldg. Contracts	79.00
70486	01/16/19	aws001	AWS Service Center	Janitorial/Trash Service	193.27
70487	01/16/19	ben002	Benefit Extras, Inc.	Employee Benefits	804.00
70488	01/16/19	car007	Carp Solutions, LLC	Natural Resources Program	690.00
70489	01/16/19	gil001	Gilbert Mechanical Contractors, Inc.	Bldg./Site Maintenance	533.74
70490	01/16/19	nar001	Nardini Fire Equipment	Bldg./Site Maintenance	315.00
70491	01/16/19	ncp001	NCPERS Group Life Ins.	Employee Benefits	16.00
70492	01/16/19	nsp001	Xcel Energy	Construction Imp./Willow	16.01
70493	01/16/19	pre003	Premium Waters, Inc.	Utilities/Bldg. Contracts	22.00
70494	01/29/19	ahl001	Paige Ahlborg	Employee Reimbursement	138.04
70495	01/29/19	all004	allstream	Project Operations	64.96
70496	01/29/19	att002	AT & T Mobility - ROC	Site/Software/Licenses	43.22
70497	01/29/19	bar001	Barr Engineering	December/January Engineering	104,046.10
70498	01/29/19	bar004	Deborah Barnes	Employee Reimbursement	20.00
70499	01/29/19	blu003	Blue Thumb/Metro Blooms	Outside Program Support	1,250.00
70500	01/29/19	cam001	Campbell Scientific, Inc.	Construction Imp./Willow	13,773.85
70501	01/29/19	car003	Tina Carstens	Employee Reimbursement	2,031.49
70502	01/29/19	cit001	City of Little Canada	Utilities/Bldg. Contracts	117.23
70503	01/29/19	cit002	City of Maplewood	Stewardship Grant Program	4,650.00
70504	01/29/19	cit011	City of Roseville	IT Services/Support/Utilities	5,028.82
70505	01/29/19	cri001	Critical Connections Ecolog.Serv., Inc.	Natural Resources Program	9,960.00
70506	01/29/19	ebe001	Marjorie J. Ebensteiner	Manager Expense	165.79
70507	01/29/19	fit001	Fitzgerald Excavating & Trucking, Inc.	Construction Imp./Maint.	63,719.35
70508	01/29/19	gil001	Gilbert Mechanical Contractors, Inc.	Bldg./Site Maintenance	294.50
70509V	01/29/19	---	VOID	VOID	-
70510	01/29/19	int001	Office of MN, IT Services	Telephone Expense	55.40
70511	01/29/19	kor001	Eric Korte	Employee Reimbursement	174.99
70512	01/29/19	lak009	Lake Elmo Bank	Dev.Escrow Refund	1,280.00
70513	01/29/19	lit001	Little Sioux Prairie Company	Natural Resources Program	266.30
70514	01/29/19	mag004	Carrie Magnuson	Employee Reimbursement	395.41
70515	01/29/19	maw002	MAWD	2019 Dues	7,500.00
70516	01/29/19	mel001	Michelle L. Melser	Employee Reimbursement	58.18
70517	01/29/19	min008	Minnesota Native Landscapes, Inc.	Construction Imp./Maint.	4,336.00
70518	01/29/19	min010	MN Public Facilities Authority	Loan RePayment	6,474.90
70519	01/29/19	nar001	Nardini Fire Equipment	Bldg./Site Maintenance	230.83
70520	01/29/19	ncp001	NCPERS Group Life Ins.	Employee Reimbursement	16.00
70521	01/29/19	nor011	Northland Securities, Inc.	Debt Service Payment	435.00
70522	01/29/19	nsp001	Xcel Energy	Project Operations/Utilities	2,139.38
70523	01/29/19	obr001	Christopher O'Brien	Employee Reimbursement	465.60
70524	01/29/19	opg001	OPG-3, Inc.	IT Services/Support/Licenses	1,850.00
70525	01/29/19	pac001	Pace Analytical Services, Inc.	Water Quality Monitoring	1,008.00
70526	01/29/19	pas002	Sage Passi	Employee Reimbursement	158.15

Ramsey Washington Metro Watershed Dist.
Check Register
For the Period From Jan 1, 2019 to Jan 31, 2019

Check #	Date	Payee ID	Payee	Description	Amount
70527	01/29/19	pet001	Peterson Companies, Inc.	Construction-Flood Damage	6,250.00
70528	01/29/19	pra001	Prairie Moon Nursery, Inc.	Education Program	45.00
70529	01/29/19	pro003	Lyndsey R. Provos	Employee Reimbursement	6.00
70530	01/29/19	ram002	Ramsey County	Stewardship Grant Program	16,560.00
70531	01/29/19	red002	Redpath & Company, Ltd	Monthly Accounting	1,995.76
70532	01/29/19	sod001	Nicole Soderholm	Employee Reimbursement	40.00
70533	01/29/19	stu001	Studio Lola	Stewardship Grant Program	2,085.00
70534	01/29/19	tes001	The Tessman Company	Maintenance & Repairs	144.00
70535	01/29/19	tim002	Timesaver Off-Site Secretarial, Inc.	Committee/Board Meeting Exp.	215.00
70536	01/29/19	usb002	U.S. Bank	Monthly Credit Card	3,034.32
70537	01/29/19	usb005	US Bank Equipment Finance	Copier Lease	285.67
70538	01/29/19	usb006	US Bank Corporate Trust Services	Office Bldg.-Cert. of Participation	2,100.00
70539	01/29/19	van001	Vanguard Cleaning Systems of Minneso	Janitorial/Trash Service	550.00
70540	01/29/19	vla001	Dave Vlasin	Employee Reimbursement	271.38
70541	01/29/19	voy001	US Bank Voyager Fleet Sys.	Vehicle Expense	88.03
70542	01/29/19	was002	Washington Conservation District	Outside Program Support	3,844.00
70542	01/29/19	inn003	Innovational Concepts, Inc.	Utilities/Bldg. Contracts	206.75
Total					**$285,533.53**

Ramsey Washington Metro Watershed Dist.
Cash Disbursements Journal
For the Period From Jan 1, 2019 - Jan 31, 2019

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail	
01/01/19	EFT	met003	MetLife			1,200.26		
				4040-101-000	Employee Benefits-General		988.14	
				2015-101-000	Employee Health-General		212.12	
01/15/19	EFT	hea002	HealthPartners			11,795.85		
				4040-101-000	Employee Benefits-General		10,416.30	
				2015-101-000	Employee Health-General		1,379.55	
01/16/19	70485	ada002	Adam's Pest Control	4342-101-000	Utilities/Building Contracts	79.00		2018
01/16/19	70486	aws001	AWS Service Center	4341-101-000	Janitorial/Trash Service	193.27		
01/16/19	70487	ben002	Benefit Extras, Inc.	4040-101-000	Employee Benefits-General	804.00		
01/16/19	70488	car007	Carp Solutions, LLC	4670-101-000	Natural Resources Project-General	690.00		2018
01/16/19	70489	gil001	Gilbert Mechanical Contractors, Inc.	4343-101-000	Building/Site Maintenance	533.74		2018
01/16/19	70490	nar001	Nardini Fire Equipment	4343-101-000	Building/Site Maintenance	315.00		2018
01/16/19	70491	ncp001	NCPERS Group Life Ins.c	2015-101-000	Employee Health-General	16.00		
01/16/19	70492	nsp001	Xcel Energy	4630-554-000	Construction Imp.-Willow Pond	16.01		2018
01/16/19	70493	pre003	Premimum Waters, Inc.	4342-101-000	Utilities/Building Contracts	22.00		
01/29/19	70494	ahl001	Paige Ahlberg			138.04		
				4040-101-000	Employee Benefits-General		120.64	
				4020-101-000	Employee Expenses-General		17.40	
01/29/19	70495	cad002	allstream	4650-101-000	Project Operations-General	64.96		
01/29/19	70496	att001	AT&T Mobility	4325-101-000	IT/Website/Software	43.22		
01/29/19	70497	bar001	Barr Engineering			104,046.10		
				4121-101-000	Engineering Admin-General Fund		4,179.68	2018
				4123-101-000	Engineering-Review		1,936.00	2018
				4129-101-000	Project Feasability-General		1,543.12	2018
				4129-101-000	Project Feasability-General		504.50	2018
				4129-101-000	Project Feasability-General		1,528.50	2018
				4129-101-000	Project Feasability-General		105.00	2018
				4129-101-000	Project Feasability-General		82.50	2018
				4129-101-000	Project Feasability-General		82.50	2018
				4129-101-000	Project Feasability-General		3,014.02	2018
				4129-101-000	Project Feasability-General		429.00	2018
				4129-101-000	Project Feasability-General		127.00	2018
				4129-101-000	Project Feasability-General		63.00	2018
				4129-101-000	Project Feasability-General		63.00	2018
				4520-101-000	Water QM-Engineering		14,491.31	2018
				4520-101-000	Water QM-Engineering		2,037.00	2018
				4122-101-000	Engineering-Permit I & E		1,928.22	2018
				4124-101-000	Engineering-Permit Review		645.00	2018
				4650-101-000	Project Operations-General		304.50	2018
				4128-553-000	Engineering-Wakefield		624.00	2018
				4128-518-000	Engineering-School/Commer Retrofit		660.00	2018
				4128-518-000	Engineering-School/Commer Retrofit		275.00	2018
				4128-518-000	Engineering-School/Commer Retrofit		665.00	2018
				4128-518-000	Engineering-School/Commer Retrofit		1,158.00	2018

Ramsey Washington Metro Watershed Dist.
Cash Disbursements Journal
For the Period From Jan 1, 2019 - Jan 31, 2019

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail	
				4128-554-000	Engineering-Willow Pond		160.00	2018
				4128-551-000	Engineering-Markham		32.00	2018
				4128-518-000	Engineering-School/Commer Retrofit		1,765.50	2018
				4128-516-000	Engineering-Projects Maint. & Repair		353.85	2018
				4128-516-000	Engineering-Projects Maint. & Repair		3,459.00	2018
				4121-101-000	Engineering Admin-General Fund		4,945.50	
				4698-101-000	Engineering-NPDES Phase II		4,011.50	
				4123-101-000	Engineering-Review		1,374.50	
				4129-101-000	Project Feasability-General		2,431.50	
				4129-101-000	Project Feasability-General		3,917.00	
				4129-101-000	Project Feasability-General		76.00	
				4129-101-000	Project Feasability-General		137.50	
				4129-101-000	Project Feasability-General		2,340.50	
				4520-101-000	Water QM-Engineering		2,437.50	
				4122-101-000	Engineering-Permit I & E		63.00	
				4124-101-000	Engineering-Permit Review		593.00	
				4695.101-000	Research Projects-General		1,130.00	
				4128-553-000	Engineering-Wakefield		1,309.50	
				4128-550-000	Engineering-Frost/Kennard		1,770.20	
				4128-518-000	Engineering-School/Commer Retrofit		2,139.50	
				4128-518-000	Engineering-School/Commer Retrofit		1,025.50	
				4128-518-000	Engineering-School/Commer Retrofit		5,118.00	
				4682-529-000	Stewardship Grant Program		3,335.50	
				4128-518-000	Engineering-School/Commer Retrofit		1,695.00	
				4128-518-000	Engineering-School/Commer Retrofit		6,148.00	
				4128-554-000	Engineering-Willow Pond		161.50	
				4128-516-000	Engineering-Projects Maint. & Repair		4,254.56	
				4128-516-000	Engineering-Projects Maint. & Repair		11,415.14	
				4128-516-000	Engineering-Projects Maint. & Repair			
01/29/19	70498	bar004	Deborah Barnes	4040-101-000	Employee Benefits-General	20.00		
01/29/19	70499	blu003	Blue Thumb/Metro Blooms	4683-101-000	Outside Program Support	1,250.00		
01/29/19	70500	cam001	Campbell Scientific, Inc.	4630-554-000	Construction Imp-Willow Pond	13,773.85		2018
01/29/19	70501	car003	Tina Carstens			2,031.49		
				4040-101-000	Employee Benefits-General		623.46	2018
				4020-101-000	Employee Expenses-General		516.66	2018
				4350-101-000	Training & Education-General		891.37	2018
01/29/19	70502	cit001	City of Little Canada	4342-101-000	Utilities/Building Contracts	117.23		2018
01/29/19	70503	cit002	City of Maplewood	4682-529-000	Stewardship Grant Program	4,650.00		2018
01/29/19	70504	cit011	City of Roseville			5,028.82		
				4325-101-000	IT/Website/Software		2,211.00	2018
				4310-101-000	Telephone-General		304.00	2018
				4325-101-000	IT/Website/Software		2,211.00	
				4310-101-000	Telephone-General		302.82	
01/29/19	70505	cri001	Critical Connections Ecolog. Serv., Inc.	4670-101-000	Natural Resources Project-General	9,960.00		2018

Ramsey Washington Metro Watershed Dist.
Cash Disbursements Journal
For the Period From Jan 1, 2019 - Jan 31, 2019

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail	
01/29/19	70506	ebe001	Marjorie J. Ebensteiner	4360-101-000	Manager Expense	165.79		2018
01/29/19	70507	fit001	Fitzgerald Excavating & Trucking, Inc.	4630-516-000	Construction Imp.-Maint. & Repair	63,719.35		
01/29/19	70508	gil001	Gilbert Mechanical Contractors, Inc.	4343-101-000	Building/Site Maintenance	294.50		
01/29/19	70509V	---	VOID	---	VOID	-		
01/29/19	70510	int001	Office of MN, IT Services	4310-101-000	Telephone-General	55.40		
01/29/19	70511	kor001	Eric Korte	4040-101-000	Employee Expense-General	174.99		
01/29/19	70512	lak009	Lake Elmo Bank	2024-101-000	Dev Escrow-General	1,280.00		
01/29/19	70513	lit001	Little Sioux Prairie Company	4670-101-000	Natural Resources Project-General	266.30		
01/29/19	70514	mag004	Carrie Magnuson			395.41		
				4040-101-000	Employee Benefits-General		298.12	2018
				4020-101-000	Employee Expenses-General		29.00	2018
				4365-101-000	Committee/Board Meeting Expense		68.29	2018
01/29/19	70515	maw002	MAWD	4338-101-000	Dues & Publications	7,500.00		
01/29/19	70516	mel001	Michelle Melser			58.18		
				4020-101-000	Employee Expenses-General		13.30	2018
				4020-101-000	Employee Expenses-General		44.88	
01/29/19	70517	min008	Minnesota Native Landscapes, Inc.			4,336.00		
				4630-516-000	Construction Imp-Maint. & Repair		198.00	
				4630-516-000	Construction Imp-Maint. & Repair		258.00	
				4630-516-000	Construction Imp-Maint. & Repair		380.00	
				4682-529-000	Stewardship Grant Program		3,500.00	
01/29/19	70518	min010	MN Public Facilities Authority	4700-526-000	Debt Services-Belt Line Tunnel Repair	6,474.90		
01/29/19	70519	nar001	Nardini Fire Equipment	4343-101-000	Bldg./Site Maintenance	230.83		2018
01/29/19	70520	ncp001	NCPERS Group Life Ins.c	2015-101-000	Employee Health-General	16.00		
01/29/19	70521	nor011	Northland Securities, Inc.	4708-526-000	Debt Services-Belt Line Tunnel Repair	435.00		2018
01/29/19	70522	nsp001	Xcel Energy			2,139.38		
				4342-101-000	Utilities/Building Contracts		1,622.86	
				4650-101-000	Project Operations-General		516.52	
01/29/19	70523	obr001	Christopher O'Brien			465.60		
				4040-101-000	Employee Benefits-General		101.00	
				4020-101-000	Employee Expenses-General		58.00	
				4350-101-000	Training & Education-General		306.60	
01/29/19	70524	opg001	OBG-3, Inc.	4325-101-000	IT/Website/Software	1,850.00		2018
01/29/19	70525	pac001	Pace Analytical Services, Inc.			1,008.00		
				4530-101-000	Water QM Staff-General		189.00	2018
				4530-101-000	Water QM Staff-General		193.00	
				4530-101-000	Water QM Staff-General		253.00	
				4530-101-000	Water QM Staff-General		184.00	
				4530-101-000	Water QM Staff-General		189.00	
01/29/19	70526	pas002	Sage Passi			158.15		
				4040-101-000	Employee Benefits-General		10.00	2018
				4040-101-000	Employee Benefits-General		26.50	
				4020-101-000	Employee Expenses-General		79.46	
				4370-101-000	Educational Program-General		3.88	
				4372-101-000	Events		38.31	

Ramsey Washington Metro Watershed Dist.
Cash Disbursements Journal
For the Period From Jan 1, 2019 - Jan 31, 2019

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail	
01/29/19	70527	pet001	Peterson Companies, Inc.	4630-520-000	Construction-Flood Damage	6,250.00		
01/29/19	70528	pra001	Prairie Moon Nursery, Inc.	4370-101-000	Educational Program-General	45.00		
01/29/19	70529	pro003	Lyndsey R. Provos	4350-101-000	Training & Education-General	6.00		2018
01/29/19	70530	ram002	Ramsey County	4682-529-000	Stewardship Grant Program	16,560.00		2018
01/29/19	70531	red002	Redpath & Company, Ltd.	4110-101-000	Accounting & Auditing	1,995.76		2018
01/29/19	70532	sod001	Nichole Soderholm	4040-101-000	Employee Benefits-General	40.00		
01/29/19	70533	stu001	Studio Lola	4682-529-000	Stewardship Grant Program	2,085.00		
01/29/19	70534	tes001	The Tessman Company	4630-516-000	Construction Imp.-Maint. & Repair	144.00		
01/29/19	70535	tim002	Timesaver Off-Site Secretarial, Inc.	4365-101-000	Committee/Board Meeting Expense	215.00		
01/29/19	70536	usb002	U.S. Bancorp			3,034.32		
				4350-101-000	Training & Education-General		9.77	2018
				4325-101-000	IT/Website/Software		92.76	
				4040-101-000	Employee Benefits-General		240.90	
				4530-101-000	Water QM Staff-General		1.83	
				4670-101-000	Natural Resources Project-General		207.20	
				4338-101-000	Dues & Publications		50.00	
				4630-554-000	Construction Imp.-Willow Pond		918.86	2018
				4350-101-000	Training & Education-General		485.00	2018
				4350-101-000	Training & Education-General		948.00	
				4371-101-000	Communications & Marketing		80.00	
01/29/19	70537	usb005	US Bank Equipment Finance	4335-101-000	Printing-General	285.67		
01/29/19	70538	usb006	US Bank Corporate Trust Services	4700-585-000	Debt Services-Cert. of Participation	2,100.00		
01/29/19	70539	van001	Vanguard Cleaning Systems of Minnesota	4341-101-000	Janitorial/Trash Service	550.00		
01/29/19	70540	vla001	David Vlasin			271.38		
				4040-101-000	Employee Benefits-General		167.33	2018
				4020-101-000	Employee Expenses-General		47.96	2018
				4040-101-000	Employee Benefits-General		56.09	
01/29/19	70541	voy001	US Bank Voyager Fleet Sys.	4830-101-000	Vehicle Expense-Fuel	88.03		
01/29/19	70542	was007	Washington Conservation District			3,844.00		
				4683-101-000	Outside Program Support		3,062.50	2018
				4683-101-000	Outside Program Support		111.00	2018
				4683-101-000	Outside Program Support		670.50	2018
01/29/19	70543	inn003	Innovational Concepts, Inc.	4342-101-000	Utilities/Building Contracts	206.75		
						$285,533.53		

BARR

Summary of Professional Engineering Services During the Period December 15, 2018 through December 31, 2018

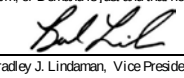
	Total Budget* (2018)	Total Fees to Date (2018)	Budget Balance (2018)	Fees During Period	District Accounting Code	Plan Implementation Task Number
Engineering Administration						
General Engineering Administration	$76,000.00	$75,832.59	$167.41	$4,179.68	**4121-101**	DW-13
RWMWD Health and Safety/ERTK Program	$2,000.00	$1,385.43	$614.57		**4697-101**	DW-13
Educational Program/Educational Forum Assistance	$20,000.00	$9,861.90	$10,138.10		**4698-101**	DW-11
Engineering Review						
Engineering Review	$55,000.00	$54,018.06	$981.94	$1,936.00	**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	$14,886.28	$60,113.72		**4129-101**	DW-5
Beltline Resiliency and Phalen Chain Water Level Management	$250,000.00	$32,446.23	$217,553.77		**4129-101**	BELT-3
Beaver Lake Subwatershed Feasibility Study	$15,000.00	$14,484.47	$515.53	$1,543.12	**4129-101**	BL-1
Owasso Lake Subwatershed Feasibility Study	$15,000.00	$16,047.85	-$1,047.85	$504.50	**4129-101**	LO-3
Battle Creek Lake Subwatershed Feasibility Study	$15,000.00	$20,846.73	-$5,846.73	$1,528.50	**4129-101**	BCL-3
Create an Emergency Response Plan for Twin Lake	$15,000.00	$13,680.56	$1,319.44	$105.00	**4129-101**	DW-19
Create an Emergency Response Plan for Grass Lake	$15,000.00	$4,302.00	$10,698.00	$82.50	**4129-101**	DW-19
Create an Emergency Response Plan for Snail Lake	$15,000.00	$4,494.33	$10,505.67	$82.50	**4129-101**	DW-19
Create an Emergency Reponse Plan for Lake Owasso	$5,000.00	$10,571.38	-$5,571.38	$3,014.02	**4129-101**	LO-2
MnDNR Floodplain Map Update	$109,720.00	$2,200.00	$107,520.00	$429.00	**4129-101**	DW-9
West Vadnais Lake to East Vadnais Lake Water Quality Treatment	$24,400.00	$36,601.80	-$12,201.80		**4129-101**	DW-9
West Vadnais Lake to East Vadnais Lake Gravity Flow	$66,000.00	$37,063.75	$28,936.25	$127.00	**4129-101**	DW-9
Snail Lake to Sucker Lake Reverse Pumping Evaluation	$9,100.00	$9,715.50	-$615.50		**4129-101**	DW-9
Snail, Grass, and West Vadnais outlet permitting with the MnDNR	$10,000.00	$39,245.05	-$29,245.05	$63.00	**4129-101**	DW-9
Modeling of 95% Confidence Limit Atlas 14 District-wide (Climate Change Scenario); Flood Map Generation for Future Outreach	$129,500.00	$58,603.64	$70,896.36	$63.00	**4129-101**	DW-9
GIS Maintenance						
GIS Maintenance	$5,000.00	$1,564.00	$3,436.00		**4170-101**	DW-13
Monitoring Water Quality/Project Monitoring						
Lake Water Quality Monitoring (Misc QA/QC)	$10,000.00	$878.50	$9,121.50		**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	$843.00	$14,157.00		**4520-101**	BC-3
Auto Lake monitoring systems (5)	$50,000.00	$40,781.80	$9,218.20	$14,491.31	**4520-101**	DW-18
Maplewood Mall Monitoring	$20,000.00	$20,441.95	-$441.95	$2,037.00	**4520-101**	DW-12
Permit Processing, Inspection and Enforcement						
Permit Application Inspection and Enforcement	$15,000.00	$6,596.58	$8,403.42	$1,928.22	**4122-101**	DW-7
Permit Application Review	$50,000.00	$41,375.00	$8,625.00	$645.00	**4124-101**	DW-7
Lake Studies/WRPPs/TMDL Reports						
2018 Grant Applications	$30,000.00	$1,270.50	$28,729.50		**4661-101**	--
Tanners Flood Response Tool Model Update	$3,000.00	$2,232.00	$768.00		**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	$15,222.67	-$5,222.67		**4661-101**	WL-5
Research Projects						
New Technology Mini Case Studies (average 6 per year)	$12,000.00	$4,323.50	$7,676.50		**4695-101**	DW-12
Kohlman Permeable Weir Test System - Implement Monitoring Plan	$15,000.00	$11,884.13	$3,115.87		**4695-101**	DW-12
Project Operations						
2018 Tanners Alum Facility Monitoring	$15,000.00	$14,682.62	$317.38	$304.50	**4650-101**	TaL-3
Capital Improvements						
Wakefield Park/Frost Avenue Stormwater Project	$75,000.00	$52,493.13	$22,506.87	$624.00	**4128-553**	WL-1
Frost Kennard Spent Lime BMP	$24,000.00	$25,516.71	-$1,516.71		**4128-550**	WL-1
Commercial Sites Retrofit Projects 2018	$55,000.00	$25,753.79	$29,246.21	$660.00	**4128-518**	DW-6
School Sites Retrofit Projects 2018	$55,000.00	$22,719.66	$32,280.34	$275.00	**4128-518**	DW-6
Church Sites Retrofit Projects 2018	$55,000.00	$20,904.68	$34,095.32	$665.00	**4128-518**	DW-6
Roseville High School Campus Stormwater Retrofit (Bennett Lake Subwatershed)	$30,000.00	$14,607.50	$15,392.50	$1,158.00	**4128-518**	DW-6
BMP Incentive Fund: General BMP Design Assistance and Review	$30,000.00	$48,961.86	-$18,961.86		**4682-529**	DW-6
BMP Incentive Fund: Faith-Based Organizations	$20,000.00	$3,176.93	$16,823.07		**4128-528**	DW-6
Willow Pond CMAC Implementation	$100,000.00	$127,467.11	-$27,467.11	$160.00	**4128-554**	BeL-4
Grass Lake Berm Construction Administration	$75,000.00	$61,070.15	$13,929.85		**4128-520**	GrL-1
Phase 1 implementation from Owasso Basin Improvements Feasibility Study	$75,000.00	$9,420.00	$65,580.00		**4128-520**	GC-3
Markham Pond Ecol Restoration (out of scope)	$1,000.00	$32.00	$968.00	$32.00	**4128-551**	
District Office Solar Energy Retrofit	$20,000.00	$12,899.00	$7,101.00		**4128-519**	DW-13
Aldrich Arena Stormwater Retrofit	$145,000.00	$7,995.50	$137,004.50	$1,765.50	**4128-518**	
CIP Project Repair & Maintenance						
2017-2018 Beltline Repairs Construction Services	$360,000.00	$451,183.07	-$91,183.07		**4128-549**	BELT-2
Routine CIP Inspection and Unplanned Maintenance Identification	$75,000.00	$71,925.99	$3,074.01	$353.85	**4128-516**	DW-5
2018 CIP Maintenance and Repairs	$90,000.00	$92,667.12	-$2,667.12		**4128-516**	DW-5
2019 CIP Maintenance and Repairs	$150,000.00	$37,113.43	$112,886.57	$3,459.00	**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 **$42,216.20**

TOTAL PAYABLE FOR PERIOD 12/15/2018 - 12/31/2018 **$42,216.20**

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

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Summary of Professional Engineering Services During the Period
January 1, 2019 through January 18, 2019

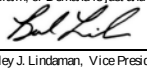
Engineering Administration	Total Engineering Budget (2019)	Total Fees to Date (2019)	Budget Balance (2019)	Fees During Period	District Accounting Code	Plan Implementation Task Number
General Engineering Administration	$76,000.00	$4,945.50	$71,054.50	$4,945.50	**4121-101**	DW-13
RWMWD Health and Safety/ERTK Program	$2,000.00	$0.00	$2,000.00		**4697-101**	DW-13
Educational Program/Educational Forum Assistance	$20,000.00	$4,011.50	$15,988.50	$4,011.50	**4698-101**	DW-11
Engineering Review						
Engineering Review	$55,000.00	$1,374.50	$53,625.50	$1,374.50	**4123-101**	DW-13
Project Feasibility Studies						
Owasso County Park Stormwater Master Plan and Detailed Design: Phase 1 and Phase 2	$50,000.00	$0.00	$50,000.00		**4129-101**	DW-6
Beltline Resiliency and Phalen Chain Water Level Management Study	$217,000.00	$2,431.50	$214,568.50	$2,431.50	**4129-101**	BELT-3
Interim emergency response plan funds for top priority District flooding areas (such as Owasso Basin, Willow Creek, PCU Pond, etc)	$50,000.00	$0.00	$50,000.00		**4129-101**	DW-19
FEMA Flood Mapping Update	$90,000.00	$3,917.00	$86,083.00	$3,917.00	**4129-101**	DW-9
Snail, Grass, and West Vadnais outlet permitting with the MnDNR	$100,000.00	$76.00	$99,924.00	$76.00	**4129-101**	DW-9
Modeling of 500-year event Atlas 14 District-wide (Climate Change Scenario) and Generation of Flood Maps for Future Outreach Efforts	$70,000.00	$137.50	$69,862.50	$137.50	**4129-101**	DW-9
Climate Adaption Workshops with Member Cities	$100,000.00	$0.00	$100,000.00		**4129-101**	DW-9
Hillcrest Golf Course (multi-use)	$25,000.00	$0.00	$25,000.00		**4129-101**	DW-6
Wetland Restoration site search. BWSR criteria needed to help guide this idea.	$25,000.00	$0.00	$25,000.00		**4129-101**	DW-1, DW-8
Gold BRT planning	$20,000.00	$0.00	$20,000.00		**4129-101**	DW-6
Priority Pond Assessment (WQ Monitor/Dredge/Treat/Leave As-Is)	$20,000.00	$0.00	$20,000.00		**4129-101**	DW-5
Contingency*	$20,000.00	$2,340.50	$17,659.50	$2,340.50	**4129-101**	
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	$0.00	$10,000.00		**4520-101**	DW-2
Auto lake monitoring system for Grass Lake	$20,000.00	$0.00	$20,000.00		**4520-101**	DW-18
Auto lake monitoring system for Owasso Lake	$20,000.00	$0.00	$20,000.00		**4520-101**	DW-18
Auto lake monitoring system for Phalen Lake	$20,000.00	$2,437.50	$17,562.50	$2,437.50	**4520-101**	DW-18
Auto lake monitoring system for Snail Lake	$20,000.00	$0.00	$20,000.00		**4520-101**	DW-18
Auto lake monitoring system for Wabasso Lake	$20,000.00	$0.00	$20,000.00		**4520-101**	DW-18
Special Project BMP Monitoring (Maplewood Mall, Frost Kennard Spent Lime Filter, Willow Pond CMAC)	$25,000.00	$0.00	$25,000.00		**4520-101**	DW-12
Permit Processing, Inspection and Enforcement						
Permit Application Inspection and Enforcement	$10,000.00	$63.00	$9,937.00	$63.00	**4122-101**	DW-7
Permit Application Review	$55,000.00	$593.00	$54,407.00	$593.00	**4124-101**	DW-7
Lake Studies/WRPPs/TMDL Reports						
2019 Grant Applications	$30,000.00	$0.00	$30,000.00		**4661-101**	--
Tanners Flood Response Tool Model Update	$3,000.00	$0.00	$3,000.00		**4661-101**	TaL-1
Internal Load Management Discussions	$10,000.00	$0.00	$10,000.00		**4661-101**	KL-2, GC-2, WL-3, BL-3, BCL-2, LE-4, BeL-3, LO-5
Contingency for Lake Studies	$25,000.00	$0.00	$25,000.00		**4661-101**	
Research Projects						
New Technology Mini Case Studies (average 6 per year)	$12,000.00	$1,130.00	$10,870.00	$1,130.00	**4695-101**	DW-12
Kohlman Permeable Weir Test System - Implement Monitoring Plan	$15,000.00	$0.00	$15,000.00		**4695-101**	DW-12
Iron aggregate pond application research project	$20,000.00	$0.00	$20,000.00		**4695-101**	DW-12
Project Operations						
2018 Tanners Alum Facility Monitoring	$15,000.00	$0.00	$15,000.00		**4650-101**	TaL-3
Capital Improvements						
Wakefield Park/Frost Avenue Stormwater Project	$175,000.00	$1,309.50	$173,690.50	$1,309.50	**4128-553**	WL-1
Commercial Sites Retrofit Projects 2018 (Targeted Retrofits)	$55,000.00	$1,770.20	$53,229.80	$1,770.20	**4128-518**	DW-6
School Sites Retrofit Projects 2018 (Targeted Retrofits)	$55,000.00	$2,139.50	$52,860.50	$2,139.50	**4128-518**	DW-6
Church Sites Retrofit Projects 2018 (Targeted Retrofit)	$55,000.00	$1,025.50	$53,974.50	$1,025.50	**4128-518**	DW-6
Roseville High School Campus Stormwater Retrofit (Bennett Lake Subwatershed)	$125,000.00	$5,118.00	$119,882.00	$5,118.00	**4128-518**	BeL-4
BMP Incentive Fund: Gen'l BMP Design Assistance and Review (cases where Dist is approached by landowner, or landowner is not commercial, school, church).	$50,000.00	$3,335.50	$46,664.50	$3,335.50	**4682-529**	DW-6
Lowering West Vadnais Lake Outlet	$50,000.00	$0.00	$50,000.00		**4128-520**	DW-9
Cottage Place Wetland Restoration	$100,000.00	$1,695.00	$98,305.00	$1,695.00	**4128-518**	DW-1, DW-8
Markham Pond Aeration Project and Grant Reporting	$1,000.00	$0.00	$1,000.00		**4128-551**	KC-1
Aldrich Arena Plans and Specifications	$125,000.00	$6,148.00	$118,852.00	$6,148.00	**4128-518**	DW-6
Willow Pond CMAC Implementation	$100,000.00	$127,628.61	-$27,628.61	$161.50	**4128-554**	BeL-4
CIP Project Repair & Maintenance						
Kohlman Lake Macrophyte Mgmt	$5,000.00	$0.00	$5,000.00		**4128-516**	KL-3
Routine CIP Inspection and Unplanned Maintenance Identification	$75,000.00	$4,254.56	$70,745.44	$4,254.56	**4128-516**	DW-5
2019 CIP Maintenance and Repairs	$150,000.00	$11,415.14	$138,584.86	$11,415.14	**4128-516**	DW-5
2020 CIP Maintenance and Repairs	$150,000.00	$0.00	$150,000.00		**4128-516**	DW-5

*Final edits to Beaver, Owasso and Battle Creek Lakes Subwatershed Feasibility Studies per Board comments at the 1/2/19 meeting.

Subtotal $61,829.90

TOTAL PAYABLE FOR PERIOD 01/01/2019 - 01/18/2019 **$61,829.90**

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

Capital Improvement Project Maintenance/Repairs 2019
Progress Payment Number 1

1.0	Total Completed Through This Period:	$67,073.00		
2.0	Total Completed Previously Completed:		$0.00	
3.0	Total Completed This Period:			$67,073.00
4.0	Amount Previously Retained:		$0.00	
5.0	Amount Retained This Period (See Note 1):			$3,353.65
6.0	Total Amount Retained (See Note 2):		$3,353.65	
7.0	Retainage Released Through This Period:			$0.00
8.0	Total Retainage Remaining:		$3,353.65	
9.0	Amounts Previously Paid:	$0.00		
10.0	Amount Due This Estimate:			$63,719.35

Note 1: Retainage shall be 5 percent of the value of the Work completed.

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 2019
Ramsey-Washington Metro Watershed District
Summary of Work Completed Through January 22, 2019 for Progress Payment Number 1

						(1) Total Completed Through This Period		(2) Total Completed Previous Period		(3) Total Completed This Period	
1.04 Item	**Description**	**Unit**	**Estimated Quantity**	**Unit Price**	**Extension**	**Quantity**	**Amount**	**Quantity**	**Amount**	**Quantity**	**Amount**
General											
1.04.A	Mobilization/Demobilization	L.S.	1	15,000.00	15,000.00	0.25	$3,750.00	0	$0.00	0.25	$3,750.00
1.04.B	Control of Water	L.S.	1	10,000.00	10,000.00	0.25	$2,500.00	0	$0.00	0.25	$2,500.00
1.04.AB	Traffic Control	L.S.	1	2,000.00	2,000.00	0.25	$500.00	0	$0.00	0.25	$500.00
Site 1 – Tamarack Swamp, Woodbury											
1.04.F	Sediment Log (6-Inch Diameter)	L.F.	60	5.00	300.00	0	$0.00	0	$0.00	0	$0.00
1.04.C	Sediment/Muck Cleanout (55 C.Y.)	L.S.	1	1,500.00	1,500.00	0	$0.00	0	$0.00	0	$0.00
1.04.D	Disposal of Sediment/Muck Cleanout (Level 3 Material)	TON	85	50.00	4,250.00	0	$0.00	0	$0.00	0	$0.00
1.04.G	Paver Sweeping (1,400 S.Y.)	S.Y.	1,400	2.00	2,800.00	0	$0.00	0	$0.00	0	$0.00
1.04.H	Removal, Disposal, and Replacement of Existing 1 ½" to 2" Clear Washed Filter Rock	C.Y.	3	50.00	150.00	0	$0.00	0	$0.00	0	$0.00
1.04.E	Site Restoration (Seeding and Erosion Control Blanket)	S.Y.	100	1.50	150.00	0	$0.00	0	$0.00	0	$0.00
Site 2 – 5th Street Wetland, Oakdale											
1.04.I	Permeable Weir Maintenance (Reopening Drainage Slots and Remove all Brush and Debris)	L.F.	65	25.00	1,625.00	65	$1,625.00	0	$0.00	65	$1,625.00
1.04.K	Silt Fence	L.F.	35	1.50	52.50	~~0~~	$0.00	0	$0.00	0	$0.00
1.04.E	Site Restoration (Seeding and Erosion Control Blanket)	S.Y.	210	2.00	420.00	0	$0.00	0	$0.00	0	$0.00
Site 3 – Tanners Wetland, Oakdale											
1.04.I	Permeable Weir Maintenance (Reopening Drainage Slots and Remove all Brush and Debris)	L.F.	580	7.00	4,060.00	580	$4,060.00	0	$0.00	580	$4,060.00
1.04.E	Site Restoration (Seeding and Erosion Control Blanket)	S.Y.	600	1.50	900.00	0	$0.00	0	$0.00	0	$0.00
Site 4 – Gervais Mill Park, Little Canada											
1.04.J	Install Flotation Silt Curtain	L.F.	55	15.00	825.00	55	$825.00	0	$0.00	55	$825.00
1.04.H	Removal, Disposal, and Replacement of Existing 1 ½" to 2" Clear Washed Filter Rock	C.Y.	16	50.00	800.00	16	$800.00	0	$0.00	16	$800.00
1.04.N	Remove and Replace Plastic Netting (Tensar Tri Ax Geogrid or approved equal)	S.Y.	24	13.00	312.00	24	$312.00	0	$0.00	24	$312.00
1.04.E	Site Restoration (Seeding and Erosion Control Blanket)	S.Y.	400	1.50	600.00	0	$0.00	0	$0.00	0	$0.00
Site 5 – PCU Pond, North St. Paul											
1.04.L	Construction Entrance	EACH	1	500.00	500.00	0	$0.00	0	$0.00	0	$0.00
1.04.J	Flotation Silt Curtain or	L.F.	540	3.00	1,620.00	340	$1,020.00	0	$0.00	340	$1,020.00
1.04.K	Silt Fence	L.F.	540	3.00	1,620.00	0	$0.00	0	$0.00	0	$0.00
1.04.C	Sediment/Muck Cleanout (1,500 C.Y.)	L.S.	1	50,000.00	50,000.00	0	$0.00	0	$0.00	0	$0.00
1.04.D	Disposal of Sediment/Muck Cleanout (Level 2 & 3 Material)	TON	2,325	30.00	69,750.00	0	$0.00	0	$0.00	0	$0.00
1.04.E	Site Restoration (Seeding and Erosion Control Blanket)	S.Y.	30	2.00	60.00	0	$0.00	0	$0.00	0	$0.00

Capital Improvement Project Maintenance/Repairs 2019
Ramsey-Washington Metro Watershed District
Summary of Work Completed Through January 22, 2019 for Progress Payment Number 1

						(1) Total Completed Through This Period		(2) Total Completed Previous Period		(3) Total Completed This Period	
1.04 Item	**Description**	**Unit**	**Estimated Quantity**	**Unit Price**	**Extension**	**Quantity**	**Amount**	**Quantity**	**Amount**	**Quantity**	**Amount**
Site 6 – Hayward Avenue Ponds, Oakdale											
1.04.L	Construction Entrance	EACH	1	500.00	500.00	~~0~~	$0.00	0	$0.00	0	$0.00
1.04.M	Inlet Protection	EACH	1	100.00	100.00	2	$200.00	0	$0.00	2	$200.00
1.04.J	Flotation Silt Curtain or	L.F.	60	3.00	180.00	27	$81.00	0	$0.00	27	$81.00
1.04.K	Silt Fence	L.F.	60	3.00	180.00	~~0~~	$0.00	0	$0.00	0	$0.00
1.04.O	Removal of Trees, Brush, and Debris (Disposal Off Site)	L.S.	1	5,000.00	5,000.00	0.6	$3,000.00	0	$0.00	0.6	$3,000.00
1.04.P	Clean Out Catch Basin	EACH	1	1,500.00	1,500.00	0	$0.00	0	$0.00	0	$0.00
1.04.Q	Cleanout Sediment from Flared End Section and Pipe to Structure	L.S.	1	700.00	700.00	0	$0.00	0	$0.00	0	$0.00
1.04.C	Sediment/Muck Cleanout (450 C.Y.)	L.S.	1	13,000.00	13,000.00	1	$13,000.00	0	$0.00	1	$13,000.00
1.04.D	Disposal of Sediment/Muck Cleanout (Levels 2 & 3 Material)	TON	698	40.00	27,920.00	885	$35,400.00	0	$0.00	885	$35,400.00
1.04.R	MN/DOT Class III Riprap with Type IV Geotextile Filter Fabric	TON	10	45.00	450.00	0	$0.00	0	$0.00	0	$0.00
1.04.E	Site and Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	667	2.00	1,334.00	0	$0.00	0	$0.00	0	$0.00
Site 7 – McKnight Basin, St. Paul											
1.04.L	Construction Entrance	EACH	1	500.00	500.00	0	$0.00	0	$0.00	0	$0.00
1.04.J	Flotation Silt Curtain	L.F.	580	15.00	8,700.00	0	$0.00	0	$0.00	0	$0.00
1.04.N	Removal of Trees, Brush, and Debris (Disposal Off Site)	L.S.	1	500.00	500.00	0	$0.00	0	$0.00	0	$0.00
1.04.C	Sediment/Muck Cleanout (700 C.Y.)	L.S.	1	28,000.00	28,000.00	0	$0.00	0	$0.00	0	$0.00
1.04.D	Disposal of Sediment/Muck Cleanout (Levels 2 & 3 Material)	TON	1,085	35.00	37,975.00	0	$0.00	0	$0.00	0	$0.00
1.04.E	Site and Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	167	2.00	334.00	0	$0.00	0	$0.00	0	$0.00
Site 8 – Fish Creek Tributary Detention Pond, Maplewood											
1.04.L	Construction Entrance	EACH	1	500.00	500.00	0	$0.00	0	$0.00	0	$0.00
1.04.J	Flotation Silt Curtain or	L.F.	130	3.00	390.00	0	$0.00	0	$0.00	0	$0.00
1.04.K	Silt Fence	L.F.	130	3.00	390.00	0	$0.00	0	$0.00	0	$0.00
1.04.C	Sediment/Muck Cleanout (130 C.Y.)	L.S.	1	4,550.00	4,550.00	0	$0.00	0	$0.00	0	$0.00
1.04.D	Disposal of Sediment/Muck Cleanout (Level2 & 3 Material)	TON	202	35.00	7,070.00	0	$0.00	0	$0.00	0	$0.00
1.04.R	MN/DOT Class III Riprap with Type IV Geotextile Filter Fabric	TON	10	45.00	450.00	0	$0.00	0	$0.00	0	$0.00
1.04.R	MN/DOT Class V Riprap with Type VII Geotextile Filter Fabric	TON	10	45.00	450.00	0	$0.00	0	$0.00	0	$0.00
1.04.S	Mill Bituminous Surface (2”)	S.Y.	460	11.50	5,290.00	0	$0.00	0	$0.00	0	$0.00
1.04.T	Type SPWEA330F Wearing Course Mixture (3”)	TON	78	150.00	11,700.00	0	$0.00	0	$0.00	0	$0.00
1.04.E	Site Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	200	2.00	400.00	0	$0.00	0	$0.00	0	$0.00
Site 9 – Suburban Pond, St. Paul											
1.04.L	Construction Entrance	EACH	2	500.00	1,000.00	0	$0.00	0	$0.00	0	$0.00
1.04.J	Flotation Silt Curtain or	L.F.	200	3.00	600.00	0	$0.00	0	$0.00	0	$0.00
1.04.K	Silt Fence	L.F.	200	3.00	600.00	0	$0.00	0	$0.00	0	$0.00
1.04.M	Inlet Protection	EACH	10	100.00	1,000.00	0	$0.00	0	$0.00	0	$0.00
1.04.N	Removal of Trees, Brush, and Debris (Disposal Off Site)	L.S.	1	5,000.00	5,000.00	0	$0.00	0	$0.00	0	$0.00
1,04.X	Investigative Excavation Crew	HOUR	12	150.00	1,800.00	0	$0.00	0	$0.00	0	$0.00
1.04.C	Sediment/Muck Cleanout (1,180 C.Y.)	L.S.	1	40,000.00	40,000.00	0	$0.00	0	$0.00	0	$0.00
1.04.D	Disposal of Sediment/Muck Cleanout (Level 3 Material)	TON	1,829	40.00	73,160.00	0	$0.00	0	$0.00	0	$0.00
1.04.R	MN/DOT Class III Riprap with Type IV Geotextile Filter Fabric	TON	92	45.00	4,140.00	0	$0.00	0	$0.00	0	$0.00
1.04.E	Site Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	2,444	2.00	4,888.00	0	$0.00	0	$0.00	0	$0.00

Capital Improvement Project Maintenance/Repairs 2019
Ramsey-Washington Metro Watershed District
Summary of Work Completed Through January 22, 2019 for Progress Payment Number 1

						(1) Total Completed Through This Period		(2) Total Completed Previous Period		(3) Total Completed This Period	
1.04 Item	**Description**	**Unit**	**Estimated Quantity**	**Unit Price**	**Extension**	**Quantity**	**Amount**	**Quantity**	**Amount**	**Quantity**	**Amount**
Site 10 – Grass Lake, Shoreview											
Alternate A											
1.04.A	Mobilization/Demobilization	L.S.	1	2,000.00	2,000.00	0	$0.00	0	$0.00	0	$0.00
1.04.O	Removal of Trees, Brush, and Debris (Disposal Off Site)	L.S.	1	2,000.00	2,000.00	0	$0.00	0	$0.00	0	$0.00
1.04.L	Construction Entrance	EACH	1	500.00	500.00	0	$0.00	0	$0.00	0	$0.00
1.04.K	Silt Fence	L.F.	280	1.00	280.00	0	$0.00	0	$0.00	0	$0.00
1.04.AA	Remove and Replace Bituminous Pavement	S.Y.	80	3.00	240.00	0	$0.00	0	$0.00	0	$0.00
1.04.AC	Common Excavation (P)	C.Y.	100	10.00	1,000.00	0	$0.00	0	$0.00	0	$0.00
1.04.U	MN/DOT Common Borrow (P)	C.Y.	145	18.00	2,610.00	0	$0.00	0	$0.00	0	$0.00
1.04.V	Topsoil Borrow (P)	C.Y.	85	18.00	1,530.00	0	$0.00	0	$0.00	0	$0.00
1.04.E	Site Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	510	3.00	1,530.00	0	$0.00	0	$0.00	0	$0.00
Alternate B											
1.04.A	Mobilization/Demobilization	L.S.	1	1,000.00	1,000.00	0	$0.00	0	$0.00	0	$0.00
1.04.W	Furnish and Install Aluminum Stop Log System (by Wilpps, Inc. local supplier Kodru Equipment, Chaska, MN 952-249-4584 or approved equal)	L.S.	1	3,250.00	3,250.00	0	$0.00	0	$0.00	0	$0.00
1.04.E	Site Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	80	3.00	240.00	0	$0.00	0	$0.00	0	$0.00
Alternate D											
1.04.A	Mobilization/Demobilization	L.S.	1	1,000.00	1,000.00	0	$0.00	0	$0.00	0	$0.00
1.04.O	Removal of Trees, Brush, and Debris (Disposal Off Site)	L.S.	1	2,000.00	2,000.00	0	$0.00	0	$0.00	0	$0.00
1.04.K	Silt Fence	L.F.	195	2.00	390.00	0	$0.00	0	$0.00	0	$0.00
1.04.U	MN/DOT Common Borrow (P)	C.Y.	80	14.00	1,120.00	0	$0.00	0	$0.00	0	$0.00
1.04.V	Top Soil Borrow (P)	C.Y.	85	18.00	1,530.00	0	$0.00	0	$0.00	0	$0.00
1.04.E	Site Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	500	3.00	1,500.00	0	$0.00	0	$0.00	0	$0.00
				Total of Extensions =	**$ 483,265.50**		**$67,073.00**		**$0.00**		**$67,073.00**
Change Orders											
C.O.1A					0.00	0	$0.00	0	$0.00	0	$0.00
					GRAND TOTALS		**$67,073.00**		**$0.00**		**$67,073.00**

****

Permit Program

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Permit Application Coversheet

Date February 06, 2019

Project Name 3M Innovation Blvd/19th St Reconstruction **Project Number** 19-05

Applicant Name Mary Carlson-Lenzmeier, 3M Company

Type of Development Linear

Property Description

This project is located at the 3M campus near McKnight Road and I-94 in the City of Maplewood. The applicant is proposing to reconstruct Innovation Boulevard and 19th Street with a new multiuse path and sidewalk. A portion of Innovation Blvd will be mill and overlay. A bid alternate for the project includes expansion of existing parking lots east of 3M Buildings 224 and 227. The applicant has submitted a stormwater management plan that is designed for the additional impervious in the bid alternate should it be selected. Treatment on the site will consist of an underground filtration system with sumps, SAFL baffles, and an isolator row for pretreatment. The total site area is 25 acres.

Watershed District Policies or Standards Involved:

- ☐ ***Wetlands***
- ☑ ***Erosion and Sediment Control***
- ☑ ***Stormwater Management***
- ☐ ***Floodplain***

Water Quantity Considerations

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

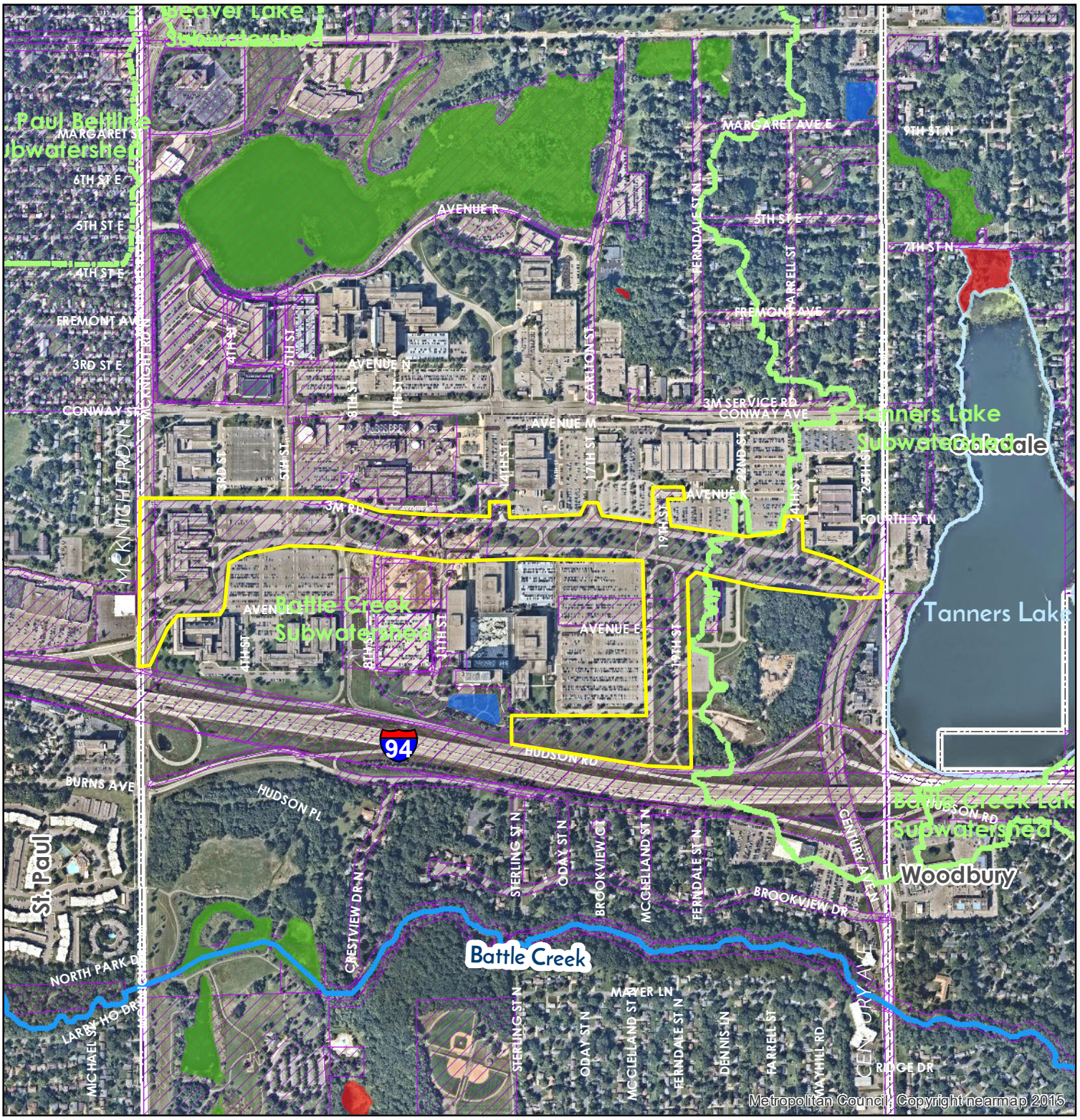
Staff Recommendation

Staff recommends approval of this permit with the special provisions.

Attachments:

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

#19-05 3M Innovation Blvd / 19th St. Reconstruction



Wetlands
- Manage A
- Manage B
- Manage C
- Lake
- Sediment Pond
- Not Assessed

- Permits
- RWMWD Boundary
- Subwatersheds
- Creeks
- Permits
- City Boundaries

Highlighted Areas Represent Active Permit

0 750 1,500
Feet

0 0.15 0.3
Miles

N

19-05

Special Provisions

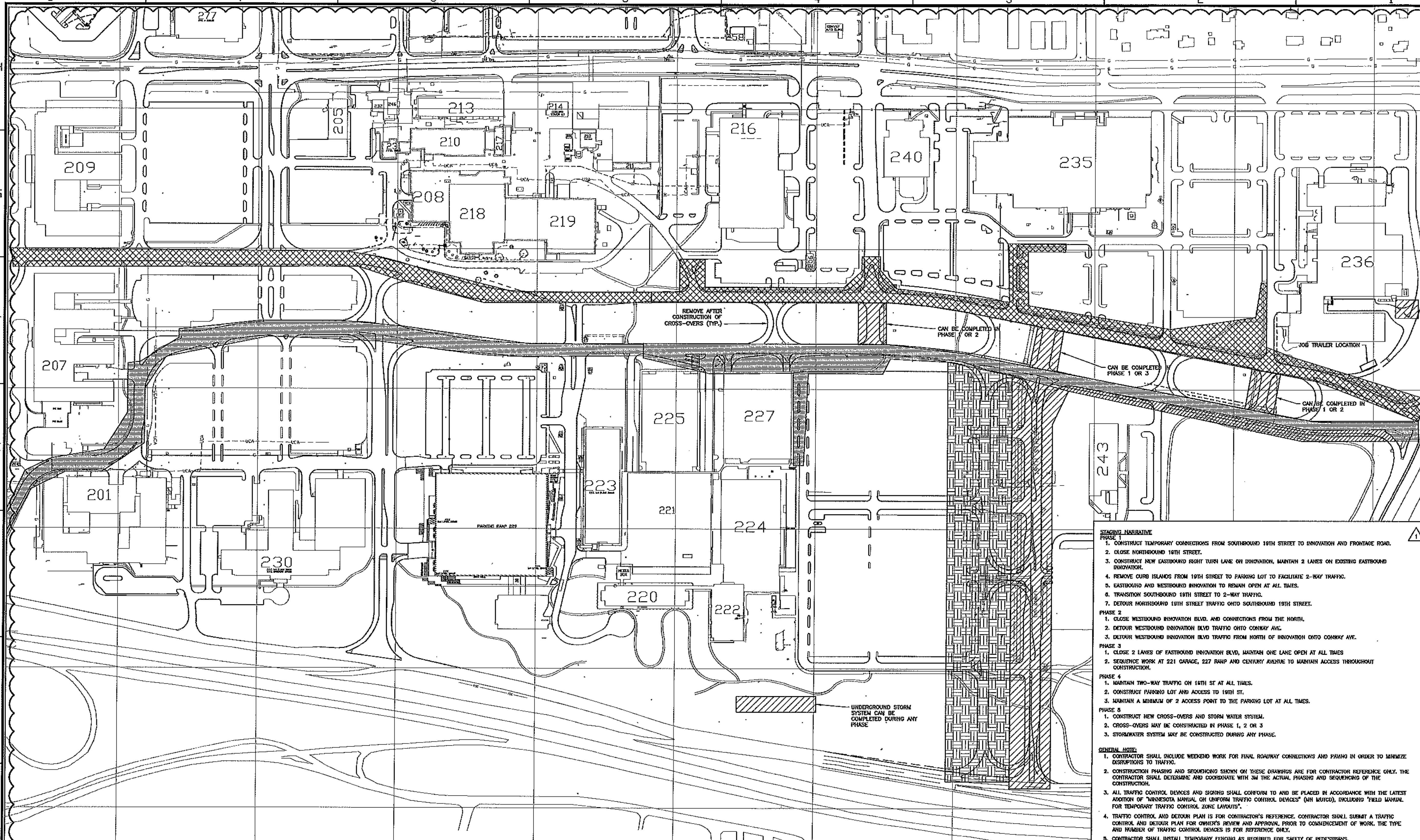
1. The applicant shall submit a signed joint stormwater maintenance agreement with the City of Maplewood.

2. The applicant shall submit the escrow fee of $81,000.

3. The applicant shall submit a final copy of the signed construction plans.

4. The applicant shall submit 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 NPDES Construction Permit for the project.



STAGING NARRATIVE

PHASE 1

1. CONSTRUCT TEMPORARY CONNECTIONS FROM SOUTHBOUND 19TH STREET TO INNOVATION AND FRONTAGE ROAD.
2. CLOSE NORTHBOUND 19TH STREET.
3. CONSTRUCT NEW EASTBOUND RIGHT TURN LANE ON INNOVATION, MAINTAIN 2 LANES ON EXISTING EASTBOUND INNOVATION.
4. REMOVE CURB ISLANDS FROM 19TH STREET TO PARKING LOT TO FACILITATE 2-WAY TRAFFIC.
5. EASTBOUND AND WESTBOUND INNOVATION TO REMAIN OPEN AT ALL TIMES.
6. TRANSITION SOUTHBOUND 19TH STREET TO 2-WAY TRAFFIC.
7. DETOUR NORTHBOUND 19TH STREET TRAFFIC ONTO SOUTHBOUND 19TH STREET.

PHASE 2

1. CLOSE WESTBOUND INNOVATION BLVD. AND CONNECTIONS FROM THE NORTH.
2. DETOUR WESTBOUND INNOVATION BLVD TRAFFIC ONTO CONWAY AVE.
3. DETOUR WESTBOUND INNOVATION BLVD TRAFFIC FROM NORTH OF INNOVATION ONTO CONWAY AVE.

PHASE 3

1. CLOSE 2 LANES OF EASTBOUND INNOVATION BLVD, MAINTAIN ONE LANE OPEN AT ALL TIMES
2. SEQUENCE WORK AT 221 GARAGE, 227 RAMP AND CENTURY AVENUE TO MAINTAIN ACCESS THROUGHOUT CONSTRUCTION.

PHASE 4

1. MAINTAIN TWO-WAY TRAFFIC ON 19TH ST AT ALL TIMES.
2. CONSTRUCT PARKING LOT AND ACCESS TO 19TH ST.
3. MAINTAIN A MINIMUM OF 2 ACCESS POINT TO THE PARKING LOT AT ALL TIMES.

PHASE 5

1. CONSTRUCT NEW CROSS-OVERS AND STORM WATER SYSTEM.
2. CROSS-OVERS MAY BE CONSTRUCTED IN PHASE 1, 2 OR 3
3. STORMWATER SYSTEM MAY BE CONSTRUCTED DURING ANY PHASE.

GENERAL NOTE:

1. CONTRACTOR SHALL INCLUDE WEEKEND WORK FOR FINAL ROADWAY CONNECTIONS AND PAVING IN ORDER TO MINIMIZE DISRUPTIONS TO TRAFFIC.
2. CONSTRUCTION PHASING AND SEQUENCING SHOWN ON THESE DRAWINGS ARE FOR CONTRACTOR REFERENCE ONLY. THE CONTRACTOR SHALL DETERMINE AND COORDINATE WITH 3M THE ACTUAL PHASING AND SEQUENCING OF THE CONSTRUCTION.
3. ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO AND BE PLACED IN ACCORDANCE WITH THE LATEST ADDITION OF "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
4. TRAFFIC CONTROL AND DETOUR PLAN IS FOR CONTRACTOR'S REFERENCE. CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL AND DETOUR PLAN FOR OWNER'S REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF WORK. THE TYPE AND NUMBER OF TRAFFIC CONTROL DEVICES IS FOR REFERENCE ONLY.
5. CONTRACTOR SHALL INSTALL TEMPORARY FENCING AS REQUIRED FOR SAFETY OF PEDESTRIANS.

LEGEND

- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4 (BID ALTERNATE 03 PARKING LOT EXPANSION)

1 / 063P OVERALL CONSTRUCTION PHASING PLAN
1"=80'

ONLY BUBBLED ITEMS INCLUDED IN THIS CONTRACT

Preliminary
01/11/2019

ACCESS CODES	US08	S252					DESIGN REFERENCE	NEXT ASSEMBLY	

REV	PROJECT ID	DATE	DESCRIPTION	DRWN	CHKD
1	C-085481	XX-XX-XX	INNOVATION & 19TH	ANK	BDP

CONSULTANT NAME/LOGO	DRWN ANK	DATE 02-20-18	MFG / DATE
	CHKD BDP	DATE 02-20-18	APPVD / DATE
FACILITIES ENGINEERING	3M CENTER ST. PAUL, MN 55144		
SCALE			
REGISTRATION STAMP	I.S. CERTIFICATION	TITLE: OVERALL PHASING PLAN INNOVATION AND 19TH ST.	
		ST. PAUL / BLDG NO. 888 / MINNESOTA	
		SIZE E / DRAWING NUMBER STPA-888-C-063P / SHEET / REV 1	

RAMSEY-WASHINGTON
METRO WATERSHED DISTRICT

MEMORANDUM

Date: February 6, 2019

To: Board of Managers and Staff

From: Nicole Soderholm, Permit Coordinator

Subject: January Enforcement Action Report

During January 2019:

Number of Violations: **0**

Ongoing Activities:

Erosion and sediment control/BMP inspections, permitting assistance to private developers and public entities, permit review with Barr Engineering, miscellaneous inquiries, CIP preconstruction meeting, WCA administration and mapping updates, CIP conference call with Army Corps, BMP O&M updates, TAC permit rule changes with CRWD, Stormwater Impact Fund Implementation Plan, BWSR stakeholder meeting for proposed In-Lieu Fee Program.

Project Updates:

Permit #18-06 Phalen Retail Development, St. Paul

The permit for the 'Phalen Village' retail development near Ames Lake was issued on January 25th. The contractor must schedule an initial inspection of the site with District staff prior to soil disturbance.

Permit #18-26 MnDOT I694/I494/I94 Loop, Oakdale/Woodbury

Staff completed an initial erosion/sediment control inspection with MnDOT staff on January 10th. The contractor is completing some bridge work preparation this winter with the majority of construction activity commencing in the spring. Due to the limited area of soil disturbance, staff will resume regular inspections with MnDOT staff in the spring. A regular day/time will be selected for inspections similar to past MnDOT projects in the District.

Permit #18-13 Trails Edge Apartments, Maplewood

The permit for the Trails Edge Apartments project adjacent to Costco was issued on January 10th. The contractor must schedule an initial inspection of the site with District staff prior to soil disturbance.

Permit #15-09 Cardinal Glen, North St. Paul

The applicant submitted an as-built survey for the infiltration basin constructed for the project and requested a final inspection. Staff visited the site and confirmed that the infiltration basin is currently failing with frozen standing water and cattail establishment in the basin. The applicant and engineer were notified that the basin must be repaired before the permit can be closed out. The District will continue to withhold escrow on the project until this work is completed.

Permits Closed in January 2019:

07-22 Heritage Farms, Oakdale
12-18 East Metro Public Safety Training Center, Phase I, Maplewood
13-21 East Metro Training Center Phase 2, Maplewood
18-20 3M Building 208 Annex, Maplewood (Withdrawn)

RAMSEY-WASHINGTON
METRO WATERSHED DISTRICT

MEMORANDUM

Date: February 6, 2019

To: RWMWD Board of Managers

From: Nicole Soderholm, Permit Coordinator

Subject: 2018/2019 Rule Revision Update

Ramsey-Washington and Capitol Region watershed districts initiated a permit rules revision process in 2018, culminating in a Joint Rules Technical Advisory Committee (TAC) meeting on September 19th, 2018. Including staff from the watershed districts, 25 individuals attended to learn about the proposed rule changes and offer informal comments.

Rule Change Highlights:

- Revise language under freeboard requirements to provide added clarification
- Increase the runoff cap to BMPs from 2" to 2.5"
- Increase Stormwater Impact Fund contribution from $40,000 per acre of impervious to $100,000 per acre of impervious
- Increase linear cost cap from $30,000 per acre of impervious to $75,000 per acre of impervious
- Add language to allow for regional compliance
- Revise language to reflect electronic submittals
- Miscellaneous minor corrections, clarifications

See enclosed for a draft copy of the revised 'redline' rules that were sent to the TAC for a 2-week informal review on January 23rd. Also provided for the board's review: research summary memos for increasing the Stormwater Impact Fee and linear cost cap, September TAC meeting minutes.

At the March meeting, staff will ask the board for approval to begin the 60-day formal comment period. There is no requested action from the board at this time.

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Little Canada, MN 55117

Ramsey-Washington Metro Watershed District Rules

Adopted 09/06/2006
Revised xx/xx/2019

Table of Contents

Certification of Rules

I, Robert E. Johnson, Secretary of the Ramsey-Washington Metro Watershed District Board of Managers, certify that the attached is a true and correct copy of the Rules of the Ramsey-Washington Metro Watershed District having been properly adopted by the Board of Managers of the Ramsey-Washington Metro Watershed District.
Dated: September 6, 2006

General Policy Statement

The Ramsey-Washington Metro Watershed District (District) is a political subdivision of the State of Minnesota, established under the Minnesota Watershed Law, Minnesota State Statute 103d. The District is also a watershed management organization as defined under the Minnesota Metropolitan Water Management Program and is subject to its directives and authorizations. Under the Watershed Law and the Metropolitan Water Management Program, the District exercises a series of powers to accomplish its statutory purposes. The District's general statutory purpose as stated in 103d.201 is to conserve the natural resources of the state by land use planning, flood control, and other conservation projects by using sound scientific principles for the protection of the public health and welfare and the provident use of the natural resources.

As required under the Metropolitan Water Management Program, the District has adopted a Watershed Management Plan, which contains the framework and guiding principles for the District in carrying out its statutory purposes. It is the District's intent to implement the Plan's goals and policies in these rules.

Land alteration affects the rate, volume, and quality of surface water runoff which ultimately must be accommodated by the existing surface water systems within the District. The watershed is 65 square miles and highly urbanized.

Land alteration and urbanization has and can continue to degrade the quality of runoff entering the waterbodies of the District due to non-point source pollution. Sedimentation from ongoing erosion processes and construction activities can reduce the hydraulic capacity of waterbodies and degrade water quality. Water quality problems already exist in ~~all of~~ all the lakes and other water resources throughout the District. The Mississippi River is the principal~~le~~ receiving water for all runoff from the District and is listed by the Environmental Protection Agency (EPA) and Minnesota Pollution Control Agency (MPCA) as “impaired”.

Projects that do not address the increased rate or volume of stormwater runoff from urban development can aggravate existing flooding and water quality problems and contribute to or create new ones. Projects which fill floodplain or wetland areas without compensatory storage can aggravate existing flooding by reducing flood storage and hydraulic capacity of waterbodies, and can degrade water quality by eliminating the filtering capacity of those areas.

In these rules the District seeks to protect the public health and welfare and the natural resources of the District by providing reasonable regulation of the District's lands and waters: 1) to reduce the severity and frequency of flooding and high water; 2) to preserve floodplain and wetland storage capacity; 3) to improve the chemical, physical and

biological quality of surface water; 4) to reduce sedimentation; 5) to preserve waterbodies' hydraulic and navigational capacity; 6) to preserve natural wetland and shoreland features; and 7) to minimize future public expenditures to avoid or correct these problems.

Relationship of Ramsey-Washington Metro Watershed District to Municipalities

The District recognizes that the primary control and determination of appropriate land use is the responsibility of the municipalities. Accordingly, the District will coordinate permit application reviews involving land development with the municipality where the land is located.

The District intends to be active in the regulatory process to ensure that water resources are managed in accordance with District goals and policies. The District intends to begin implementing these rules effective October 1, 2006. All developments that do not have municipal approval on or before October 1, 2006 will require a District permit under these rules. Municipalities have the option of assuming a more active role in the permitting process after the adoption of a local water management plan approved by the District, and by adopting and implementing local ordinances consistent with the approved plan.

The District will also review projects sponsored or undertaken by municipalities and other governmental units, and will require permits in accordance with these rules for governmental projects which have an impact on water resources of the District. These projects include but are not limited to: land development, road, trail, and utility construction and reconstruction.

The District desires to serve as technical advisor to the municipalities in their preparation of local surface water management plans and the review of individual development proposals prior to investment of significant public or private funds. To promote a coordinated review process between the District and the municipalities, the District encourages the municipalities to involve the District early in the planning process.

Rule A: DEFINITIONS

For the purposes of these rules, unless the context otherwise requires, the following words and terms have the meanings set forth below.

References in these Rules to specific sections of the Minnesota Statutes or Rules include any amendments, revisions or recodification of such sections. References in these Rules to manuals, plans, rules, assessments, modeling methods, technical guidance or District policies shall include any revisions or amendments.

The words “shall” and “must” are mandatory; the word “may” is permissive.

Adjacent- An area of land that has a common boundary or edge with a water resource or development.

Alteration or Alter- When used in connection with public waters or wetlands, any activity that will change or diminish the course, current, or cross-section of public waters or wetlands.

Applicant- Any person or political subdivision that submits an application to the District for a permit under these Rules.

Atlas 14- National Oceanic and Atmospheric Administration's (NOAA) precipitation event frequency and magnitude estimates (replaces TP-40).

Banking Credits- Volume reduction in excess of the standard for use on subsequent projects unable to meet the standard onsite.

Beltline Interceptor- That portion of the Beltline Storm Sewer that is owned and operated by the District.

Best Management Practices (BMPs)- Measures taken to minimize negative effects on the environment including those documented in the Minnesota Stormwater Manual.

Board or Board of Managers- The Board of Managers of the Ramsey-Washington Metro Watershed District.

Clean Water Act- The Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.), and any subsequent amendments thereto.

Common Plan of Development or Sale- A contiguous area where multiple separate and distinct land disturbing activities may be taking place at different times, on different schedules, but under one proposed plan. One plan is broadly defined to include design, permit application, advertisement or physical demarcation indicating that land disturbing activities may occur.

Compensatory Storage- Excavated volume of material below the floodplain elevation required to offset floodplain fill.

Criteria- Specific details, methods and specifications that apply to all permits and reviews and that guide implementation of the District's goals and policies.

Critical Duration Storm Event- Storm duration that produces the largest peak discharge rates within a channel or storm sewer system and the highest water surface elevation within a water body.

Development- Any land disturbance, redevelopment affecting land, or creation/replacement of impervious surface, including but not limited to, road and/or parking lot construction or reconstruction.

District- The Ramsey-Washington Metro Watershed District established under the Minnesota Watershed Law, Minnesota Statutes Chapter 103D.

Drainage Way- All water conveyance systems including but not limited to storm sewers, ditches, culverts, and open channels.

Erosion- The wearing away of the ground surface as a result of wind, flowing water, ice movement, or land disturbance.

Erosion and Sediment Control Plan- A plan of BMPs or equivalent measures designed to control runoff and erosion and to retain or control sediment on land during the period of land disturbance in accordance with the standards set forth in these Rules.

Excavation- The artificial displacement or removal of soil or other material.

Fill- The deposit of soil or other earth materials by artificial means.

Floodplain- The area adjoining a watercourse or natural or man-made water body, including the area around lakes, marshes, and lowlands, that is inundated during a 100-year flood.

Freeboard- The vertical distance between the regulatory high water elevation calculated by hydrologic modeling and the regulatory elevation on a structure or roadway.

Gross Pollutants- Larger particles of litter, vegetative debris, floatable debris, and coarse sediments in stormwater runoff.

Habitable- Any enclosed space usable for living or business purposes, which includes but is not limited to: working, sleeping, eating, cooking, recreation, office, office storage, or any combination thereof. An area used only for storage incidental to a residential use is not included in the definition of "Habitable."

Hazardous Materials- Any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Illicit Connection- An illicit connection is defined as either of the following:

1. Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system, including but not limited to: any conveyances which allow any non-stormwater discharge including sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by a political subdivision; or
2. Any drain or conveyance connected from a commercial or industrial land use to the storm drain system that has not been documented in plans, maps, or equivalent records and approved by a political subdivision.

~~**Illegal**~~ **Illicit Discharge-** Any direct or indirect non-stormwater discharge to the storm drain system, except as exempted in Paragraph 5 of Rule G in these Rules.

Impaired Waters- A waterbody that does not meet water quality standards and designated uses because of pollutant(s), pollution, or unknown causes of impairment.

Impervious Surface- A surface compacted or covered with material so as to be highly resistant to infiltration by runoff. Impervious surface shall include roads, driveways and parking areas, sidewalks or trails greater than three feet wide, whether or not paved, patios, tennis and basketball courts, swimming pools, buildings with roofs, covered decks and other structures.

Infiltration- A stormwater retention method for the purpose of reducing the volume of stormwater runoff by transmitting a flow of water into the ground through the earth's surface.

Infiltration Area- An area set aside or constructed where stormwater from impervious surface runoff is treated and disposed of into the soil by percolation and filtration, and includes but is not limited to: infiltration basins, infiltration trenches, dry wells, underground infiltration systems, and permeable pavement.

Iron-Enhanced Sand- Any Best Management Practices (BMPs) that incorporate filtration media mixed with iron to remove dissolved phosphorus from stormwater.

Land Disturbance- Any activity on property that results in a change or alteration in the existing ground cover (both vegetative and non-vegetative) and/or the existing soil topography. Land disturbing activities include but are not limited to: development, redevelopment, demolition, construction, reconstruction, clearing, grading, filling, stockpiling, excavation, and borrow pits. Routine vegetation management and road milling/overlay activities that do not alter the soil material beneath the road base shall not be considered land disturbance. In addition, in-kind catch basin and pipe repair/replacement done in conjunction with a mill/overlay project shall not be considered land disturbance.

Linear Project- Roads, trails, and sidewalks that are not part of a common plan of development or sale.

Low Floor- ~~The finished surface of the lowest floor of a structure.~~The floor of the lowest enclosed area including the basement. An unfinished or flood-resistant enclosure, used solely for parking of vehicles, building access, or storage in an area other than a basement area shall not be considered a building's lowest floor.

Low Opening- The elevation of the lowest hydraulically connected entry point to a structure such as a door or window.

Municipal Separate Storm Sewer System (MS4)- The conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutter, ditches, man-made channels, or storm drains):

1. Owned and operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under state law ~~or~~ such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an

authorized Indian organization, or a designated and approved management Agency under section 208 of the Clean Water Act (33 U.S.C § 1288) that discharges to waters of the United States;
2. Designed or used for collecting or conveying stormwater;
3. Which is not a combined sewer; and
4. Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR § 122.2.

Municipality- Any city wholly or partly within the Ramsey-Washington Metro Watershed District.

National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit- A permit issued by the Minnesota Pollution Control Agency that authorizes the discharge of pollutants to waters of the State.

Non-Point Source Pollution- Pollution that enters a water body from diffuse origins ~~on~~ in the watershed and does not result from discernable, confined, or discrete conveyances.

Non-Stormwater Discharge- Any discharge to the storm drain system that is not composed entirely of stormwater.

NURP- Nationwide Urban Runoff Program developed by the ~~Environmental Protection Agency~~ EPA to study stormwater runoff from urban development.

Ordinary High Water Level (OHW)- The elevation delineating the highest water level which has been maintained for a sufficient period of time to leave evidence upon the landscape. The ordinary high water level is commonly ~~that~~ the point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial. For watercourses, the OHW level is the elevation of the top of the bank of the channel. For Public Waters and Public Waters Wetlands, the Minnesota Department of Natural Resources (DNR) determines the OHW.

Owner- A person or entity who has legal title to a parcel of land or a purchaser under a contract for deed.

Parcel- A parcel of land designated by plat, metes and bounds, registered land survey, auditor's subdivision, or other acceptable means and separated from other parcels or portions by its designation.

Permittee- The person or political subdivision in whose name a permit is issued pursuant to these Rules.

Person- Any individual, trustee, partnership, unincorporated association, limited liability company or corporation.

Political Subdivision- A municipality, county, or other political division, agency, or subdivision of the state.

Pollutant- Anything which causes or contributes to pollution. Pollutants may include but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; non-

hazardous liquid and solid wastes; yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordinances and accumulations; ~~so that some may cause or contribute to pollution;~~ floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

Potential Stormwater Hotspots (PSHs)- Commercial, industrial, institutional, municipal, or transportation-related operations that may produce higher levels of stormwater pollutants and/or present a higher potential risk for spills, leaks, or illicit discharges. PSHs may include, but are not limited to: gas stations, petroleum wholesalers, vehicle maintenance and repair facilities, auto recyclers, recycling centers and scrap yards, landfills, solid waste facilities, wastewater treatment plants, airports, railroad stations and associated maintenance facilities, and highway maintenance facilities.

Public Waters- Any waters as defined in Minnesota Statutes Section 103G.005, Subdivision 15.

Public Water Wetlands- Any wetlands as defined in Minnesota Statutes Section 103G.005, Subdivision 15a.

River Dependent- An activity or land use that relies on direct access to or use of the Mississippi River.

Runoff- Rainfall, snowmelt, or irrigation water flowing over the ground surface.

Seasonal High Groundwater- The highest seasonal elevation in the ground that has soil voids ~~being filled~~ that fill with water.

Sediment- Soil or other surficial material transported by surface water as a product of erosion.

Sedimentation- The process or action of depositing sediment.

Sequencing Flexibility- Deviation from the standard sequencing process as described in MN Rule 8420.0520, Subp. 7a.

Sewage- Waste produced by, including but not limited to: toilets, bathing, laundry, culinary operations, or the floor drains associated with these sources.

~~**Special Interest Subwatershed.** An area as shown on the map in application guidance materials in which protection or improvement of water quality has been given a high priority.~~

Standards- A preferred or desired level of quantity, quality, or value.

Storm Drain System- Publicly-owned facilities by which stormwater is collected and/or conveyed, including but not limited to: ~~any~~ roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and

detention basins, natural and human-made or altered drainage channels, reservoirs, and other drainage structures.

Stormwater- Any surface flow, runoff, ~~and~~ or drainage consisting entirely of water from any form of natural precipitation and resulting from such precipitation.

Stormwater Management Plan- A plan for the permanent management and control of runoff prepared and implemented in accordance with the standards set forth in these Rules.

Stormwater Pollution Prevention Plan (SWPPP)- A document which describes the best management practices and activities to be implemented by a ~~person or business~~ permittee to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to stormwater, stormwater conveyance systems, and/or waterbodies to the maximum extent practicable.

Structure- Anything manufactured, constructed, or erected which is normally attached to or positioned on land, including: portable structures, earthen structures, roads, water and storage systems, drainage facilities, and parking lots.

Subdivision or Subdivide- The separation of an area, parcel, or tract of land under single ownership into two or more parcels, tracts, or lots.

Wastewater- Any water or other liquid, other than uncontaminated stormwater, discharged from a facility.

Water Basin- An enclosed natural or created depression with definable banks capable of containing water that may be partly filled with public waters.

Waterbody- All water basins, watercourses, and wetlands as defined in these Rules.

Watercourse- A natural or improved stream, river, creek, ditch, channel, culvert, drain, gully, swale, or wash in which waters flow continuously or intermittently in a ~~definite~~ defined direction.

Watershed- Region draining to a specific watercourse or water basin.

Wetland- Land transitional between terrestrial and aquatic systems as defined in Minnesota Statutes Section 103G.005, Subdivision 19.

Wetland Conservation Act (WCA)- Minnesota Wetland Conservation Act of 1991.

Rule B: PERMIT PROCEDURAL REQUIREMENTS

1. **APPLICATION REQUIRED-** Any person, or political subdivision undertaking an activity for which a permit is required by these Rules shall, prior to commencing work, submit to the District a permit application, engineering design data, plans, specifications, and ~~such~~ other applicable information and exhibits as may be required by these Rules. Permit applications shall be signed by the owner or the owner's

authorized agent, except for activities of a political subdivision which may be signed by either an authorized agent and submitted online via the District's website. ~~except for activities of a political subdivision which may be signed by either an authorized agent of the political subdivision or the general contractor. Three copies of all supporting materials, including site plans, narratives, and hydrologic calculations, shall be submitted with the completed application. One full set, one set reduced to 11"x17", and one electronic set in .pdf format shall be submitted.~~

2. **FORMS.** Permit applications must be submitted ~~on~~ via the form provided by the District. Applicants may obtain and submit these forms online ~~at the District office or Internet Web site~~ at the District's website: www.rwmwd.org.

3. **TIME FOR APPLICATION.** A complete permit application which includes all required exhibits shall be received by the District at least 21 calendar days prior to a regularly scheduled meeting date of the Board of Managers. Late submittals or submittals with incomplete exhibits will be scheduled to a subsequent meeting date.

4. **ACTION BY BOARD.** The Board of Managers shall approve or deny an application containing all required information, exhibits and fees, in accordance with Minnesota Statutes, Section 15.99, as amended.

5. **ISSUANCE OF PERMITS.** The Board of Managers shall issue a permit only after the applicant has satisfied all requirements for the permit, has paid all required District fees, and the District has received any required surety. All activity under the permit shall be done in accordance with the approved plans and specifications unless modifications are approved by District staff as stated in Rule B.8 Modifications.

6. **COMPLIANCE.** Issuance of a permit based on plans, specifications, or other data shall not prevent the District from thereafter requiring the correction of errors in the approved plans, specifications, and data, or from preventing any activity ~~being carried on~~ in violation of these Rules.

7. **EXPIRATION.** A permit shall expire and become null and void if the approved activity is not commenced within one year from date of approval by the Board, or if the approved activity is suspended or abandoned for a period of one year, from the date the activity originally commenced. Before an activity delayed for one year or more can recommence, the permit must be renewed. An application for renewal of a permit must be in writing, and state the reasons for the renewal. Any plan changes and required fees must be included with the renewal request ~~application.~~ There must be no unpaid fees or other outstanding violations of the permit being renewed. The Board shall consider the request for renewal on the basis of the Rules in effect on the date the application is being considered for renewal.

   Any permittee may apply for an extension of time to commence the approved activity under an unexpired permit when the permittee is unable to commence the activity within the time required by these Rules. An application for an extension of a permit must be in writing and state the reasons for the extension. Any plan changes and required fees must be included with the extension request ~~application~~. There must be no unpaid fees or other outstanding violations of the permit being extended. The application must be received by the District at least 30 days prior to the permit's

expiration. The Board shall consider the application for an extension on the basis of the Rules in effect on the date the application is being considered. The Board may extend the time for commencing the approved activity for a period not exceeding one year upon finding that circumstances beyond the control of the permittee have prevented action from being taken.

8. **MODIFICATIONS.** The permittee shall not modify the approved activity or deviate from the plans and specifications on file with the District without the prior approval of District staff. Significant modifications may require Board approval.

9. **INSPECTION AND MONITORING.** After issuance of a permit, the District may perform such field inspections and monitoring of the approved activity as the District deems necessary to determine compliance with the conditions of the permit and these Rules. Any portion of the activity not in compliance shall be promptly corrected. In applying for a permit, the applicant consents to the District's entry upon the land for field inspections and monitoring, or for performing any work necessary to bring the activity into compliance at the permittee's expense.

10. **SUSPENSION OR REVOCATION.** The District may suspend or revoke a permit issued under these Rules wherever the permit is issued in error or ~~on the basis of~~ based on incorrect information supplied, or in violation of any provision of these Rules, or if the preliminary and final subdivision approval received from a municipality or county is not consistent with the conditions of the permit.

11. **CERTIFICATION OF COMPLETION.** The District shall certify completion of an activity for which a permit has been issued under these Rules and authorize the release of any required surety upon inspection and submittal of information verifying completion of the activity in accordance with the approved plans and conditions of the permit. Verification of stormwater practice functionality such as a flood test or other in-field test or observation shall be conducted in the presence of District staff or other authorized third party or documented in a report submitted to the District before completion can be certified and any surety released. Copies of documents, with evidence of recording where appropriate, that provide for maintenance of structures required by the permit shall be filed with the District before completion can be certified and any surety released. All temporary erosion prevention and sediment control BMPs must be removed following approval of a Certificate of Completion before any surety can be released. No activity may be certified as complete if there are any unpaid fees or other outstanding permit violations. If the District fails to make a determination as to compliance of an activity with the conditions of the permit within 60 days after submittal of the foregoing information verifying completion, the activity shall be deemed complete and any surety shall thereupon be released, unless seasonal conditions prohibit verification of stormwater practice functionality.
12. **PERMIT TRANSFERS.** The District may allow the transfer of a permit. No permit shall be transferred if there are any unpaid fees or other outstanding permit violations. Transfer of a permit does not alter the requirements of the permit or extend the permit term. In the event that a permit is transferred, the original permittee shall remain liable for the permit requirements unless (1) the transferee

and transferor submit a Permit Transfer Form to the District or (2) the District approves a new permit for the transferee.

13. **PERMIT PROCESSING FEES.** The District shall charge the permit processing fees in accordance with a schedule adopted by written resolution of the Board of Managers and conforming to Minnesota Statutes 103D.345.

    (a) Applicant must submit the required permit processing fee to the District at the time it submits its permit application.

    (b) The processing fees described above shall not be charged to the federal government, the State of Minnesota, or a political subdivision of the State of Minnesota.

    (c) Any person or political subdivision performing an activity for which a permit is required under these Rules without having first obtained a permit from the District, shall pay, in addition to such fines, court costs or other amounts as may be payable by law as a result of such violation, a field inspection fee equal to the actual cost to the District for field inspections, monitoring, and investigation of such activity, including services of engineering, legal and other consultants. The field inspection fee shall be payable within 10 calendar days after issuance of a statement by the District. No permit shall be issued for the activity if there are any unpaid field inspection fees or other outstanding violations of these Rules.

14. **PERFORMANCE SURETY.** To assure compliance with these Rules, the District will require permit applicants to post a performance surety where the District determines that it is reasonable and necessary under the particular circumstances of any permit application filed with the District. ~~In determining whether a performance surety is reasonable or necessary, the District may consider a number of factors, including, but not limited to,: the size and scope of the proposed project, the proximity of the proposed project to waterbodies, and the permit applicant's past compliance with these Rules.~~ The District shall determine the amount of any performance surety. A performance surety will not be required of the federal government, the State of Minnesota, or a political subdivision of the State of Minnesota.

15. **OTHER PERMITS AND APPROVALS.** The applicant shall promptly provide the District with copies of all environmental permits and approvals required by other governmental entities, upon request.

Rule C: STORMWATER MANAGEMENT

1. **POLICY.** It is the policy of the Board of Managers to:

    (a) Reduce runoff rates to levels that allow for stable conveyance of flow through watersheds in the District.

(b) Require rate control practices on development to preserve runoff rates at a level that shall not cause the degradation of the watershed.

(c) Limit runoff volumes by utilizing site designs that limit impervious surfaces or incorporate volume control practices such as infiltration.

(d) Minimize connectivity of impervious surfaces to the stormwater system.

(e) Require the use of effective non-point source pollution reduction BMPs in development projects.

(f) Protect and maintain downstream drainage systems to provide permanent and safe conveyance of stormwater. Reduce the frequency and/or duration of potential downstream flooding.

(g) Reduce the total volume of stormwater runoff to protect surface water quality and provide recharge to groundwater.

(h) Remove sediment, pollutants, and nutrients from stormwater to protect surface water quality.

2. **REGULATION.** No person or political subdivision shall commence a land disturbing activity or the development of land one acre or greater, unless specifically exempted by Paragraph 5 below, without first obtaining a permit from the District that incorporates and approves a stormwater management plan for the activity or development.

3. **CRITERIA.** Stormwater management plans must comply with the following criteria:

(a) **Hydrograph Method.** A hydrograph method based on sound hydrologic theory shall be used to analyze runoff for the design or analysis of flows and water levels. Reservoir routing procedures and critical duration storm events shall be used for design of detention basins and outlets.

(b) **Runoff Rate.** Runoff rates for the proposed activity shall not exceed existing runoff rates for the 2-year, 10-year, and 100-year critical storm events using Atlas 14 precipitation depths and storm distributions, or as approved by the District. Runoff rates may be restricted to less than the existing rates when the capacity of downstream conveyance systems is limited.

(c) **Runoff Volume.** Stormwater runoff shall be retained onsite in the amount equivalent to 1.1 inches of runoff over the new and reconstructed impervious surfaces of the development. The required stormwater runoff volume shall be calculated as follows:

Required Stormwater Runoff Volume (ft^3) = Impervious surfaces (ft^2) x 1.1 (in) x 1/12 (ft/in)

(1) For infiltration of the required stormwater runoff volume, the following requirements must be met:

(i) Infiltration volumes and facility sizes shall be calculated using the appropriate hydrologic soil group classification and design infiltration rate from Table 1. Select the design infiltration rate from Table 1 based on the least permeable soil horizon within the first five feet below the bottom elevation of the proposed infiltration BMP.

(ii) The required stormwater runoff storage volume shall be provided below the invert of the low overflow outlet of the BMP.

(iii) Runoff infiltrated during a rain event will not be credited towards the volume reduction requirement.

(iv) Volume reduction credit shall not exceed the volume of 2.5 inches over the impervious surfaces of the drainage area to the BMP or the volume provided within the BMP, whichever is less.

(v) The applicant may complete double-ring infiltrometer testing to the requirements of ASTM D3385 or other District approved infiltration test measurements at the proposed bottom elevation of the infiltration BMP. The measured infiltration rate shall be divided by the appropriate correction factor selected from the Minnesota Stormwater Manual. This test must be completed by a licensed soil scientist or engineer.

Table 1. Design Infiltration Rates			
Hydrologic soil group	**Infiltration rate (inches/hour)**	**Soil textures**	**Corresponding Unified Soil Classification**
A	1.63	gravel sandy gravel silty gravels	GW - well-graded gravels, sandy gravels GP - gap-graded or uniform gravels, sandy gravels GM - silty gravels, silty sandy gravels SW - well-graded gravelly sands
A	0.8	sand loamy sand sandy loam	SP - gap-graded or uniform sands, gravelly sands
B	0.45		SM - silty sands, silty gravelly sands
B	0.3	loam, silt loam	MH - micaceous silts, diatomaceous silts, volcanic ash
C	0.2	Sandy clay loam	ML - silts, very fine sands, silty or clayey fine sands
D	0.06	clay loam silty clay loam sandy clay silty clay clay	GC - clayey gravels, clayey sandy gravels SC - clayey sands, clayey gravelly sands CL - low plasticity clays, sandy or silty clays OL - organic silts and clays of low plasticity CH - highly plastic clays and sandy clays OH - organic silts and clays of high plasticity

Source: Minnesota Stormwater Manual

(vi) The infiltration area shall be capable of infiltrating all stormwater routed to the system through the uppermost soil surface or engineered media ~~the required volume~~ within 48 hours. for surface and subsurface BMPs. Additional flows that cannot infiltrate within the required 48 hours must be allowed to bypass the system through a stabilized discharge point.

(vii) Infiltration areas shall be limited to the horizontal areas subject to prolonged wetting.

(viii) Areas of permanent pools tend to lose infiltration capacity over time and shall not be accepted as an infiltration practice.

(ix) Stormwater runoff must be pretreated to remove solids before discharging to infiltration areas to maintain the long term viability of the infiltration areas. Additional information on sizing and approaches can be found in the ~~application guidance materials~~ Minnesota Stormwater Manual.

~~(x)~~ Design and placement of infiltration BMPs shall be done in accordance with the Minnesota Department of Health guidance ~~called "Evaluating Proposed Stormwater Infiltration Projects in Vulnerable Wellhead Protection Areas"~~ and requirements.

(xi) Specific site conditions may make infiltration difficult, undesirable, or impossible. Some of these conditions are listed in Table 2 and may qualify the applicant for Alternative Compliance Sequencing. The applicant may also submit a request to the District for Alternative Compliance Sequencing for site conditions not listed below. All requests shall indicate the specific site conditions present and a grading plan, utility plan, and the submittal requirement listed in the table below.

Table 2. Alternative Compliance Site Conditions*

MPCA has limitations for constructing infiltration BMPs if it will receive discharges from or be constructed in these areas of concern. These conditions will apply to this permit.

Type	Specific Site Conditions	Infiltration Requirements
Potential Contamination	Potential Stormwater Hotspots (PSHs)/Industrial Facilities	Prohibited
	Contaminated Soils	Prohibited
	Vehicle Fueling and Maintenance Areas	Prohibited
Physical Limitations	Low Permeability (Type D Soils)	~~Restricted~~ Prohibited- Soil borings required
	Bedrock within 3 vertical feet of bottom of infiltration area	~~Restricted~~Prohibited- Soil borings required
	Seasonal High Groundwater within 3 vertical feet of bottom of infiltration area	~~Restricted~~Prohibited- Soil borings required
	Karst Areas	~~Restricted~~Prohibited- Soil borings required
Land Use Limitations	Utility Locations	Concerned- Site Map with detailed utility locations
	Adjacent Wells	Restricted- Well Locations

***Alternative Compliance is allowed for the volume reduction portion of Rule C only.**

(2) Stormwater reuse systems shall be allowed at an approved credit as calculated by the Stormwater Reuse Calculator found in the application guidance materials, or other approved calculator.

(3) Alternative Compliance Sequencing. To the maximum extent practicable, the volume reduction standard shall be fully met onsite. If it is not possible because of site conditions listed above, the following Alternative Compliance may be achieved by any combination of the sequence below but shall be explored in the order presented.

(i) First, the applicant shall comply or partially comply with the volume reduction standard to the maximum extent practicable onsite through alternative volume reduction methods as listed below and in the application guidance materials or as approved by the District. If the applicant meets these requirements, the project is compliant, and no further sequencing steps are necessary.

- If filtration of the water quality volume is deemed necessary through alternative compliance sequencing, the "required stormwater runoff volume" shall be multiplied by 1.82 (i.e. 55% filtration credit), and the filtration BMP shall provide this storage volume below the invert of the low overflow outlet of the BMP (perforated drain pipes for filtration will not be considered the low overflow outlet).
- If filtration with iron-enhanced sand is used as a filtration media, the "required stormwater runoff volume to be infiltrated" shall be multiplied by 1.25 (i.e. 80% filtration credit), and the filtration BMP shall provide this storage volume below the invert of the low overflow outlet of the BMP (perforated drain pipes for filtration will not be considered the low overflow outlet).Iron-enhanced media shall include a minimum of 5% of iron filings by weight and shall be uniformly blended with filtration media.
- Other enhanced filtration media may be considered and credited at the sole discretion of the District.
- ~~Stormwater reuse systems shall be allowed at an approved credit as calculated by the Stormwater Reuse Calculator found in the application guidance materials, or other approved calculator.~~

(ii) Second, for the remaining volume reduction required to fully meet the standard, the applicant shall comply or partially comply with the volume reduction standard at an offsite location or through the use of qualified banking credits as determined by Rule C – 3.c.4.

- Volume reduction may be accomplished at another site outside of the project area or through the use of banked credits as long as it yields the same volume reduction benefit and is approved by the District prior to construction. When possible, offsite compliance and banking credits shall be achieved in the same drainage

area or sub-watershed as the project site. Projects that propose to construct stormwater BMPs to achieve volume reduction credits may require District permit application, review and approval.

(iii) Third, as a last alternative, for the remaining volume reduction required, the applicant shall pay into the District's Stormwater Impact Fund to cover the cost of implementing equivalent volume reduction elsewhere in the watershed. The required amount to contribute to the Stormwater Impact Fund ~~will~~ shall be set by resolution of the Board ~~annually~~.

- Money contributed to the Stormwater Impact Fund from a local government unit shall be spent within that local government unit's jurisdiction to the extent possible.
- Money contributed to the Stormwater Impact Fund shall be allocated to volume reduction projects by the District according to the Stormwater Impact Fund Implementation Plan as approved by the District Board. The volume reduction achieved by these projects shall offset the volume reduction that was not achieved on with the permitted development.

(4) Regional Stormwater Treatment Facilities

(i) For projects within the drainage area of an existing or planned future regional stormwater facility, the sequencing requirements may be waived if it has been determined by RWMWD that the benefits are equivalent or greater than an onsite treatment practice.

(ii) Applicants must either utilize volume reduction credits or contribute to the Stormwater Impact Fund.

(5) Volume reduction provided in excess of the 1.1-inch requirement may be banked for use on another project or used to compensate for under-treated drainage areas within the same project. Volume reduction credit shall not exceed the volume of 2.5 inches over the impervious surfaces of the drainage area to the BMP or the volume provided within the BMP, whichever is less.

(6) Transfer of banked volume credits between applicants is allowed. Applicants shall submit a letter to the District outlining the conditions of the transfer and confirming the volume of the transfer. The District must review and approve all credit transfers.

(7) If an applicant determines during the course of planning, design or construction of a ~~linear~~ project that the required volume reduction cannot be achieved onsite and the applicant does not possess sufficient excess volume reduction credits to offset the volume required, the District may allow the applicant to defer the construction of volume

reduction BMPs to a future identified project that the applicant will complete within two years of the date of the permit application. Failure to provide the required volume reduction by that date would obligate the applicant to pay into the Stormwater Impact Fund at the rate applicable at the time payment is made into the fund. If volume reduction is deferred, rate control requirements must still be met at any given time of the project.

(d) **Water Quality.** Developments shall incorporate effective non-point source pollution reduction BMPs to achieve 90% total suspended solids (TSS) removal from the ~~runoff generated by a NURP water quality storm (2.5" rainfall)~~ site. Runoff volume reduction BMPs may be considered and included in the calculations showing compliance with achieving the 90% TSS removal requirement. Water quality calculations, documentation and/or water quality modeling shall be submitted to verify compliance with the standard.

(1) Drainage areas that directly discharge to a ~~wetland~~ waterbody shall meet the water quality standard onsite.

~~(2) For linear projects utilizing offsite locations, banking credits, or the Stormwater Impact Fund to meet the volume reduction standard:~~

~~(i) If any portion of the development falls within a Special Interest Subwatershed as shown on the map in the application guidance materials, the development shall meet the water quality standard onsite. Offsite or banked BMPs located within the same Special Interest Subwatershed as the development may be considered.~~

~~(ii) If the entire development falls outside of a Special Interest Subwatershed, the water quality standard shall be met onsite to the maximum extent practicable as determined by the District. At a minimum, BMPs shall be placed in each drainage area of a development to remove gross pollutants.~~

(e) ~~For linear projects,~~ **Linear Projects** ~~costs~~ Costs specific to satisfying the volume reduction and water quality standards on linear projects need not exceed a cost cap which will be set by resolution of the Board ~~annually~~. The cap shall apply to costs directly associated with the design, testing, land acquisition, and construction of the volume reduction and water quality stormwater BMPs only. Unit costs for construction ~~shall be set by the Board annually and~~ shall be used to determine the cost of the volume reduction and water quality BMPs, and must be reviewed and approved by the District. The District may contribute an amount above the cap in order to meet the volume reduction and water quality standards or it may allow the applicant to partially comply with the standards when the cap is met. If volume reduction is partially achieved due to the cost cap, rate control requirements must still be met at any given time of the project.

(f) **Maintenance.** All stormwater water management structures and facilities, including volume reduction BMPs, shall be maintained to assure that the

structures and facilities function as originally designed. Applicants shall submit a site-specific plan, schedule and narrative for maintenance of the proposed stormwater management BMPs. The maintenance responsibilities must be assumed by either the municipality's acceptance of the required easements dedicated to stormwater management purposes or by the applicant executing and recording a maintenance agreement acceptable to the District. Documentation of the recorded agreement must be submitted to the District prior to issuance of permit. Public developments shall require a maintenance agreement in the form of a Memorandum of Agreement or an approved Local Water Management Plan that details the methods, schedule, and responsible parties for maintenance of stormwater management facilities for permitted development. A single Memorandum of Agreement for each local government unit may be used to cover all stormwater management structures and facilities required herein, including volume reduction BMPs, within the LGU's jurisdiction.

4. EXHIBITS. The following exhibits must accompany the online permit application in electronic .pdf format.~~One set, full size; one set, reduced to 11"x17", and a copy of all submittals~~

(a) Property lines and delineation of lands under ownership of the applicant.

(b) Delineation of the drainage areas contributing runoff from off-site, proposed and existing sub-watersheds onsite, emergency overflows, and drainage ways.

(c) Aerial photo showing the locations of water bodies downstream of the site.

(d) Proposed and existing stormwater facilities' location, alignment, and elevation.

(e) Delineation of existing onsite wetlands, marshes, shoreland, and floodplain areas.

(f) Identification of existing and proposed normal, ordinary high, and 100-year water elevations onsite.

(g) Identification of existing and proposed site contour elevations with at least a 2-foot contour interval including offsite contours where overflows are directed.

(h) Construction plans and specifications of all proposed stormwater management facilities, including design details for outlet control structures.

(i) Stormwater runoff volume and rate analysis for the 2-year, 10-year, and 100-year critical storm events, existing and proposed.

(j) All hydrologic, water quality, and hydraulic computations completed to design the proposed stormwater management facilities.

(k) Narrative addressing incorporation of stormwater BMPs, including individual BMP storage volumes and pretreatment method(s) used.

(l) For non-linear projects, a site-specific plan, schedule, and narrative for ongoing maintenance of the proposed stormwater management BMPs.

(m) Onsite soil borings indicating soil type for purposes of infiltration area design.

(n) For applications proposing infiltration area(s), information shall include identification, description (soil group and texture), and field evaluation of soil permeability in accordance with ASTM 3385 procedure and delineation of site soils to determine existing and proposed conditions suitable for percolation of stormwater runoff from impervious areas.

(o) For applications proposing alternative compliance sequencing, the required exhibits listed in Table 2.

(p) All plan sheets shall be signed by a Minnesota licensed professional appropriate for the project.

5. EXCEPTIONS.

(a) Rule C and its requirements shall not apply to land disturbing activity or the development of land that ~~post-construction~~ creates 100% pervious surfaces post-construction, unless the land disturbing activity or the development of land alters the drainage boundaries shown in the District's Watershed Management Plan.

(b) Rule C and its requirements shall not apply to development less than 1 acre in size for all land uses unless the development is part of a common plan of development or sale that will ultimately exceed one acre in size.

(c) Rule C and its requirements shall not apply to construction on individual lots within a residential subdivision approved by the District, provided the activity complies with the original common plan of development.

(d) Rule C and its requirements shall not apply to bridges.

(e) Rule C and its requirements shall not apply to annually cultivated land used for farming, research, or horticulture.

Rule D: FLOOD CONTROL

1. POLICY. It is the policy of the Board of Managers to:

(a) Encourage water quantity controls to ensure no net increase in the impacts or potential for flooding on or off the site and encourage, where practical, controls to address existing flooding problems.

(b) Discourage floodplain filling for new non-river dependent developments.

(c) Only allow floodplain development in a manner that is compatible with the dynamic nature of floodplains.

2. REGULATION. No person or political subdivision shall alter or fill land below the 100-year flood elevation of any waterbody, public water, or public water wetland without first obtaining a permit from the District.

3. CRITERIA.

(a) Placement of fill within the 100-year floodplain is prohibited unless compensatory storage is provided. Compensatory storage must be provided on the development or immediately adjacent to the development within the affected floodplain.

(1) Compensatory storage shall result in the creation of floodplain storage to fully offset the loss of floodplain storage. Compensatory storage shall be created prior to or concurrently to the permitted floodplain filling.

(b) All habitable buildings, roads, and underground parking structures on or adjacent to a project site shall comply with the following flood control and freeboard requirements:

(1) See Table 3 below for freeboard requirements.

Table 3. Flood Control and Freeboard Requirements

Condition	Waterbodies with Piped Outlets and Mississippi	Waterbodies without	Subsurface Stormwater Management BMPs

	River	Piped Outlets	
New Habitable Buildings	Low floor must be a minimum of 2 feet above the 100-year flood elevation.	Low floor must be a minimum of 5 feet above the 100-year flood elevation.	Low floor must be a minimum of 2 feet above the 100-year flood elevation or one foot above the emergency overflow elevation unless flood-proofing measures are constructed with the building. **AND** Low opening must be a minimum of 2 feet above the 100-year flood elevation or one foot above the emergency overflow elevation.
Existing Habitable Buildings- Adjacent to and Potentially Affected by Flood Waters	Low opening must be a minimum of 2 feet above the 100-year flood elevation.	Low opening must be a minimum of 5 feet above the 100-year flood elevation.	Low floor must be a minimum of 2 feet above the 100-year flood elevation or one foot above the emergency overflow elevation unless flood proofing measures are constructed with the BMP. **AND** Low opening must be a minimum of 2 feet above the 100-year flood elevation or one foot above the emergency overflow elevation.
Underground Parking Structures	Low opening must be a minimum of 2 feet above the 100-year flood elevation.	Low opening must be a minimum of 2 feet above the 100-year flood elevation.	Low opening must be a minimum of 2 feet above the 100-year flood elevation or one foot above the emergency overflow elevation.
Public Roadway	Roadway shall not flood when adjacent to stormwater storage basin designed to store the 100-year storm event. Freeboard requirement set by road authority.		

(2) For waterbodies without a piped outlet:

i. The normal water level of a waterbody without a piped outlet shall be determined by a qualified licensed geologist or hydrogeologist. A groundwater analysis using existing or installed monitoring wells on or near the site and soil conditions in the basin shall be used. Ideally, the peak groundwater elevation over a continuous three-year monitoring period shall be considered the normal water level of a basin without a piped outlet, provided soil conditions allow full drainage of recent storm event within 48 hours.

ii. For existing waterbodies without piped outlets, mottled soils may be considered in establishing a waterbody's normal water level in lieu of groundwater analysis.

iii. An emergency response plan shall be developed for addressing potential flooding in homes below the overland emergency overflow swale around each waterbody without a piped outlet. The plans shall be adopted by the City and be included in a maintenance agreement for the development.

(3) For underground parking structures:

i. Underground parking structures shall be flood-protected to minimize impacts from high groundwater during flood events.

ii. All drainage structures within underground parking shall include an anti-backflow device to prevent stormwater from surcharging into the area.

(4) Emergency overflow swales or areas shall be constructed to convey the peak 100-year discharge from each waterbody to the next downstream waterbody and away from buildings.

4. EXHIBITS. The following exhibits must accompany the online permit application in electronic .pdf format. ~~One set, full size; two sets, reduced to 11"x17"; and copies of all submittals~~

(a) Site plan showing the property lines, location, delineation of the work area, existing elevation contours of the work area, ordinary high water elevations, and 100-year flood elevation.

(b) Bench marks, including datum used, to establish vertical control.

(c) Grading plan showing any proposed elevation changes including low floor elevations of adjacent buildings and 100-year flood elevations resulting from proposed development.

(d) Utility plans and details.

(e) Roadway plans and details.

(f) Preliminary plat of any proposed land development.

(g) Stormwater management plan showing all data and computations used in estimating runoff, drainage areas, stormwater storage, and flood elevations for the 2-year, 10-year, and 100-year storm events for both existing conditions and post development conditions. The plan ~~study~~ shall be prepared and signed by a qualified professional engineer licensed in the State of Minnesota or a qualified hydrologist. The plan shall include a figure of receiving waterbodies downstream of the site.

(h) Computation of change in flood storage capacity resulting from proposed grading.

(i) Erosion control plan.

(j) All plan sheets shall be signed by a Minnesota licensed professional appropriate for the project.

Rule E: WETLAND MANAGEMENT

1. **POLICY.** It is the policy of the Board of Managers to:

(a) Manage wetlands to achieve no net loss in the quantity, quality, and biological diversity of wetlands in the District.

(b) Increase the quantity, quality, and biological diversity of wetlands in the District by restoring or enhancing diminished or drained wetlands.

(c) Avoid impacts from activities that destroy or diminish the quantity, quality, and biological diversity of District wetlands.

(d) Replace affected wetlands where avoidance is not feasible and prudent.

(e) Encourage natural vegetation around wetlands to maintain the water quality and ecological functions that wetlands provide.

2. **REGULATION.** The regulation of Rule E is as follows:

(a) **AUTHORITY UNDER WETLAND CONSERVATION ACT.** The Wetland Conservation Act, as amended, and its implementing rules as set forth in Minnesota Rules Chapter 8420, as amended, are incorporated as part of this rule and shall govern draining, filling, excavating, and other alteration of a wetland in all cases where the District is the local government unit under that Act. Wetland impacts shall be governed by the Wetland Conservation Act with the following exceptions:

(1) Sequencing flexibility shall not be allowed;

(2) Wetland replacement, where permitted, shall be in accordance with the following prioritization for the location of the replacement wetland (both constructed and banked):

(i) Onsite replacement is most preferred;

(ii) Within the same subwatershed;

(iii) Within the District;

(iv) Outside of the District is the least preferred.

(b) **AUTHORITY UNDER WATERSHED LAW.** The criterion below relates to wetland buffers and water quality and is adopted under the District's watershed authority and applies whether or not the District is the Wetland Conservation Act local government unit (LGU) in the municipality where the wetland is located. No person or political subdivision shall commence a land disturbing activity or development of land one acre or greater adjacent to a waterbody, unless specifically exempted by Paragraph 5 below, without first obtaining a permit from the District.

3. CRITERIA.

(a) All stormwater must be treated to the water quality standard outlined in Rule C.d.3 before discharged to a wetland.

(b) Wetland delineations and other LGU decisions shall be completed and submitted to the District on existing wetlands on the entire parcel for development.

(1) Data sheets shall be submitted with detailed information on field indicators (soils, hydrology, and vegetation) and a summary report.

(2) Wetland delineations shall be performed and submitted for review during the normal growing season for this area of the State (May 1 – October 15). Delineations performed outside of this time frame may or may not be permitted by the District. Review and approval shall be dependent on potential wetland impact in relation to the entire development or project. This decision is at the sole discretion of the District.

(3) Wetland boundaries shall be staked in the field for review and approval.

(4) Wetland delineations shall remain valid for five years from District approval. Field verification may be required after the initial approval and within those five years.

(c) Wetlands in the District have been classified using MnRAM 3.4 and are identified in the District's Watershed Management Plan. The classifications are used for management of wetlands in the District and to establish required buffer widths. The following steps shall be followed for challenging of a wetland classification:

(1) The wetland shall be assessed by a qualified wetland specialist using MnRAM version 3.4 or current version and between the dates of May 1 and October 15.

(2) MnRAM 3.4 or current version~~,~~ data completed by the applicant and narrative justification for classification change shall be submitted.

(3) District staff shall review the data and justification and provide a recommendation to the Board of Managers.

(4) The District Board of Managers shall approve or deny the classification change request.

(d) Wetland buffers shall be required for all developments adjacent to a wetland whether or not the wetland is located on the same parcel as the proposed development.

(1) Table 4 outlines the classifications of wetlands and the corresponding no-disturb buffer widths and minimums that must be met:

Table 4. Wetland Buffer Widths

Wetland Classification	Manage A	Manage B	Manage C
Average Buffer Width	75 feet	50 feet	25 feet
Minimum Buffer Width	37.5 feet	25 feet	12.5 feet

(2) New and existing ponds constructed for water quantity and quality adjacent to new development shall maintain a 10-foot vegetative buffer from the normal water level.

(3) Stormwater management BMPs shall not be allowed to be constructed in the buffer area.

(4) Wetland replacement through mitigation shall be allowed in the buffer area provided mitigation of buffer disturbance is also provided adjacent to wetland replacement.

(5) A permanent wetland buffer monument shall be installed at each lot line where it crosses a wetland buffer, and where needed to indicate the contour of the buffer, with a maximum spacing of two hundred (200) feet of wetland edge.

(6) Where acceptable vegetation exists in buffer areas, the retention of such vegetation in an undisturbed state is required unless an applicant receives approval by the District to replace such vegetation. A buffer strip has acceptable vegetation if it:

(i) Has a continuous, dense layer of vegetation or overstory of trees and/or shrubs that have been uncultivated or unbroken for at least five consecutive years, or

(ii) Is not composed of undesirable plant species (including, but not limited to: reed canary grass, common buckthorn, purple loosestrife, leafy spurge, and noxious weeds), or

(iii) Does not have topography that tends to channelize the flow of surface runoff.

(7) If the District determines the existing buffer to be unacceptable, the applicant shall maintain the minimum buffer in its undisturbed state but may disturb the remainder of the buffer area as long as the buffer area is re-planted with native species and maintained as a native habitat. The buffer planting must be identified on the permit application and the buffer landscaping shall comply with the following standards:

(i) Buffer areas shall be planted with a native seed mix approved by the District, with the exception of a one-time planting with an annual nurse or cover crop such as oats or rye.

(ii) The revegetation project shall be performed by a qualified contractor. All methods shall be approved by the District prior to planting or seeding.

(iii) The seed mix shall be broadcast according to the specifications of the selected mix including date of application. The annual nurse or cover crop shall be applied at a minimum rate of 30 pounds per acre. The seed mix selected for permanent cover shall be appropriate for soil site conditions and yellow tag certified free of invasive species.

(iv) Native shrubs may be allowed to be substituted for native forbs. All substitutions shall be approved by the District. Such shrubs may be bare root seedlings and shall be planted at eight foot spacing. Shrubs shall be distributed so as to provide a natural appearance and shall not be planted in rows.

(v) Any groundcover or shrub plantings installed within the buffer area are independent of any landscaping requirements required elsewhere by the municipality or county.

(vi) Compacted soils in the buffer area shall be loosened to a depth of at least 5" prior to seeding.

(vii) No fertilizer shall be used in establishing new buffer areas, except on highly disturbed sites when necessary to establish acceptable buffer vegetation and then limited to amounts indicated by an accredited soil testing laboratory.

(viii) All seeded areas shall be mulched or blanketed immediately in a method approved by the District.

(ix) Buffer areas (both natural and created) shall be protected by erosion and sediment control measures during construction in accordance with these Rules. The erosion and sediment control measures shall remain in place until the vegetation is established.

(x) Buffer vegetation shall be actively managed throughout the three-year establishment period. This includes but is not limited to: mowing, overseeding, spot weed control, prescribed burning, and watering.

(xi) Buffer vegetation shall be established and maintained in accordance with the requirements above. During the first three full growing seasons, the applicant or developer must replant any buffer vegetation that does not survive. The applicant or developer shall specify a method acceptable to the District for monitoring compliance and verifying establishment of the buffer at the end of the third full growing season.

4. EXHIBITS. The following exhibits must accompany the online permit application in electronic .pdf format. ~~One set, full size; one set, reduced to 11"x17" and a copy of all submittals~~

(a) Site plan showing:

(1) Property lines, ~~and~~ corners, and delineation of lands under ownership of the applicant.

(2) Existing and proposed elevation contours with at least a 2-foot contour interval, including the existing run out elevation and flow capacity of the wetland outlet, and spoil disposal areas. Some circumstances may require a 1-foot contour interval.

(3) Area of the wetland portion to be filled, drained, excavated, or otherwise altered.

(b) Complete delineation of the existing wetland(s), supported by the following documentation:

(1) Identification of the delineation method used in accordance with the 1987 Army Corps of Engineers Manual.

(2) Identification of presence or absence of normal circumstances or problem conditions.

(3) Basin classification using the Cowardin method and Circular 39.

(4) Wetland data sheets, or a report, for each sample site, referenced to the location shown on the delineation map. In each data sheet/report, the applicant must provide the reasoning for satisfying, or not satisfying, each of the technical criteria and why the area is or is not a wetland.

(5) A delineation map showing the size, locations, configuration, and boundaries of wetlands in relation to identifiable physical characteristics, such as: roads, fence lines, waterways, or other identifiable features.

(6) The location of all sample sites and stakes/flags must be accurately shown on the delineation map. Delineations submitted by applicants shall normally be field-verified by District staff.

(c) A replacement plan, if required, outlining the steps followed for the sequencing process and including documentation supporting the proposed mitigation plan.

(d) A wetland functions and values assessment comparison before and after the project.

(e) Buffer vegetation management and monitoring plans if necessary.

(f) An Erosion Control Plan.

5. EXCEPTIONS. Rule E and its requirements shall not apply to annually cultivated land used for farming, research, or horticulture, unless the activity results in draining or filling the wetland.

Rule F: EROSION AND SEDIMENT CONTROL

1. POLICY. It is the policy of the Board of Managers to require the preparation and implementation of erosion and sediment control plans to control the export of sediment off site, which impacts surface water quality.

2. REGULATION. No person or political subdivision shall commence a land disturbing activity of the development of land one acre or greater, unless specifically exempted by this Rule, without first obtaining a permit from the District that incorporates and approves an erosion and sediment control plan for the activity or development.

3. CRITERIA. Erosion and sediment control plans shall comply with the following criteria:

(a) Erosion and sediment control measures shall be consistent with best management practices, and shall be sufficient to retain sediment onsite as demonstrated in the ~~MPCA manual, "Protecting Water Quality in Urban Areas," as amended~~ Minnesota Stormwater Manual.

(b) Erosion and sediment control measures shall meet the standards for the General Permit Authorization to Discharge Storm Water Associated With Construction Activity Under the National Pollutant Discharge Elimination System/State Disposal System Permit Program, Permit MN R100001 (NPDES General Construction Permit), issued by the Minnesota Pollution Control Agency, except where more specific requirements are required.

(c) The activity shall be phased when possible to minimize disturbed areas subject to erosion at any one time.

(d) All construction site waste, such as discarded building materials, concrete ~~truck~~ washout, pavement or masonry cutting slurry, chemicals, litter, and sanitary and hazardous waste at the construction site shall be properly managed and disposed of so they shall not have an adverse impact on soil or water quality.

(e) ~~All~~ turbid or sediment-laden waters related to dewatering must be discharged to a temporary sediment basin on the project site unless infeasible. Permittees must provide appropriate Best Management Practices (BMPs) to water discharged to a surface water such that the discharge does not adversely affect the receiving water or downstream properties. Permittees must continuously monitor discharge to any surface water to ensure adequate treatment has been achieved. Discharge points must be adequately protected from erosion and scour through accepted energy dissipation methods.

(f) Use of temporary sediment basins are required where 10 or more acres of disturbed soil drain to a common location. Basin design and construction must comply with NPDES General Permit requirements.

(g) Erosion and sediment controls required at the beginning of the project shall be installed before commencing the land disturbing activity, and shall not be removed without District approval ~~or until the District has issued a certificate of completion~~. Applicants may phase installation of erosion and sediment controls provided the phasing plan is included in the approved erosion and sediment control plan.

(h) The permittee shall be responsible for proper operation and maintenance of all erosion and sediment controls, and soil stabilization measures, in conformance with ~~BMPs and~~ the requirements of the NPDES General Construction Permit. The permittee is responsible for the operation and maintenance of temporary erosion prevention and sediment control BMPs at the site over all of the areas of the site that have not been fully stabilized until the District has transferred the permit to another permittee, or until the site has undergone final stabilization as reviewed and approved by the District ~~and has received an approved certificate of completion.~~

4. EXHIBITS. The following exhibits must accompany the online permit application in electronic .pdf format. ~~One set, full size; one set, reduced to 11"x17", and a copy of all submittals~~

(a) An existing and proposed topographic map which clearly shows contour elevations with at least 2-foot contour intervals on and adjacent to the land, property lines, all hydrologic features, the proposed land disturbing activities, and the locations of all runoff, erosion and sediment controls, and soil stabilization measures.

(b) Plans and specifications for all proposed runoff, erosion and sediment controls, and temporary and permanent soil stabilization measures.

(1) Temporary erosion and sediment control measures, which shall remain in place until permanent vegetation is in place, shall be identified.

(2) Permanent erosion and sediment control measures such as emergency overflow swales shall be identified.

(c) Detailed schedules for implementation of the land disturbing activity, the erosion and sediment controls, and soil stabilization measures.

(d) Plans and specifications for dewatering methods and outlet of stormwater.

(e) Plans and specifications for management and containment of all solid and liquid wastes, including hazardous wastes and concrete materials.

(f) Plans, specifications, and maintenance thresholds for temporary sediment basins if required by the permit.

(g) Detailed description of the methods to be employed for monitoring, maintaining, and removing the erosion and sediment controls, and soil

stabilization measures. The name, address, and phone number of the person(s) responsible shall also be provided.

(h) For projects over one acre of disturbed area, documentation that the project applicant has applied for a NPDES General Construction Permit shall be submitted as well as the Stormwater Pollution Prevention Plan (SWPPP) prepared for the NPDES permit.

5. EXCEPTIONS.

(a) Rule F and its requirements shall not apply to development less than 1 acre in size for all land uses, unless such development is greater than 1,000 square feet and:

(1) Is within the 100-year floodplain; or

(2) Is adjacent to a public water wetland, public water or wetland.

(b) Rule F and its requirements shall not apply to annually cultivated land used for farming, research, or horticulture.

Rule G: ILLICIT DISCHARGE AND CONNECTION

1. POLICY. It is the policy of the Board of Managers to:

(a) Regulate the contribution of pollutants to the District's municipal separate storm sewer system (MS4) by any user;

(b) Prohibit Illicit Connections and Discharges to the District's MS4;

(c) Establish legal authority to carry out all inspection, surveillance, and monitoring procedures necessary to ensure compliance with this Rule;

(d) Require a District permit for new direct connections, changes to existing hydrology, and other impacts related to the proper function, access, and maintenance to the District's MS4 or easements; and

(e) ~~Not allow~~Prohibit new direct connections or other impacts to the Beltline Interceptor or other components of the District's MS4 if the connection shall cause or exacerbate water conveyance or structural problems in the system, including but not limited to surcharging and flooding.

2. REGULATION. This Rule shall apply to all water entering the storm drain system of the District's MS4 generated on any developed and undeveloped lands unless explicitly exempted by the District. A permit and stormwater management plan ~~is~~ are required under this rule for new direct connections, replacement of existing connections, changes to existing hydrology, or other impacts to the Beltline Interceptor, or other components of the District's MS4, or its easements.

3. CRITERIA.

(a) Connection to the District's MS4 System.

(1) New direct connections and replacement of existing connections shall be completed using a method that is approved by the District.

(2) Peak flow rate, the total volume of flow, and the timing of the flow for new connections must be managed to not cause new water conveyance problems or exacerbate existing water conveyance problems in the Beltline Interceptor. Enlargement of existing connections is considered a new connection.

(b) Discharge Prohibitions.

(1) **Prohibition of Illegal Discharges.** No person shall discharge or cause to be discharged into the municipal storm drain system or watercourses any materials, including but not limited to pollutants that cause or contribute to a violation of applicable water quality standards, other than stormwater.

(2) **Prohibition of Illicit Connections.** The construction, use, maintenance, or continued existence of illicit connections to the storm drain system without a District permit is prohibited.

(i) This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

(ii) A person is considered to be in violation of this Rule if the person connects a line conveying sewage to the District's MS4, or allows such a connection to continue.

(c) Suspension of MS4 Access.

(1) **Suspension due to Illicit Discharges in Emergency Situations.** The District may, without prior notice, suspend MS4 discharge access when such suspension is necessary to stop an actual or threatened discharge which presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to the District's MS4 or Waters of the United States. If the violator fails to comply with a suspension order issued in an emergency, the District may take such steps as deemed necessary to prevent or minimize damage to the District's MS4 or Waters of the United States, or to minimize danger to persons or the environment.

(2) **Suspension due to the Detection of Illicit Discharge.** Any person discharging to the District's MS4 in violation of this Rule may have their MS4 access terminated if such termination would abate or reduce

an illicit discharge. The District shall notify a violator of the proposed termination of its MS4 access. The violator may petition the District for a reconsideration and hearing. A person commits an offense subject to enforcement if the person reinstates MS4 access to facilities terminated pursuant to this Section, without the prior approval of the District.

(d) Monitoring of Discharges.

(1) **Applicability.** This section applies to all facilities that have stormwater discharges associated with industrial activity, including construction activity.

(2) **Access to Facilities.**

(i) The District shall be permitted to enter and inspect facilities subject to regulation under this Rule as often as may be necessary to determine compliance with this Rule. The discharger shall make the necessary arrangements to allow access to representatives of the District.

(ii) Facility operators shall allow the District ready access to all parts of the premises for the purposes of inspection, sampling, examination, and copying of records that must be kept under the conditions of an NPDES permit to discharge stormwater, and the performance of any additional duties as defined by state and federal law.

(iii) If the District has been refused access to any part of the premises from which stormwater is discharged, the District may seek issuance of a search warrant from any court of competent jurisdiction.

(e) **Requirement to Prevent, Control, and Reduce Stormwater Pollutants by the Use of ~~Best Management Practices~~ BMPs**. The owner or operator of a commercial or industrial establishment shall provide, at their own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the municipal storm drain system or watercourses by these structural and non-structural BMPs. Any person responsible for a property or premise, which is, or may be, the source of an illicit discharge, may be required by the District to implement, at said person's expense, additional structural and non-structural BMPs to prevent the further discharge of pollutants to the municipal separate storm sewer system.

(f) **Watercourse Protection.** Every person owning property through which a watercourse passes shall keep and maintain that part of the watercourse within the property free of trash, debris, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall maintain existing privately owned structures within or adjacent to a watercourse, so that such

structures shall not become a hazard to the use, function, or physical integrity of the watercourse.

(g) **Notification of Spills.** Notwithstanding other requirements of law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation has information of any known or suspected release of materials which result or may result in illegal discharges or pollutants discharging into stormwater, the storm drain system, or water of the U.S., said person shall take all necessary steps to ensure the containment and cleanup of such release. In the event of such a release of hazardous materials, said person shall immediately notify emergency response agencies of the release. In the event of a release of non-hazardous materials, said person shall notify the District in person or by phone or facsimile no later than the next business day following discovery of the release.

(h) Enforcement.

(1) **Notice of Violation.** Whenever the District finds that a person has violated a prohibition or failed to meet a requirement of this Rule, the District may order compliance by written notice of violation to the responsible person. Such notice may require without limitation:

(i) The performance of monitoring, analyses, and reporting;

(ii) The elimination of illicit connections or discharges;

(iii) That violating discharges, practices, or operations shall cease and desist;

(iv) The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property;

(v) Payment of a fine to cover administrative and remediation costs; and/or

(vi) The implementation of source control or treatment BMPs.

(2) **Abatement.** If abatement of a violation and/or restoration of affected property is required, the notice shall set forth a deadline within which such remediation or restoration must be completed. Said notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work shall be done by a designated governmental agency or a contractor and the expense thereof shall be charged to the violator.

(3) **Appeal of Notice of Violation.** Any person receiving a Notice of Violation may appeal the determination of the District. The notice of appeal must be received within 5 days from the date of the Notice of Violation. Hearing on the appeal before the District Board of Managers shall take place within 15 days from the date of receipt of the notice of appeal. The decision of the District shall be final.

(4) **Enforcement Measures after Appeal.** If the violation has not been corrected pursuant to the requirements set forth in the Notice of Violation, or, in the event of an appeal, within 3 days of the decision of the District Board of Managers, then representatives of the District are authorized to take any and all measures necessary to abate the violation and/or restore the property. It shall be unlawful for any person, owner, agent or person in possession of any premises to refuse to allow the District or its agents to enter upon the premises for the purposes set forth above.

(5) **Cost of Abatement.** The District may assess costs for abatement. Within 30 days after abatement of the violation, the District shall notify the property owner of the cost of abatement, including administrative costs. The property owner may file a written protest objecting to the amount of the assessment within 10 days. If the amount due is not paid within a timely manner as determined by the decision of the municipal authority or by the expiration of the time in which to file an appeal, the charges shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment.

(6) **Injunctive Relief.** It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this Rule. If a person has violated or continues to violate the provisions of this Rule, the District may petition for a preliminary or permanent injunction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation.

(7) **Violations Deemed a Public Nuisance.** In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this Rule is a threat to public health, safety, and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored at the violator's expense, and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.

(8) **Relation to Other Rules.** None of the enforcement provisions of this Rule shall abridge or alter the right of the District to seek remedies provided for under Rule H herein.

4. **EXHIBITS.** The following exhibits must accompany the online permit application in electronic .pdf format. ~~One set, full size; one set, reduced to 11"x17", and a copy of all submittals~~

(a) Property lines and delineation of lands identifying ownership and easements.

(b) Proposed and existing stormwater facilities' location, alignment and elevation.

(c) Identification of existing and proposed site contour elevations with at least a 2-foot contour interval.

(d) Construction plans and specifications of the proposed connection, including design details, connection method, and timing of connection.

(e) Stormwater runoff volume and rate analysis for the 2-, 10-, and 100-year critical events, existing and proposed conditions.

(f) Narrative addressing incorporation of stormwater BMPs.

(g) On-site soil boring indicating soil type.

(h) Construction dewatering plan and construction water control and treatment plan.

5. **EXCEPTIONS**.

(a) The following discharges are exempt from discharge prohibitions established by this Rule: water line flushing or other potable water sources, landscape irrigation or lawn watering, diverted stream flows, rising groundwater, groundwater infiltration to storm drains, uncontaminated pumped groundwater, foundation or footing drains (not including active groundwater dewatering systems), crawl space pumps, air conditioning condensation, springs, non-commercial washing of vehicles, natural riparian habitat or wetland flows, swimming pools (if dechlorinated - typically less than one PPM chlorine), street wash water, fire fighting activities, and any other water source not containing Pollutants.

(b) Discharges specified in writing by the District as being necessary to protect public health and safety.

(c) Dye testing is an allowable discharge but requires a verbal notification to the District prior to the time of the test.

(d) Any non-stormwater discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver,

or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm drain system.

Rule H: ENFORCEMENT

1. **MISDEMEANOR.** A violation of these Rules, an order, or stipulation agreement made, or a permit issued by the District is a misdemeanor subject to penalties as provided by Minnesota law.

2. **METHOD OF ENFORCEMENT.** The District may exercise all powers conferred upon it by Minnesota Statutes Chapter 103D. A rule, order, or stipulation agreement made or a permit issued by the District may be enforced by criminal prosecution, injunction, action to compel performance, restoration, abatement, and other appropriate action.

3. **PERMIT REQUIREMENT.** Pursuant to the terms of the permit, the District may issue a cease and desist order when it finds that a proposed or initiated activity or project presents a serious threat of soil erosion, sedimentation, or an adverse effect upon water quality or quantity, or violates any rule of the District.

4. **ATTORNEY FEES AND COSTS.** In any civil action arising from or related to these Rules, an order or stipulation agreement made or a permit issued or denied by the District, the court may award the District reasonable attorney fees and costs.

5. **ILLICIT DISCHARGE.** In addition to the remedies provided for in this Rule, the enforcement of Rule G shall be governed by Rule G(3)(h).

Rule I: VARIANCES

1. **WHEN AUTHORIZED.** The Board of Managers shall have the power to grant variances from these Rules where they find that extraordinary and unnecessary hardships may result from strict compliance with these Rules; provided that such variances shall not have the effect of nullifying the intent and purpose of these Rules and the overall plan of the District as adopted.

2. **PROCEDURE.**

(a) A written request for a variance shall be submitted to the District at least 12 calendar days prior to a regularly scheduled meeting date of the Board of Managers stating the exceptional conditions and the peculiar difficulties claimed.

(b) The request shall be referred to the Board and they shall review the request within 30 days of the date the request was filed with the District.

(c) In considering requests for variances, the Board shall consider the effect of the proposed variance upon the entire District and the anticipated effect of the proposed variance upon the overall plan of the District as adopted.

(d) If the Board determines that the special conditions which apply to the structure or land in question are peculiar to such property, and do not apply generally to other land or structures in the District and that the granting of a variance shall not in any way impair or be contrary to the intent of these Rules and the overall plan of the District as adopted, the Board may grant such variances and impose conditions and safeguards to ensure compliance with these Rules and to protect adjacent property.

(e) Variances may be denied by Motion of the Board and such Motion shall constitute a finding and determination that the conditions required for approval do not exist. No application for a variance which has been denied wholly or in part shall be resubmitted for a period of six months from the date of said denial, except on grounds of new evidence or proof of change of conditions found to be valid by the District.

3. TERM. The term of a variance shall be concurrent with the associated permit.

4. VIOLATION. A violation of any condition set forth in a variance shall be a violation of the District rules and shall automatically terminate the variance.

Rule J: SEVERABILITY

If any provision of these Rules is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of these Rules shall not be affected thereby.

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BARR

Memorandum

To: Paige Ahlborg & Nicole Soderholm, RWMWD
From: Brandon Barnes
Subject: Stormwater Impact Fee Assessment
Date: October 26, 2018
Project: 23-62-0031.16-180-010
c: Tina Carstens RWMWD
Forrest Kelley, Elizabeth Hosch, CRWD
Erin Anderson Wenz, Barr

Rule C: Stormwater Management Section 3(c)(2) describes the Alternative Compliance Sequencing for sites where the volume reduction standard cannot be fully met onsite with infiltration BMP. Section 3(c)(2)(iii) allows, as a last alternative, for the applicant to pay a stormwater impact fee (SIF) into the District's Stormwater Impact Fund to cover the cost of implementing equivalent volume reduction elsewhere in the watershed. The Rule states that, "the required amount to contribute to the Stormwater Impact Fund shall be set by the Board annually." RWMWD last set the SIF at $40,000 per acre of impervious area in 2008, and are interested in updating the SIF based on current construction costs.

Barr and RWMWD staff considered construction costs for several types of BMPs. Construction costs included in the evaluation were selected based on the following criteria.

- The BMP was constructed between 2015 and 2018. Barr and RWMWD staff selected a cutoff of 2015 because that is when the District adopted the current rules and the volume reduction requirement was revised from 0.9-inches of runoff to 1.1-inches of runoff from new and disturbed impervious surfaces.
- Only above ground infiltration and filtration BMPs were considered. Typically more expensive BMPs such as tree trenches, green roofs, and porous pavement were not considered.
- Costs data for both public and private projects were included in the evaluation.
- Costs were limited to construction costs. Costs associated with future maintenance of a regional BMP were not considered

Construction costs were converted to 2018 dollars using ENR Construction Cost Indices. Costs were then normalized based on the infiltration volume provided by each BMP. Figure 1 shows the construction cost per cubic foot of infiltration volume provided for the 68 BMPs evaluated.

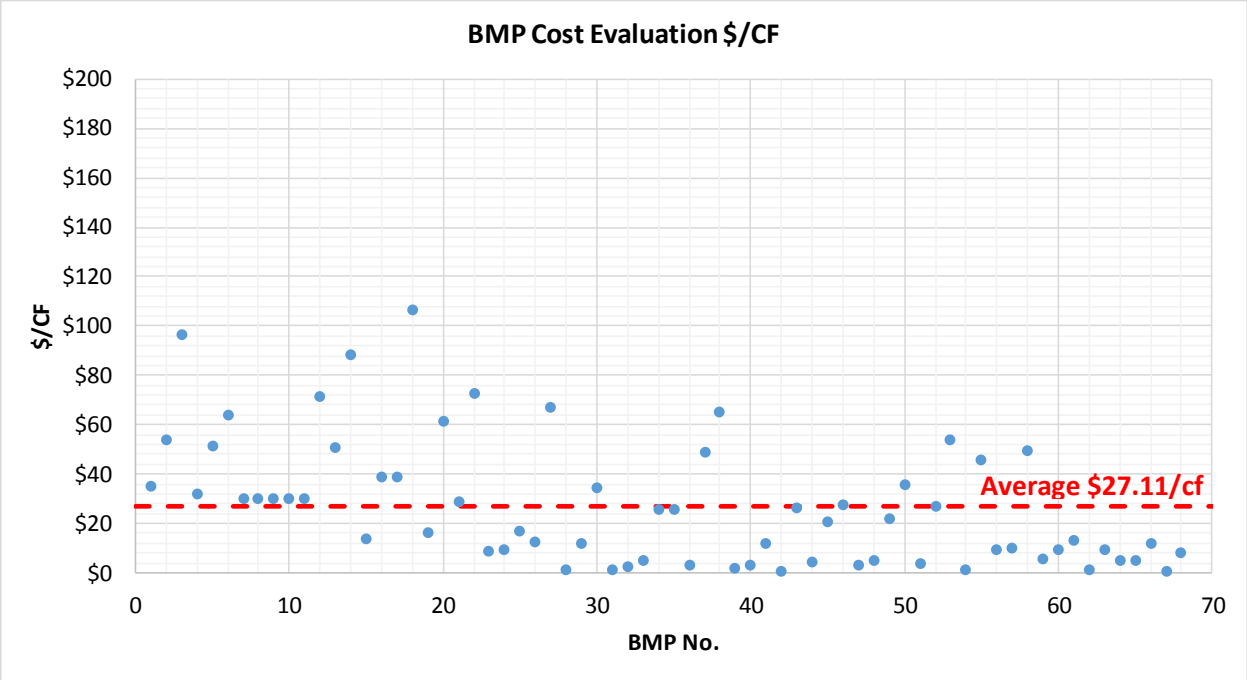

Figure 1. Construction Cost per Cubic Foot of Volume Reduction Provided

The District's current volume reduction requirement of 1.1-inches for new and disturbed impervious surfaces is equivalent to 3,993 CF of infiltration volume per impervious acre. Based on the average construction cost of $27.11/CF of infiltration volume provided, the SIF would be $108,250 per impervious acre (i.e., $27.11/CF x 3,993 CF/acre of impervious area = $108,250).

For comparison, RWMWD and CRWD staff presented Stormwater Impact Fees from other areas of the country at the September 19, 2018 TAC meeting. Stormwater Impact Fees presented included:

- Chesapeake Bay: $150,000 per acre of impervious area
- San Francisco: $600,000+ per acre of impervious area
- Pittsburgh: $150,000 to $200,000 per acre of impervious area
- New York: $129,000 per acre of impervious area
- Roseville, MN: $89,842.50 per acre of impervious area

Technical Memo

WENCK
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To: Mr. Forrest Kelley, Capitol Region Watershed District

From: Todd Shoemaker, PE, CFM
Eric Osterdyk, EIT

Date: September 27, 2018

Subject: Research for Potential 2018 Permit Cost Cap Changes

Capitol Region Watershed District (CRWD) and Ramsey Washington Metro Watershed District staff met on December 18, 2017 to discuss potential changes to their permit program rules. Staff tasked Wenck with researching and providing information regarding cost cap adjustment. Our research and recommendations are presented below.

Determine if Cost Cap Adjustment is Necessary and, if so, by How Much.

1. Issue
    a. Cost cap has not been adjusted since March 2008.
    b. Should the cap amount be adjusted?

2. Considerations
    a. National Numbers:
        1. Chesapeake Bay = $150k/imp acre
        2. San Francisco = $600k+/imp acre
        3. Pittsburgh = $150k – 200k/imp acre
            a. (http://apps.pittsburghpa.gov/pwsa/7._Cost_Estimates_Development.pdf)
        4. New York = $129k/imp acre
            a. Water Environment Federation (WEF) http://stormwater.wef.org/2015/12/real-cost-green-infrastructure/
    b. Filtered list such that only linear projects that hit the cost cap were included in analysis.
        1. Of the projects considered, two were constructed when the cost cap was $20,000 per acre. Resolution increasing the cost cap to $30,000 per acre was adopted on March 5, 2008 (Resolution #08-03-07). Permits 07-011 and 07-013 were approved in 2007.
        2. The oldest project with the $30,000 cost cap is 10-003 (CCLRT).
        3. Four projects were excluded: one because it resulted in extremely high $175/cf and three that provided bank credits, which resulted in 195%, 325%, and 1,925% of required volume.
        4. Volumes used in charts/calculations below reflect “equivalent” volumes. Equivalent Volume = Volume Retained + Volume Filtered / 1.82

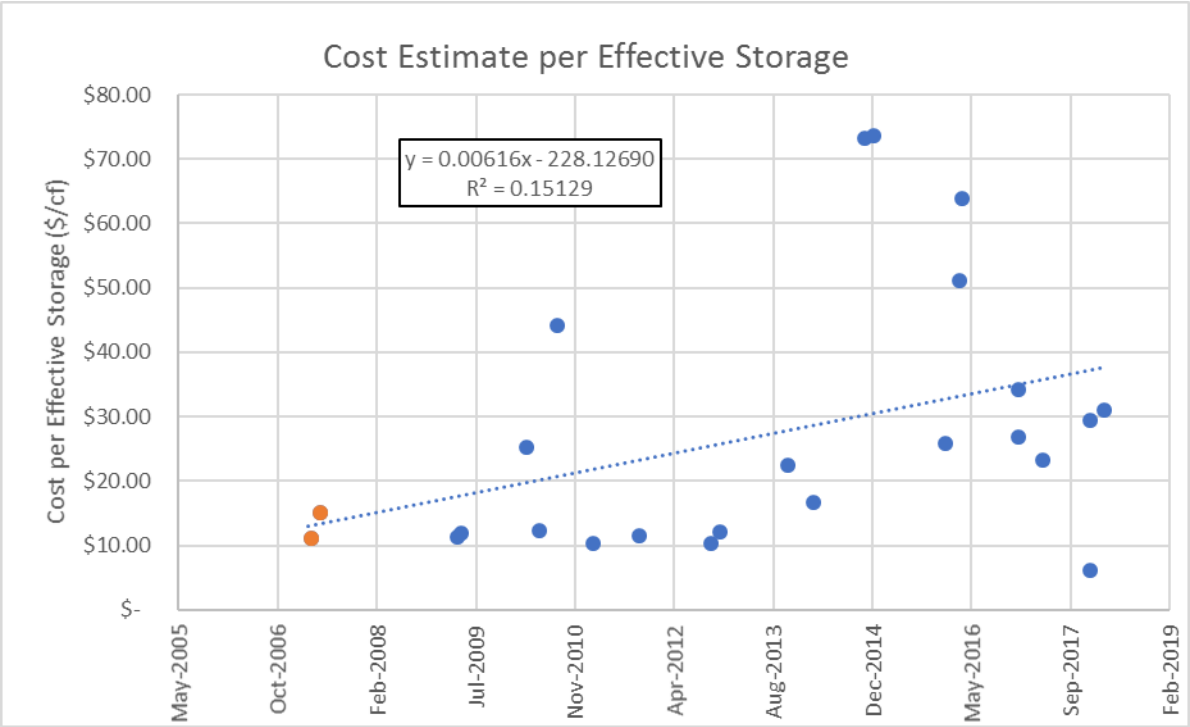

Figure 1. Cost estimate per effective storage.

Based on Figure 1:

5. Increasing trend but poor correlation (R^2 value is 0.15).
6. In 2008, one cf of storage cost approximately $15.
7. In 2018, one cf of storage costs approximately $37.
8. The increase from $15 to $37 over ten years corresponds to an average increase in cost of 9.7%/yr. Average US inflation rate over the same period was about 2.7%/yr.

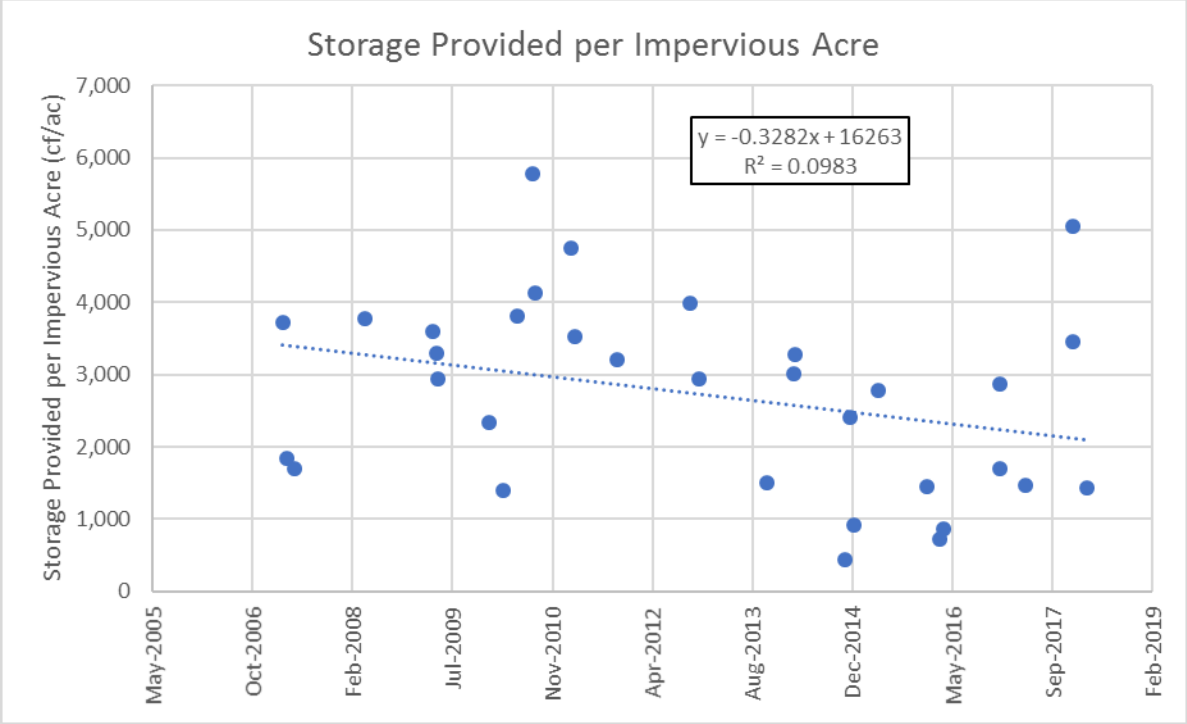

Figure 2. Storage provided per impervious acre.

Based on Figure 2:

9. Decreasing trend but poor correlation (R^2 value is 0.10).
10. In 2008, approximately 3,316 cf of storage was provided per impervious acre.
11. In 2018, approximately 2,117 cf of storage will be provided per impervious acre.

3. Options
   a. <u>Option 1:</u> Set cost cap to $75,000/impervious acre.
      1. This was determined by taking the 2008 cost cap ($30,000/imp acre) plus the average increase of stormwater management cost (9.7%) over the past 10 years.
      2. $75,000 in 2018 achieves approximately 2,017 cf of storage or 0.56" runoff depth off impervious.
      3. For reference, 0.56" is approximately the abstraction depth (0.55") recommended by MIDS for linear projects.

   b. <u>Option 2:</u> Set cost cap to $150,000/impervious acre.
      1. This was determined by taking the 2018 cost/cubic ft trendline from Figure 1.
      2. $150,000 in 2018 achieves approximately 3,993 cf of storage or 1.1" runoff depth off impervious.

c. Option 3: Set cost cap to $112,000/impervious acre (halfway between options 1 and 2 above)
    1. $112,000 in 2018 achieves approximately 3,005 cf of storage or 0.83" runoff depth off impervious.

d. Option 4: No cost cap, applicant will be required to meet full 1.1" of runoff regardless of cost.

DATE: October 10, 2018
TO: Technical Advisory Committee
FROM: Paige Ahlborg, RWMWD
Forrest Kelley, CRWD
SUBJECT: **September 19, 2018 TAC Meeting Summary**

Attendees:

Jesse Freihammer, Roseville/Falcon Heights
Chris Buntjer, Oakdale
Emily Stephens WSB/Woodbury
Pat Murphy, St. Paul
Barb Mundah,l St. Paul
Wes Saunders-Pearce, St. Paul
Jen Sorensen, DNR
Ava Langston-Kenney, Port Authority
Beth Neuendorf, Mn/DOT
Ben Meyer, BWSR
Joe Mulcahy, Met Council
Todd Shoemaker, Wenck
Eric Osterdyk, Wenck
Steve Love, Maplewood
Brandon Barnes, Barr
Erin Anderson-Wenz, Barr
Molly Churchich, Ramsey County
Forrest Kelley, CRWD
Elizbeth Hosch, CRWD
David Dahle, CRWD
Mark Doneux, CRWD
Nicole Soderholm, RWMWD
Paige Ahlborg, RWMWD
Tina Carstens, RWMWD
Anna Beining, RWMWD

Watershed district staff presented the attached power point outlining the potential rule amendments and clarifications being considered:

Flood Control and Freeboard

Barb:

- City Streets are designed for the 5-year event. Floodproofing underground storage systems to the 100-year HWL is an added expense.

Wes:

- Consider better distinguishing Local WD flood rule from FEMA to minimize confusion. Forrest clarified new definition is based on FEMA's. Upon further review and discussion, general agreement with proposed changes. Nothing further.

Joe:

- How many variances have been approved? *CRWD Database indicates 6 variances approved from freeboard requirements.*

Increase maximum runoff depth for BMP sizing from 2" to 2.5"

- Minimal Discussion

Cost Cap and Stormwater Impact Fund Analysis – Increase from $30,000 to $75,000/impervious acre and $40,000 to $100,000/impervious acre, respectively.

Barb/Pat:

- Cost cap increase has a big impact on budgeting, 2019 funds have been allocated. Can it be increased incrementally? Forrest indicated the increase would not go into effect until 2020.
- Consider including gross pollutant removal in the costs attributed to the cost cap.
- University Ave project – St. Paul spent $95k on gross pollutant removal and still had to withdraw from bank. Seems unfair to require both.

Wes:

- Are private roads eligible for cost cap? Forrest noted that private linear projects are rare, but that the rules do not differentiate between public and private, but it the cost cap has generally not been "advertised" in conversations on private linear projects.

Mark:

- Costs are increasing, and the cap has stayed the same, resulting in less treatment, In addition to increasing the cap, new cost effective designs should be explored to achieve more treatment, more cost effectively.

Regional Compliance Language.

- Minimal Discussion

Other Administrative Clarifications

Steve:

- Is there any guidance on the definition of 'additional engineering' when it comes to infiltration restrictions, in DWSMAs for example? *District's would defer to guidance from MDH, but level of additional engineering will likely depend on specific details of each scenario.*

Sidewalk Impervious Exemption Request

Barb:

- Green Infrastructure on streets was a frequent topic a few years ago. St. Paul is now moving towards being more pedestrian-friendly, bicycle friendly, which means more sidewalks and bike lanes. Many competing interests.
- Having to treat stormwater for sidewalk impervious increases costs. The 3' sidewalk exemption in the current rules would not be approved for ADA. The boulevards are so compacted from people walking on them that they are practically impervious already.

Forrest:

- Watershed Districts have reviewed some trail and sidewalk projects as being disconnected impervious through the guidance within the MN Stormwater Manual

Steve:

- Is there a variance for treatment (including rate control) for stand-alone sidewalk projects? It's difficult to achieve if the roads aren't being torn up.

Forrest:

- CRWD has issued 5 variances for rate control on small linear projects that increased impervious surface, but utilized banked credits for volume.

Request to amend Filtration Credit

Paige:

- Extensive review of existing data on filtration practice effectiveness was completed as part of the 2015 amendments. No changes proposed at this time.

Additional Considerations

Beth:

- Mn/DOT does not recommend collecting surety from contractors on public projects. They have performance bonds that can be used to enforce contract requirements.

Jesse:

- Roseville collects sureties and deducts for non-compliance

Wes:

- Acknowledged the amount of work put into ensuring compliance on construction sites, and closing permits out.
- Consider implementing a requirement that stormwater O&M plans be signed by the property owner and/or acknowledged receipt

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Stewardship Grant Program

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Stewardship Grant Program Budget Status Update

February 6, 2019

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	1	$12,000

Commercial, School, Government, Church, Associations, etc.	Coverage	Number of Projects	Funds Allocated
Habitat Restoration	50% Cost Share $15,000 Max	0	$0
Shoreland Restoration (below 100-year flood elevation w/actively eroding banks)	100% Cost Share $100,000 Max	0	$0
Priority Area Projects	100% Cost Share $100,000 Max	1	$200,000
Non-Priority Area Projects	75% Cost Share $50,000 Max	0	$0
Public Art	50% Cost Share	1	$6,000
Aquatic Veg Harvest	50% Cost Share $15,000 Max	0	$0
Maintenance	50% Cost Share $5,000 Max for 5 Years	11	$10,000
Consultant Fees			$0
Total Allocated			**$218,000**

2019 Stewardship Grant Program Budget	
Budget	$1,250,000
Total Funds Allocated	$218,000
Total Available Funds	**$1,032,000**

****

Action Items

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Request for Board Action

Board Meeting Date: February 6, 2019 **Agenda Item No.:** 8A

Preparer: Tina Carstens, Administrator

Item Description: Board of Managers 2019 Annual Meeting

Background:

The purpose of this item is to reflect on the past year and, if the Board chooses, to make comments on the general performance of staff, consultants, and manager interactions, as well as the general operation of the District. Individual staff and administrator reviews though are conducted separately. The Board could reflect on the past year's activities and communications between staff and the Board both during and in-between meeting times. The Board could also comment on the way the packets are presented as far as too little or too much information. Comments or suggestions are always appreciated by staff.

The Board could also comment on the relationships with our consultants and any concerns or improvements that might be necessary.

The following is official business for the Board to take action on at this annual meeting:

1. **Elections of Officers**
   The Board must select a president, vice president, treasurer, and secretary. The current officers are as follows:

President	Marj Ebensteiner
Vice President	Cliff Aichinger
Treasurer	Dianne Ward
Secretary	Pam Skinner

   The President will serve as the chairperson for all meetings, be a signatory to the District's account and sign any contracts or correspondence.

   The Vice President will perform the President duties in the event of an absence. The Vice President is also responsible for being the personnel representative from the Board. This means that the Vice President would coordinate the Administrator's review, as well as consult with the Administrator on personnel issues that may arise.

   The Treasurer will be a signatory on District accounts and sign the monthly checks.

The Secretary will oversee the minutes of the meetings and sign documents that require multiple signatures.

Staff recommendation is for the Board to elect its president, vice president, treasurer and secretary for 2019.

2. **Consulting Staff Selection**
   This is the in-between year where the District is not required to public notice a proposal solicitation for our consultant staff. Staff does not recommend making any changes at this time. The following are the current appointments:

Engineer:	Barr Engineering
Attorney:	Galowitz Olson
Accountant:	Redpath and Company

Staff recommendation is to appoint Barr Engineering, Galowitz Olson, and Redpath and Company to continue as the consultants for 2019.

3. **Official Designations**
   A final item of business is to designate the District's official newspapers and banking institution. Current appointments for each of these items are as follows:

   Official Bank of Deposit
   4M Fund through the League of Minnesota Cities: US Bank

   Official Newspapers
   Ramsey County Review
   Oakdale/Lake Elmo Review
   Roseville Review

   We also use the St. Paul Pioneer Press, Shoreview Press, and White Bear Press as appropriate for an optional public notice for issues requiring a broader notice. These notices would be a condensed version of the full notice included in the official newspapers.

Staff recommendation is to approve the Official Bank of Deposit and Newspapers as shown above for 2019.

Applicable District Goal and Action Item:

Goal: Manage effectively: The District will operate in a manner that achieves its mission while adhering to its core principles.

Action Item: Follow all legal requirements applicable to watershed districts.

Staff Recommendation:
Staff recommends appointing the consulting staff, official bank of deposit and official newspapers as shown above.

Financial Implications:
None

Board Action Requested:
Appoint Board officers and designate the desired consulting staff, official bank of deposit, and official newspapers.

Request for Board Action

Board Meeting Date: February 6, 2019 **Agenda Item No.:** 8B

Preparer: Tina Carstens, Administrator
Paige Ahlborg, Watershed Project Manager

Item Description: Snail Lake Shoreline Restoration Project Authorization to Finalize Design and Prepare the Bidding Documents and Advertise for Bids.

Background:
This project involves the shoreline buffer restoration of a Ramsey County Parks and Recreation site and twenty-six residential sites. Combined, the total restoration area is approximately 1.3 acres, with individual sites ranging from 400 square feet to 11,000 square feet.

The project scope includes site-wide management for invasive and non-desirable species, bank and shoreline stabilization, and revegetation using a combination of native seed and plant plugs. The purpose of completing this work is to establish a diverse, natural shoreline buffer, as well as provide wildlife and pollinator habitat, runoff interception and filtration, competition for invasive species, and landscape aesthetics. Individual site design and revegetation components were developed for this project based on needs for shoreline use by landowners; in addition to, important site circumstances such as elevation, remnant plant communities, and anticipated soil and hydrologic conditions.

Site preparation for the project will begin as soon as conditions allow in spring 2019. Stabilization of upland soils and vegetation will shortly follow, allowing the contractor to closely monitor water level elevations for timing and favorable conditions to plant the aquatic and transitional zones. Active water levels during the contract period will dictate the extent waterward at which the aquatic plantings can be established. The overall project shall be substantially completed by fall of 2020. Long-term monitoring and maintenance for all individual project sites will continue beyond the completion date, for the 2021 and 2022 growing seasons. Cost estimate for the proposed project is $337,500 which includes two years of maintenance.

Final plans and specs are set to go out for public bid on February 15th. Bids will be due on March 1st. Staff will bring a contractor recommendation to the board of managers at the March 6th meeting.

Applicable District Goal and Action Item:

Goal: Achieve healthy ecosystems – The District will manage water and related natural resources to create and preserve healthy ecosystems.

Action Items: EC3 – Lead ecological restoration projects to improve water resources and associated upland habitats.

Staff Recommendation:

Staff recommends that the Board approve the preliminary design, estimated costs, and proposed project schedule, and direct staff to finalize the design and bidding documents and advertise the project for bid.

Financial Implications:

The Snail Lake Shoreline Restoration Project budget is included in the 2019 Stewardship Grant Program budget.

Board Action Requested:

Approve the preliminary design, estimated costs, and proposed project schedule, and direct staff to finalize the design and bidding documents and advertise the project for bid.

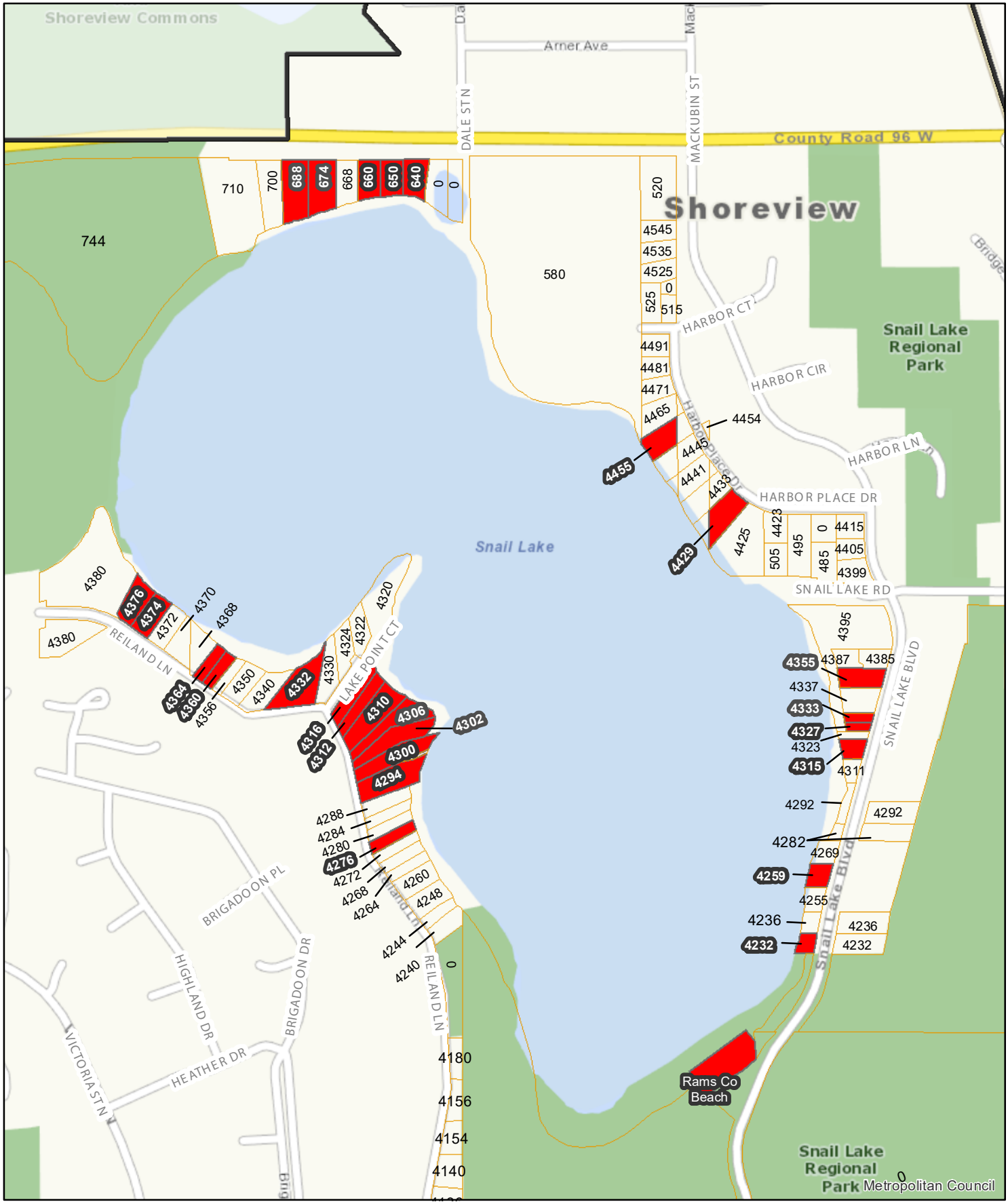

EXHIBIT A: PROJECT MAP & SITE LOCATIONS

Request for Board Action

Board Meeting Date: February 6, 2019 **Agenda Item No:** 8C

Preparer: Tina Carstens, Administrator
Paige Ahlborg, Watershed Project Manager

Item Description: BMP Maintenance Program Request for Qualifications (RFQ)

Background:

The purpose of this program is to provide an affordable, high-quality opportunity for best management practice (BMP) owners to keep their BMPs functional and attractive.

For the first two years, the district conducted a pilot of this program, which included maintenance of BMPs at Maplewood Mall, Maplewood Living Streets, and a select number of sites in the city of Little Canada. In 2015 and 2016, the District rolled out a complete program that continued the maintenance of these sites in addition to numerous others both District projects and city/county partner sites that were reimbursed. In 2017, we hired maintenance contractors for 2 years and are again looking to hire contractors for 2019 and 2020.

This time we have twenty sites on the list including Maplewood Mall and inlet repair at the Casey Lake neighborhood rain gardens. The others include schools and churches that had BMPs installed through our targeted retrofits program.

Because of the scope of work, a full bidding process is not necessary but we did feel it was necessary to again do a request for qualifications to choose which contractors would do the maintenance work over these next two years.

A draft request for qualifications has been prepared (see attached) and will be advertised this next month. It is anticipated that a decision on contractors could be made by the Board at the March meeting.

Applicable District Goal and Action Item:

Goal: Achieve quality surface water - The District will maintain or improve surface water quality to support healthy ecosystems and provide the public with a wide range of water-based benefits.

Action Item: WQ9 - Maintain District water quality improvement projects and consider opportunities to support the maintenance activities of others.

Staff Recommendation:

Staff recommends approval to proceed with this request for qualifications.

Financial Implications:

This program is included in the approved 2019 budget for $130,000 and is anticipated to be a similar amount for 2020.

Board Action Requested:

Direct staff to finalize the documents and distribute the request for qualifications.

BMP MAINTENANCE PROGRAM

RAMSEY-WASHINGTON METRO WATERSHED DISTRICT

REQUEST FOR QUALIFICATIONS

Ramsey-Washington Metro Watershed District (District) is establishing a pool (up to three) of qualified landscape maintenance contractors to provide construction and landscape maintenance services to the District, and through the District, to partnering municipalities, and local county governments within the District's boundaries. The work will include the regular and routine maintenance of various stormwater Best Management Practices (BMPs) including rainwater gardens and regional infiltration and filtration basins of varying ages and conditions. The District's Board is requesting any firm interested in providing professional services to submit a Statement of Qualifications (SOQ).

Submittal Deadline:

One original paper copy of the Statement of Qualifications (SOQ) as outlined in this document is due no later than 2:00pm on February 22, 2019 to Paige Ahlborg, Watershed Project Manager, at the District office at 2665 Noel Dr., Little Canada, MN 55117. Questions regarding this RFQ must be made in writing via email to Paige Ahlborg at paige.ahlborg@rwmwd.org by February 20, 2019.

General Work Description:

The Work is generally a maintenance program associated with selected Stormwater BMPs in the District. The Work more specifically consists of furnishing relevant expertise as well as all labor, materials, equipment, skills, and performing all operations required to complete all requested maintenance work, which includes, but is not limited to, mobilization and demobilization; maintenance of plantings; plant replacement; herbicide furnishment and application; removal and proper disposal of accumulated sediment in the BMPs; invasive species management; mulch replenishment; furnishing, installing, and maintaining erosion control measures as necessary; acquisition of all necessary permits to perform the Work; regular reporting of completed operations; and complete site restoration of all disturbed areas all as provided for in the RFQ and as directed by the Owner of the BMP, which is not always the District.

The selected Contractor(s) will be required to execute a contract with the District for services on an as-needed basis. However, the individual BMP site Owners will vary. Municipalities, county governments, commercial properties, and private residences located within the District boundaries will have the opportunity to enter into a separate agreement with the District for the services above and will be entitled to exiting that agreement with the District at any time. The District reserves the right to decrease, increase or eliminate sites from the project at its discretion. The District will provide oversight and coordinate billing between all involved entities.

The District reserves the right to a) award all project sites to a single Contractor or b) award groupings of sites (e.g., based geographically or otherwise) at the District's discretion to up to three responsive, responsible Contractors, or c) advertise a new RFQ.

The contract will be for two (2) years (growing seasons) beginning in May 2019 and ending approximately November 15, 2020.

Statement of Qualifications elements:

The Statement of Qualifications shall address the four (4) items listed below:

1. General Contractor Information Capacity and Work Plan:

    a) To demonstrate the Contractor's qualifications to perform the Work, each proposal shall include a full written description of the proposer's approach to completing the work written in a way that demonstrates the Contractor's understanding of what is required and to illustrate their approach for each type of the maintenance event listed. This description should include:
        1) Size and makeup (i.e. foreman, supervisors, crew chiefs, operators, laborers, etc.) of crew anticipated,
        2) Equipment to be used,
        3) Anticipated average time per visit expected, and
        4) Any pertinent information that will demonstrate the proposer's ability to complete the work in an effective, high-quality, efficient, and timely manner.

    b) In addition each proposal shall include:
        1) A brief description of present commitments in 2019 during the growing season,
        2) A listing of the Bidder's equipment and hourly rates with an operator,
        3) Labor rate sheet,
        4) Key personnel and their years of experience,
        5) A list of subcontractors, if any, proposers intend to use.

2. Employee Qualifications

    a) Documentation of the following qualifications shall be included in the submittal:

        1) Supervisor: The Supervisor (Crew Leader) must have a Bachelor's degree in Natural Resources, or approved equal, and extensive plant knowledge. The Supervisor shall also have experience constructing or maintaining stormwater BMPs, such as rain gardens.

        2) Arborist: To qualify for any work at the Maplewood Mall portion the Contractor shall have a minimum of one (1) Minnesota Society of Arboriculture or International Society of Arboriculture-certified arborist on staff. This qualification cannot be met through a sub-contractor.

        3) Herbicide Applicators: Any personal working with chemical herbicides shall have a valid herbicide applicator's license as required by the State of Minnesota.

3. Applicable Work Experience

    a) Contractor must have performed similar vegetation management work at a minimum of five (5) projects within the past five (5) years, not including projects that were primarily vegetation installation.

        1) Provide five (5) references of vegetative management work within the past five (5) years. Include only projects that were primarily vegetation management/maintenance.

        2) List the following information for each project reference:

            a. Customer
            b. Project Location
            c. Scope of Work
            d. Approximate Start and End Dates
            e. Approximate Contract Amount
            f. Owner Contact Information – Name, Position, Phone, Email

    (b) References will be checked to help verify the Contractor's

        1) record of quality, timeliness and customer satisfaction of performance on previous projects, technical capabilities, qualified key personnel, necessary tools and equipment, and adequate financial resources to perform, compliance with the associated legal or regulatory requirements.

4. Proof of Insurance and Bonding

    a) As a part of the contracting, the Contractor will be required to provide proof that they can obtain performance bonding for up to $200,000.

    b) The Contractor and Subcontractors shall maintain insurance for Comprehensive Public Liability and Broad Form Property Damage, Comprehensive Automobile Public Liability and Property Damage, Contractual Liability, Completed Operations Liability and Explosion, Collapse and Underground Property Damage. The provisions must include coverage for Bodily Injury Liability which includes bodily injury claims from the Contractor's and Subcontractor's employees. Minimum coverage shall be consistent with the requirement in the Conditions of the Contract.

5. Unit Prices for Select Items

    a) In addition to the labor rate sheet and hourly equipment rates with operator as listed above, the Contractor shall include unit prices for the furnishment and installation of the following items:

        1) Mn/DOT 3878.2 Type 6 Shredded Hardwood Mulch

        2) #1 Containerized Perennial Plant

3) #2 Containerized Shrub

4) Perennial Plant Plug

b) Any plants installed by the Contractor shall be warranted for ninety (90) days after installation and replaced at no cost to the Owner or District.

Maintenance Duties

Each site included in the Contract shall be subject to the same maintenance requirements, progress schedule, and reporting.

Maintenance duties shall include:

1) Spring Clean-Up: All planted areas shall have all perennial vegetation from the previous growing season removed to within three (3) inches above the ground including all ornamental grasses and herbaceous plants. Shrubs shall be pruned to remove dead and dying vegetation. Accumulated sediment or debris, whether in inlet structures or loose sediment in the bottom of the BMP, removed and disposed of at the Contractors expense.

2) Plant Replacement and Potted Plant Installation: During the growing season prior to June 1st of the contract year, the Contractor shall provide a plant replacement list to be approved by the District that includes plants matching those that are installed in each BMP in size, spacing, and species. All plants are to be warranted for ninety (90) days after installation and replaced at no cost to the Owner or District.

3) Routine Planting Areas Maintenance: All sites shall be inspected and maintained approximately four (4) times during the growing season (May-October) or as determined per site requirements and/or as budgets allow.

    a) All weeds as identified by the Contractor or as directed by the Owner or District shall be removed via manual removal or chemical herbicide application. Herbicide application shall be performed with extreme care shall be taken to avoid damage to existing plants. Any damaged plants shall be replaced by the Contractor without cost to the Owner or District. All planting areas shall be completely free of weeds or all weeds shall have been chemically treated after each Routine Visit. All applicable State regulations regarding the application of chemical herbicide are to be complied with including but not limited to postings/notices of application and spray records.

    b) During routine visits, the Contractor shall inspect for any inlet or outlet failure, standing water or failures of retaining walls or edging within BMPs that are visible. If any of these conditions are observed the Contractor shall contact the Owner or District for further instruction.

    c) All planting areas shall have a maintained depth of 3 inches of approved shredded hardwood mulch at the end of each growing season of the Contract period. Mulch shall confirm to Mn/DOT 3878.2 Type 6 Shredded Hardwood Mulch.

4) Review and Acceptance of Work: Upon request the Contractor shall be available for site inspection and review. Any defects in the work shall be corrected per Owner or District request.

Project Sites List and Budget Allotment

1. The Project Sites List is subject to change but shall include the following at the onset of the project (the listing is organized by Owner).

2. The Budget Allotment is a Not-to-exceed for each BMP Maintenance Site.

3. The list below is for 2019. The two-year project will have an updated list, generally similar in scope and scale, provided to the selected contractor(s) in winter 2019 for the upcoming 2020 growing season.

4. The Budget Allotment will be updated for the 2019 growing season but will generally remain similar.

2019 BMP Maintenance Sites	**Owner**	**Budget Allotment**	**Type of BMP**
Ames Lake Wetland, St Paul	RWMWD	$5,000	Three (3) acre wetland area and native restoration
Casey Lake Neighborhood Rain Gardens	RWMWD	$30,000	Fourteen (14) residential rain gardens. Spring clean-up and inlet repair only. Only 2019.
House of Prayers Church, Oakdale	RWMWD	$2,000	One (1) commercially sized raingardens
Margaret Street Rain Gardens	City of St. Paul	$5,000	Six (6) residentially sized raingardens to be installed by City of St. Paul spring 2019. Selected RWMWD contractor will plant and mulch the rain gardens (not part of the $5,000 budget allotment). Maintenance will begin upon completion of plantings.
Maplewood Mall	RWMWD	$38,000	Eight (8) regional raingardens, twenty-five (25) residentially sized raingardens, eighty two (82) parking lot end islands, five (5) entrance planting areas, and two hundred and twenty-five (225) trees located within parking lot tree trenches, raingardens, and end islands
Oxford Basin	Ramsey Co Public Works	$2,000	One (1) regionally sized raingarden
Redeeming Love Church, St Paul	RWMWD	$5,000	Nine (9) commercially sized raingardens
New Horizon Day Care	RWMWD	$2,000	One (1) residentially sized raingarden
Taurus Distributing and Dey Engineering	RWMWD	$1,000	Two (2) commercially sized raingardens

Presentation Catholic Church, Maplewood	RWMWD	$5,000	Five (5) commercially sized raingardens
Central Park Elementary	RWMWD	$2,000	One (1) commercially sized rain garden
Maplewood Middle School	RWMWD	$5,000	Three (3) regionally sized raingardens
Weaver Elementary	RWMWD	$2,000	One (1) commercially sized raingarden
Harmony Learning Center	RWMWD	$2,000	One (1) commercially sized raingarden
Roseville Area Middle School	RWMWD	$5,000	One (1) commercially sized raingarden
Woodbury Elementary	RWMWD	$5,000	Two (2) regionally sized raingardens
Trinity Presbyterian Church, Woodbury	RWMWD	$5,000	Two (2) commercially sized raingardens, only 2019
Lionsgate Academy, Shoreview	RWMWD	$5,000	One (1) commercially sized raingarden, two (2) native prairie areas. Selected contractor will coordinate planting efforts with RWMWD (not part of $5,000 allotment). Maintenance will begin upon completion of plantings.
North Presbyterian Church, N. St. Paul	RWMWD	$2,000	One (1) Commercially sized raingardens, only 2019
North Heights Christian Academy, Roseville	RWMWD	$2,000	One (1) commercially sized raingarden, only 2019
TOTAL BUDGET ALLOTMENT		**$130,000**	

Review Notification and Contract Process:

1. The District will review all submittals and determine which Contractors are qualified.

2. A selection will be made by the Owner based on the above criteria and weighting.

3. The selected Contractors will be notified of which portion of the work will be contracted to them. A contract will then be developed between the District and the Contractor to be agreed upon by the Contractor. The selected Contractors will enter into terms with the District including all conditions and forms of agreement as provided by the District. A Performance Bond will be required for the agreed upon contract amount at this time.

4. Work on all projects except school sites is to commence no later than May 1, 2019. Work at school sites shall commence upon the end of the school year unless otherwise specified.

5. An opportunity to update unit prices for the materials listed and the labor rate will be given to the Contractor during the winter of 2019-2020. These will be negotiated, incorporated into a contract update, and utilized for budget allotment for the 2020 growing season work.

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Administrator's Report

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MEMO

TO: Board of Managers and Staff

FROM: Tina Carstens, Administrator

SUBJECT: February Administrator's Report

DATE: January 31, 2019

A. Meetings Attended

Wednesday, January 2	2:30 PM	Meet w/ Managers Ward and Swope
	6:30 PM	Board Meeting
Friday, January 4	10:00 AM	CIP Maintenance and Repair Precon
Tuesday, January 8	10:00 AM	Aldrich Arena Discussion
Wednesday, January 9	11:00 AM	Administrator Meeting
Tuesday, January 15	9:00 AM	Property Insurance Renewal Meeting
	11:00 AM	WaterFest Planning Meeting
Friday, January 18	9:00 AM	Website Hosting Discussion
Tuesday, January 22	10:30 AM	Twin Lake Discussion with Little Canada
Thursday, January 24	11:00 AM	Water Resources Conference Planning
Friday, January 25	3:00 PM	Capitol Region District Office Tour
Tuesday, January 29	1:00 PM	Roseville Inspection Coordination
	2:00 PM	Metro-INET Managers Meeting

B. Upcoming Meetings and Dates

MAWD Day at the Capital Events	Wed and Thurs, February 20-21, 2019
Lake Phalen Mural Workshop	Thursday, February 21, 2019
Phalen Freeze Fest	Saturday, February 23, 2019
RWMWD CAC Meeting	Tuesday, February 26, 2019
March Board Meeting	Wednesday, March 6, 2019
WaterFest	Saturday, June 1, 2019

C. District Office Updates

Just wanted to give you an update on some bigger interior office updates that we have been receiving quotes for to complete in the near future.

I have been working with Tierney to get quotes on updating the technology in the board room. This will likely include the installation of TV screens on two sides of the board room

to allow for both sides of the table to see presentations. We are also looking to upgrade our ability to audio record our meetings, but also have the capability to webcam for meetings using software such as WebEx. This could be useful for board meetings, but also for staff meetings with other agencies and consultants such as Barr Engineering. One more technology we are considering is a way to easily project presentations from laptop computers using a device called Click Share. Once the quote is received, reviewed, and approved, the installation will happen before summer this year.

We are also receiving quotes to upgrade our front doors to include automatic openers. This will likely require the reconstruction of the total outside and inside doors to potentially move to a single door in both locations. We have received one quote in the $15,000-20,000 range are looking for a second contractor to quote also.

We will also be doing interior painting around the office this year and will coordinate those efforts with the other installation projects. All of these efforts have been budgeted for in the 2019 budget.

D. Operations and Maintenance Conference Tour and Abstract Submittal

As I have mentioned in the past, the National Operations and Maintenance of Stormwater Control Measures Conference is being held in Minneapolis August 4-7, 2019. I have attended a couple of planning meetings for the event. Paige has submitted an abstract to present at the conference regarding our BMP Maintenance Program. I also submitted a request to host a tour of RWMWD sites within the District to highlight our unique stormwater BMPs and the operations and maintenance challenges that comes with them. If the tour is approved, there will be time to refine the tour stops, but I anticipate visiting the Maplewood Mall, Willow Pond Spent Lime Filter, Shoreview PaveDrain Streets, and potentially the Tanners Alum Plant. We will partner with our cities and private contractors/landowners to provide multiple perspectives.

E. MAWD Legislative Briefing, Reception, and Day at the Capitol

Attached is the schedule of events for the upcoming MAWD events. I have also attached the 2019 MAWD Legislative Platform documents. Please let me know (and haven't already) if you would like to attend the events that require MAWD registration.

2019 Legislative Briefing, Reception & Day at the Capitol

MN Association of Watershed Districts

The MAWD Legislative Reception and Day at the Capitol provide MAWD members with a great opportunity to build relationships with legislators and to advance issues important for maximizing the effectiveness of local watershed management entities.

MAWD will formally invite all legislators to join us for the Wednesday evening reception, but follow-up invitations from constituents are helpful.

SCHEDULE OF EVENTS

Location: The DoubleTree Hotel, 411 Minnesota Street, Saint Paul, MN 55101

Wednesday, February 20

9:30 A.M. – 1:00 P.M. MN Association of Watershed Administrators Meeting (595 Aldine St., St. Paul)

11:00 A.M. – 1:00 P.M. MAWD Board of Directors Meeting

2:00 P.M. - 4:30 P.M. MAWD LEGISLATIVE BRIEFING

- Overview of the 2019 MAWD legislative platform including talking points
- Presentations by lead agency staff
- Discussions with key legislators and committee chairs
- Training on "Tips and Tricks for Meeting with Legislators"

5:00 P.M. - 7:00 P.M. LEGISLATIVE RECEPTION

- An opportunity to visit with legislators in an informal setting

Thursday, February 21

8:00 A.M. - 4:00 P.M. DAY AT THE CAPITOL (on your own with shuttles provided)

- Meet with legislators (www.leg.state.mn.us/leg/legdir)
  - Please call your legislators at least one week in advance to schedule appointments.
  - They want to hear and connect with you while you are in town!
- Take a free guided tour of the Capitol (www.mnhs.org/capitol/activities/tours)
- Attend legislative committee hearings
  - Wednesdays 9:45-11:15 a.m. House Environment Policy
  - Wednesdays 10:30 a.m. – 12:00 Senate Environment and Natural Resource Finance
  - Thursdays 9:45 – 11:15 a.m. House Agriculture Finance
  - Thursdays 12:45 – 2:15 p.m. House Environment Finance
  - House Committee Meetings I Senate Committee Meetings

2019 Legislative Platform

MN Association of Watershed Districts

TOP 2019 LEGISLATIVE PRIORITIES

The following top priorities have been set by the MAWD Board of Directors for 2019.

1. Remove (or increase) the $250,000 general fund levy limit while keeping the not-to-exceed levy limit of 0.048 percent of estimated market value. – MN Statute § 103D.905 subd. 3
2. Allow a project tax levy to serve as matching funds for all types of state and federal grants, not just for Clean Water Partnership grants (that no longer exist). – MN Statute § 103D.905 subd. 9
3. Remove (or increase) the $2M limit on outstanding loans for watershed districts, especially for those entities that serve as drainage authorities. – MN Statute § 103D.335 subd. 17
4. Improve coordination and remove duplicative efforts of water management planning as currently required by various local, state, and federal laws. – MN Statutes 114D and 103D
5. Reinforce existing rights to maintain/repair drainage systems that operate under MN Statute 103E.
6. Increase allowable manager compensation. Revise MN Statute 103D.315 and/or find alternate solution.
7. Remove permitting restrictions when hiring contractors to remove common carp from lakes.

LEGISLATIVE EFFORTS WE SUPPORT (BUT LED BY OTHERS)

The following issues are supported by MAWD, but legislative efforts are being led by others.

- Obtain a strong allocation for the flood hazard mitigation funding program. LEAD: Red River Watershed Management Board
- Provide limited liability protection to certified commercial salt applicators. LEAD: Minnesota Nursery & Landscape Association and Stop Over Salting
- Provide drainage authorities a voluntary alternative option for apportioning drainage system repair costs. LEAD: Board of Water and Soil Resources (BWSR) and Drainage Work Group (DWG) partners
- Update statutes to allow for faster compensation of ditch buffer strips. LEAD: BWSR, DWG
- When reviewed and approved by the MAWD Board, bills for single watersheds will be supported. Ex: appropriation for Lower MN River dredging, Bois de Sioux pilot to update drainage system values

ISSUES TO HANDLE ADMINISTRATIVELY (FOR NOW)

MAWD will continue (or begin) working with state agencies to address the following issues:

- Ensure watershed districts are given opportunities to provide input on stormwater reuse standards.
- Ensure timely updates to Wildlife Management Areas (WMAs).
- Require watershed district permits for the Department of Natural Resources.

ISSUES TO WATCH AND PLAY DEFENSE (IF NEEDED)

MAWD will keep a close eye on potential threats to watershed organizations.

- Protect Clean Water Fund recommendations that focus on local implementation plans and projects.
- Monitor for pending legislation that impacts rule-making, local planning, and/or other authorities.

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Project and Program Status Reports

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February 2019 Board Packet
Agenda Item 10A

Maplewood Mall Stormwater Retrofit Project

Five Year Anniversary Project Inspection, Inventory and Recommendations for Maintenance and Improvements

Prepared for
Ramsey-Washington Metro Watershed District

4300 MarketPointe Drive, Suite 200
Minneapolis, MN 55435
952.832.2600
www.barr.com

Maplewood Mall Stormwater Retrofit
Five Year Inventory and Assessment

January 2019

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List of Appendices

1.0 Introduction

1.1 Maplewood Mall Stormwater Retrofit Project Overview

Between 2009 and 2013, three phases of construction took place in the parking lot and areas adjacent to the entrances at Maplewood Mall. Previously identified as a site of interest, the mall parking lot was chosen as a Ramsey-Washington Metro Watershed District (District) Capital Improvement Project site to improve stormwater quality for downstream Kohlman Lake (impaired by excess phosphorus and listed on the MPCA's Impaired Waters List). The project features 55 rain gardens (19 of which have enhanced sand filters), 6,733 square feet of permeable paver, one mile of tree trenches, 354 canopy trees, a large decorative cistern, and numerous signage elements and several artistic features. The tree trench design was a modified version of one used in Stockholm, Sweden, meant to provide space for trees to grow and thrive, while also providing a load bearing surface for heavy vehicular traffic. Prior to its use at Maplewood Mall, this method was largely unknown and untested in the United States.

The Maplewood Mall project is unique in that it includes a large expanse of highly visible stormwater features retrofit into a heavily utilized, 35-acre parking lot. The features receive large volumes of stormwater, and come into contact with people and cars frequently. Also, some of the features, such as the tree trenches and rain gardens with iron enhanced sand filters had never been implemented by the District (or anyone in Minnesota) before this project. As such, this project has been monitored for water quality and quantity to varying degrees each year since its construction, but the integrity and durability of the structures and the health of plantings and trees has not been assessed and inventoried since the project's construction was complete in 2013. Therefore, the goal of this 2018 project was to inventory and assess the stormwater features and plantings (primarily tree health). The inventory methods and findings are summarized in this report as well as recommendations for future inspections and tree replacements.

See Appendix 1 for a full project overview figure.

2.0 Stormwater Infrastructure Assessment and Findings

2.1 Stormwater Structure Assessment Process

Over a series of site visits in July and August 2018, Barr staff evaluated and documented overall conditions of the storm sewer structures using the ArcGIS Collector app. Staff inspected catch basins, manholes, trench drains, and Agridrain weir structures. We only inspected structures on the site that were installed by the District as part of the retrofit project (Phases 1-4).

We assigned a qualitative status of "Poor" or "Good" based on overall conditions of each structure. When evaluating the condition of the structures, we considered the condition of the casting assembly, rings, pipe connections, mortar, and other features unique to certain structures, including weir plates and orifices and skimmers. We included comments for those structures that were classified as "Poor" to describe the nature of their inadequacy.

For Agridrain weir structures, we noted whether or not the weir plates were in place. Several years ago, District staff had removed them from several structures at Barr's request (in areas that seemed to remain inundated for long periods of time after storms) and we did not have documentation of which ones were removed. We also noted the location and condition of the orifice opening for each weir structure.

2.2 Stormwater Structure Assessment Summary and Conclusions

Agridrain weir structures:

- Agridrain weir structures are in excellent condition.
- Weir plates had been removed from the Agridrain weir structures in the Northwest Grove, North Grove, and the East Grove.
- Only one Agridrain weir structure had a plugged orifice (W2-AD) and we were able to clear it while we were performing the inspection.
- One Agridrain weir structured had the weir places in the incorrect order and the orifice was in the first stop-log from the bottom of the structure rather than the second, as designed.

Catch basin and manhole structures:

- "Poor" condition ratings were mostly related to erosion of mortar around pipe connections, rings and castings.
- The West Grove had the highest number of structures with a "Poor" rating.
    - Almost half of all "Poor" structures across all groves are in the West Grove (12 out of the 26 total structures considered to be in "Poor" condition).
    - Of the West Grove's 31 structures, 12 were classified as "Poor".

- It is unclear why the structures in the West Grove are in the worst conditions:
  - Not related to pavement surface condition (West, Northwest, East, Southwest, South, and Southeast Groves were all repaved around the time of installation of the retrofit project).
  - Not related to use/traffic loading (The East Grove is as heavily used as the West Grove)
  - Not related to construction phase (Phase 3 included the West, Northwest, and North Groves)
  - Could be related to subsurface soil strength and stability, which could not be observed during the inspections.

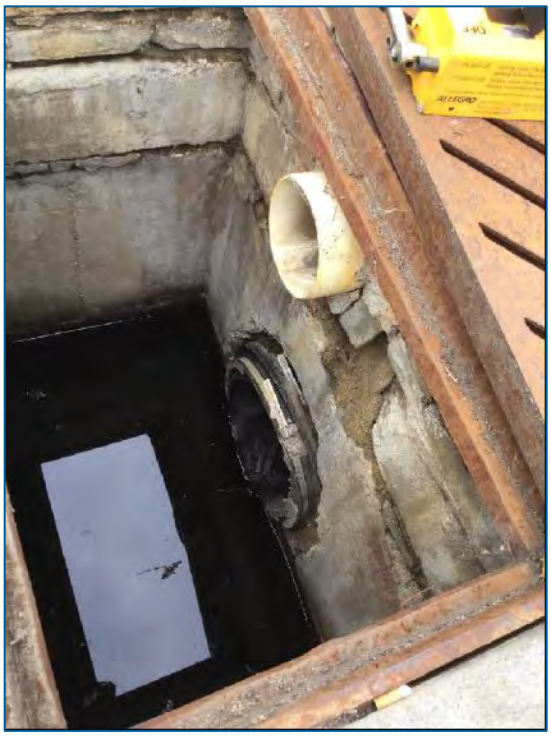

Figure 2-1 Catch basin structure in the East Grove with tree trench pipe inlet. Note the failing mortar around the structure's upper rings.

Figure 2-2 Failing mortar, as seen in this catchbasin in the Northwest Grove, should be monitored in the future to ensure no unwanted pavement settling begins to occur. Failing mortar such as this could be due to concrete mix errors or installation in cold weather.

Figure 2-3 **The trench drains are generally in good condition but this one that serves as an inlet at the western rain gardens is plugged with sediment and requires cleaning.**

Figure 2-4 **The Agridrain structures are all in working order. This one, however, is almost submerged in a non-functioning rain garden on the west side of the mall.**

2.3 Stormwater Structure Recommendations

Generally, unintentional inflow and infiltration (I&I) can become an issue at the structures with mortar erosion, which could lead to sinkholes and structural failure. Condition of the mortar at the rings, castings, and pipe connections for the structures classified as "Poor" will be assessed and necessary repairs can be made as part of the 2019/2020 CIP repair work.

Catch basin, manhole, and trench drain structures should be inspected again in 5 years.

Agridrain weir structures should be inspected again in 10 years.

Trench drain grates should be removed and inverts cleaned out within the next 2 years. Beyond that, inspections should be made yearly and clean-outs performed every other year.

3.0 Tree Condition Analysis and Findings

3.1 Tree and Plantings Analysis Process

Over a series of site visits in July and August 2018, Barr staff evaluated overall tree and planting conditions and documented observations using the ArcGIS Collector app.

All Mall plantings were reviewed and conditions documented. Throughout the last three years, the Mall plantings have been part of the ongoing District BMP Maintenance Program. Minnesota Native Landscapes has worked to maintain the plantings in all the rain gardens, end islands, and entrances. This maintenance goes throughout the growing season and includes spring clean-up, weeding, mulching, sediment removals in the rain gardens, and some plant replacements.

We took general notes on current conditions including weed intrusion, mulch conditions, and overall health of the planted landscape. Locations where the plantings have been impacted (such as areas of significant plant loss) were identified for future replanting efforts utilizing the District's existing BMP Maintenance Program funds.

3.2 Tree Condition Summary

During the three phases of the Maplewood Mall Project, 354 trees were installed. During the 2018 inventory, 214 trees (60%) were considered thriving while 65 (18%) were dead. 75 trees (22%) were living but had poor form or showed other signs of impacted growth and slow or limited establishment. For reference, a common industry expectation for loss of newly transplanted trees due to transplant shock and establishment failure is approximately 10%. This is due to the large amount of root system damage that is done during the ball and burlapping process. It is also worth noting that the mean urban street tree life span is generally acknowledged to be between 13 and 20 years. (1)

A deeper analysis of assumptions for tree success and mortality can be found below on Section 3.5 Tree Data Analysis Conclusions.

Tree species quantities originally installed:

- Accolade Elm—17
- Common Hackberry—55
- Snowdrift Crabapple—9
- Thornless Hawthorne—5
- Discovery Elm—46
- Espresso Kentucky Coffeetree—61
- Imperial Honeylocust—6
- Skyline Honeylocust—91
- Swamp White Oak—67

(1) http://www.actrees.org/wp-content/uploads/2012/08/roman-scatena-2011-street-tree-mortality.pdf

Evaluation criteria for each tree included:

- DBH (Diameter at Breast Height) in inches
- Overall foliage/canopy health
- Damage to trunk, bark, or branches

Trees were given qualitative grades based on overall observed health including all the factors listed above and a visual analysis of canopy shape and density. Grades were represented by the following characteristics:

A. Vigorous Growth
    1. Dense canopy, 100% Full
    2. Strong and straight trunk
    3. Dark green leaves

B. Strong growth
    1. Canopy potentially lopsided or partially incomplete, 100% - 75% Full
    2. Leaf color dark green to green
    3. Some trunk or branch damage

C. Fine Growth
    1. Canopy incomplete or clearly undersized, 75%-50% Full
    2. Leaves green to light green
    3. Thinner, wobbly trunk with some damage or dead branches visible

D. Dying
    1. Significantly incomplete canopy, <50% Full
    2. Leaves light green, other signs of disease, premature leaf drop
    3. Thin trunk, little to no growth on the project site

F1. Dead, Replacement Recommended
    1. Dead tree in a location where replacement is recommended
    2. High investment or high visibility location such as tree trench or entrance planting

F2. Dead, No Replacement Recommended
    1. Dead tree in a location where replacement is not recommended
    2. End islands where there is a nearby healthy tree or further from the Mall entrances

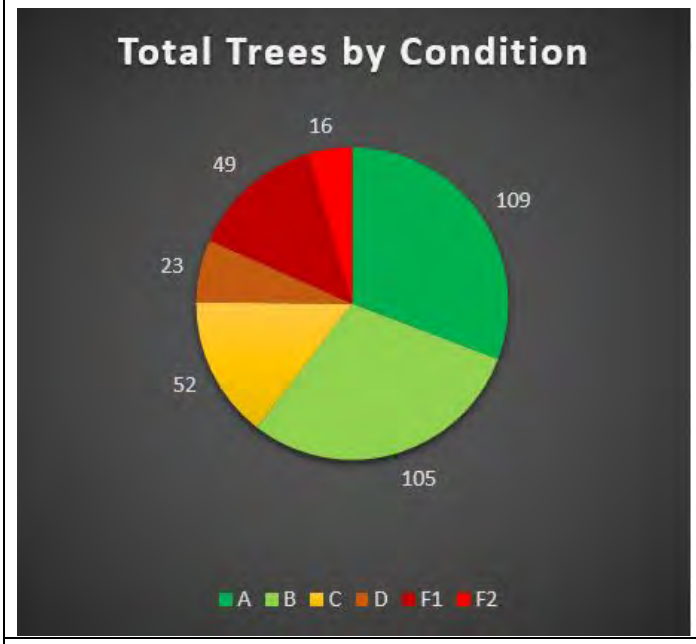

Figure 3-1 Total trees by health grade. See Section 2-1 for a description of the grading.

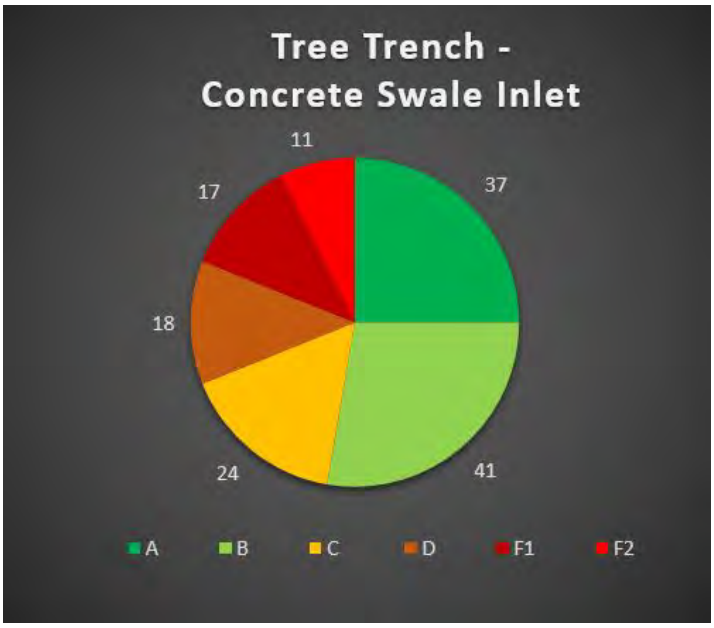

Figure 3-2 Out of a total of 148 trees in a tree trench watered via a concrete swale, 46, or 31%, of them were severely struggling or dead.

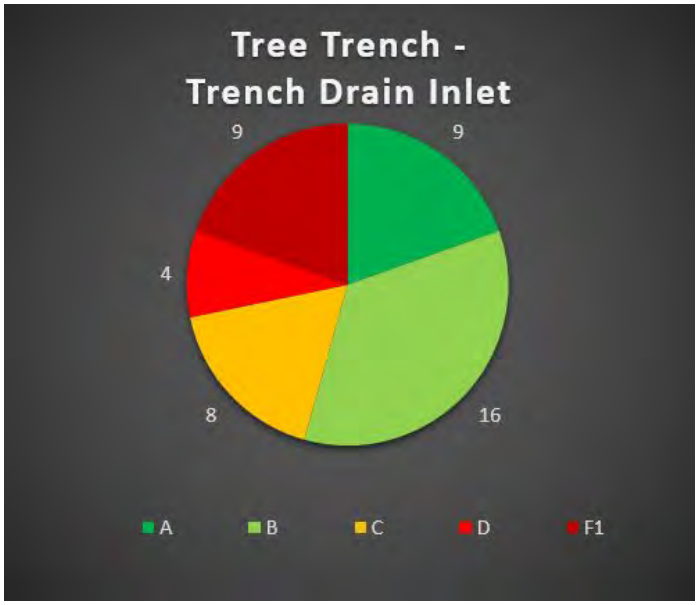

Figure 3-3 Out of a total of 46 these trees in a tree trench watered by a trench drain (as opposed to a swale) , 13, or 28%, of them were severely struggling or dead.

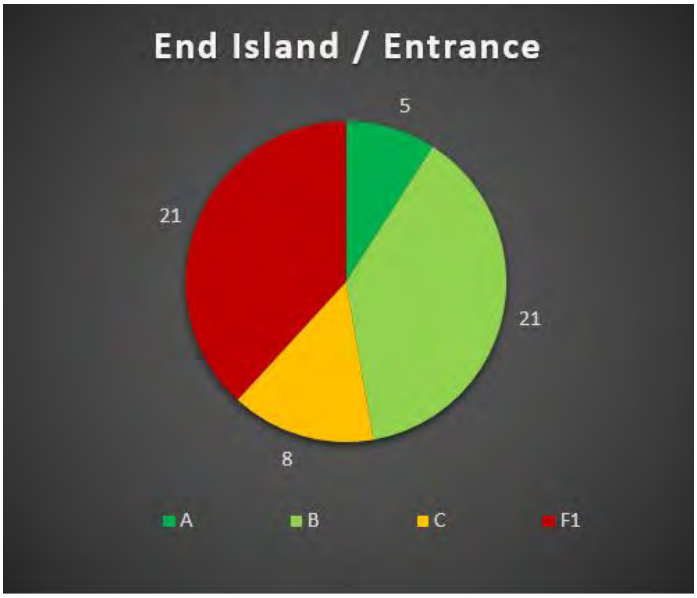

Figure 3-4 End island and entrance trees have struggled to a surprising degree, especially end island trees.

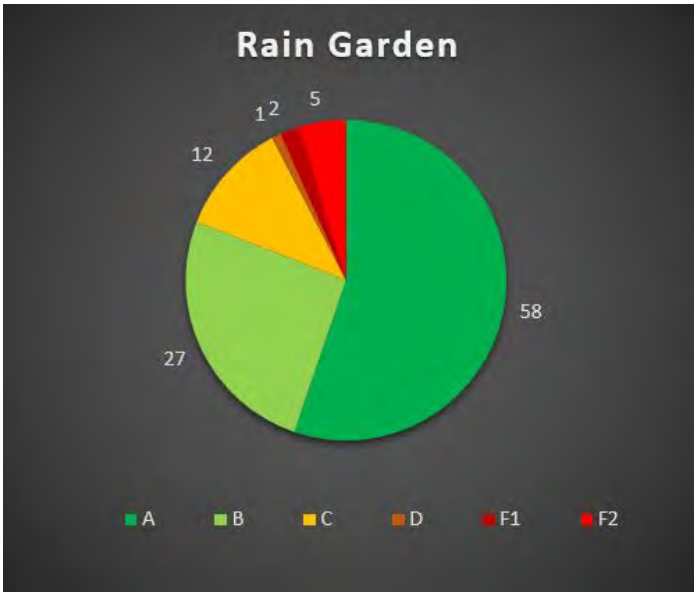

Figure 3-5 Rain gardens have growing conditions where all tree species have thrived. The largest trees are found in the oldest gardens.

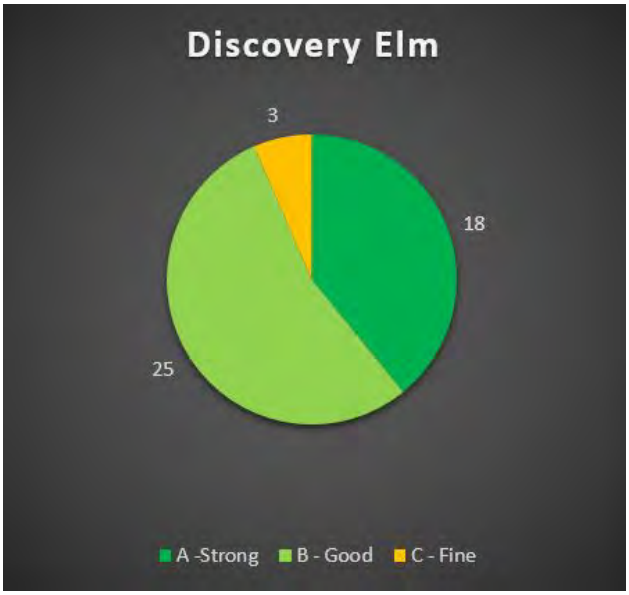

Figure 3-6 Discovery elm is the most successful species, both in terms of mortality and vigorous growth with the largest of all trees being Discovery elms in the northwest grove (the first grove constructed).

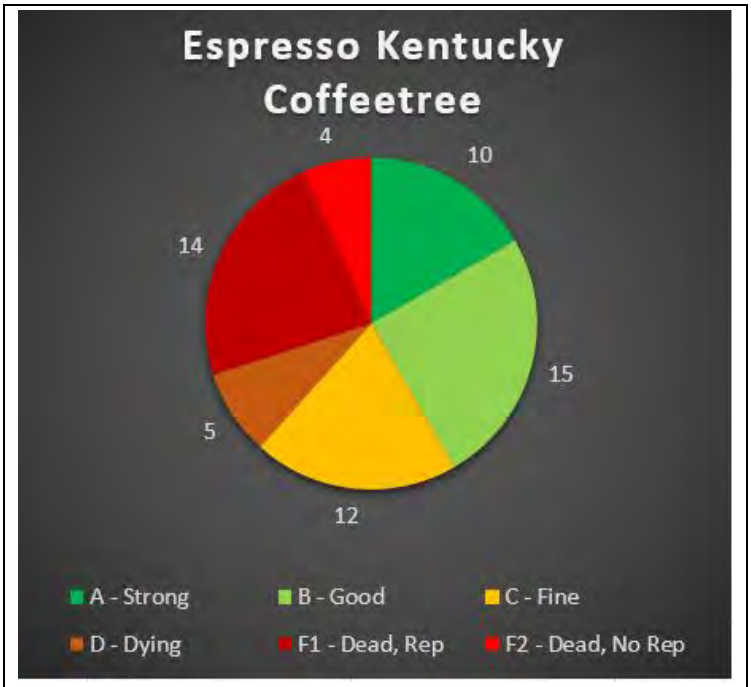

Figure 3-7 Espresso Kentucky coffeetree is the least successful species, with 25 of the 60 installed thriving regardless of location.

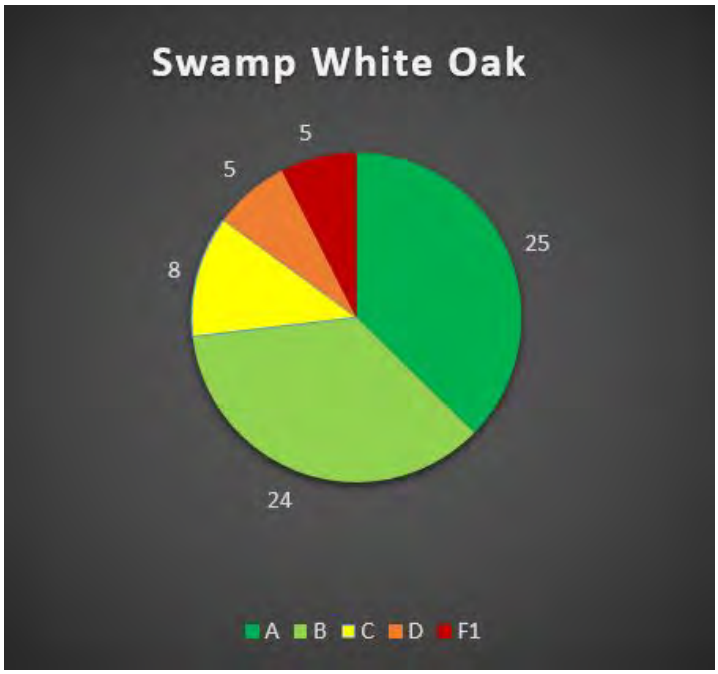

Figure 3-8 Swamp white oak, a species native to wet conditions, has had strong establishment success and notably in trenches.

3.3 Tree Condition Photo Examples

Photo 2-1 **Vigorous Discovery elm in the Northwest Grove. This tree had a caliper measurement (DBH) of 5.5". At time of installation, this tree had a 2.5" DBH.**

Photo 2-2 **Vigorous Skyline honeylocust at the Entrance 1 stormwater plaza. Full canopy and deep rich foliage color highlights the advantage of growing in a rain garden.**

Photo 2-3 **Foreground (West Grove): Healthy hackberry tree with a DBH of 3.5 inches. Background: Very vigorous Discovery Elm with a 6" DBH.**

Photo 2-4 **A moderately healthy swamp white oak with a DBH of 3.5 inches in the East Grove, thriving despite some vehicular damage**

Photo 2-4 **A moderately healthy Kentucky coffeetree at the Entrance 1 Stormwater Plaza. Note the yellow-green leaf color and dead leader tip.**

Photo 2-5 **Struggling Kentucky coffeetree in the East Grove. Rich leaf color shows the tree may be rebounding. Branch mortality has led to an irregular canopy shape. Proper pruning can correct this condition.**

Photo 2-6 **Dying Kentucky coffeetree in the Entrance 1 Stormwater Plaza. Loss of the central leader and key branches has led to an irregular shape that only regular pruning may correct over time.**

3.4 Tree Data Analysis Conclusions

The two tree species with the best establishment success are native to a floodplain environment; swamp white oak and elm. Elm was the most successful species by a considerable amount. Trees native to floodplains better tolerate drought, flooding, soil compaction and lack of oxygen in the soil because they have evolved under periodic flooding conditions. The growing conditions within the tree trenches at the mall have been wetter than expected because of above average rainfall amounts in the period the trees have been establishing. By contrast, when the tree species were originally selected for the mall parking lot, drought tolerance was a primary selection factor. At the time, the goal was to choose species that would survive in the mall's sun baked, windswept parking lot during hot summer months. These conditions will likely occur in the future. The tree trench design has proved to be very effective in retaining runoff on site and making it available for the trees between rain events. For future projects, a similar design is still recommended.

Species such as honeylocust, Kentucky coffeetree, and hackberry are consistently good growers in the urban environment because of their tolerance of drought and poor soil conditions. The prolonged wet conditions in the trenches during the establishment period are undoubtedly at least partially responsible for the struggling of these usually resilient trees. Despite the Agridrain weirs' removal to promote faster drawdown in some tree trench groves (North and Northeast) the drought tolerant species were not able to establish well and many continued to suffer and eventually die.

The percentage of trees that died within the tree trench groves was the same as those growing within the parking lot end islands and at the entrances to the mall (where ideal soil conditions occur). This indicates

that the demise of the tree trench trees may not have been solely due to the soil conditions within the trenches. Other factors that may have affected tree growth include: the quality of the trees from the nursery, the size of the trees installed, damage to the trees during transport and planting (some of the trees were stored on the parking lot for a number of weeks, even though carefully watered), and timing of planting (many trees were planted during the warmest part of the summer). Trees planted in the large rainwater gardens with soils of a greater rooting volume had the greatest rate of survival.

Deicing salts likely impact trees at the mall. Slightly more dead trees occurred in the trenches that had stormwater delivery via a concrete swale that funneled water (salt laden in winter) directly to the tree trunks. The alternate system of trench drains directs water down into the bottom of the trench, not at the base of the tree. Here, deicing salts in melt water do not directly drain onto the tree roots. In the North Grove, post installation monitoring data confirmed that chloride levels in that area of the mall were elevated.

3.5 Tree Recommendations

Tree Replacement

- Only replace trees with a ranking of D (22 trees) and F1 (48 trees). Continue to nurture the trees with A, B and C rankings.
- Do not replace trees in end islands, entrances and rainwater gardens (F2 ranking) for which the space they would occupy will eventually be taken over by an adjacent tree. For example, two trees were planted in many of the end islands. Where one tree has died it is recommended that it be removed and not replaced. It is likely that the remaining tree will take over the space.
- Replacement trees should be small in size. Two-inch ball and burlapped trees were originally planted for aesthetic reasons. Trees of this size are very stressed at transplant because a considerable amount of their root system is cut off when dug. Large trees are typically planted for 1) visual effect, and 2) their resistance to breakage by vandals. It is recommended that replacement trees be small, potted trees. They are typically more successful because their root systems are not as severely impacted at transplant. The existing tree guards should protect smaller trees from breakage by vandals.

Replacement Tree Species

Replacement species are to be of a floodplain origin. Recommended new species include:

Elm:

- Prairie Expedition® American elm (Ulmus americana 'Lewis & Clark'); excellent cold hardy Dutch Elm Disease (DED) resistant American elm selection. The original tree was a lone survivor among other American elm trees that died from DED. Released and named in honor of the 200th anniversary of the Lewis and Clark Expedition in 2004.
- New Horizon (Ulmus 'New Horizon'); excellent resistance to Dutch elm disease, elm leaf miner and verticillium wilt. Useful as street, parkway, or shade tree.

- Triumph® ['Morton Glossy']- upright oval to vase-shaped with arching branches, 55' x 50', glossy dark green leaves, yellow fall color, resistant to DED and elm yellows, good resistance to elm leaf beetle, Chicagoland Grows® introduction

River Birch:

- City Slicker® river birch (Betula nigra 'Whit XXV'): Dark green foliage that turns bright yellow in fall. Good drought tolerance.
- Dura-Heat® river birch (Betula nigra 'BNMTF'): Smaller, glossy, olive green leaves, whitish, exfoliating bark, more resistant to aphids; better resistance to heat.
- Heritage® river birch (Betula nigra 'Cully'): Larger, glossy, dark green leaves, nearly white interior peeling bark, more heat tolerant.

Heritage Oak:

- Heritage Oak (Quercus x macdaniellii 'Clemons') combines the best attributes of its English oak and bur oak parents. From its bur oak genes Heritage oak gets toughness for the upper Midwest and adaptability to a broad range of soil types. From its English oak parentage it gets a relatively fast growth rate, broadly oval shape, and deep green, glossy, tatter resistant foliage that creates a beautiful appearance.

Maintenance

Regular maintenance, especially the first ten years after planting, are critical to tree success. Regular pruning shapes trees to have a single central leader (trunk) that prevents wind damage. Annual inspections are necessary for disease and insect issue identification. Fertilizing may be necessary to provide plant nutrients during the initial years of growth.

Televising Underdrains for Root Growth

The Swedish Tree Trench design was chosen to because of its ability to transfer fresh oxygen to the tree roots. One of the air transfer mechanisms is the 12" diameter pipes embedded in the rock throughout the trenches. It was a design intention that tree roots would seek out these pipes and even send fine roots into the perforations to find additional available oxygen. To verify if this is occurring, Barr plans to televise the pipe network under several trees the length of the tree trench in 2019. Visible roots would indicate the design is working as intended. Also, visible standing water would indicate the need to potentially adjust weir heights, or remove them entirely from certain trenches.

Limit Deicing Salt Application

Deicing salts are potentially playing a significant role in limiting tree success at the mall. This is a difficult issue because mall managers want to prevent pedestrian slip injuries at all cost, and deicing salt is an inexpensive solution. Salt use could be reduced to protect the trees and downstream waters. Alternative types of deicing salts may be less impactful to the trees, and the methods of salt application (such as brining) can significantly reduce salt use. Mall snow removal companies could be required to take deicing training.

Tree Guards

Tree guards have become loose over the years causing the guards to lean and in some cases rub and damage the trunks of trees. These guards have four bolts at the base that connect to the tree grate. The bolts should be replaced and utilize non-slip washers to ensure proper adherence in the future.

3.6 Estimated Costs for Tree Replacement

Due to the tree guards, grates and relatively compact planting environment within the tree box, the costs for removal of the dead or dying trees and their replacement, even with smaller and younger tree stock will be more expensive than an average new tree installation. Steps for tree replacement within the tree trenches would entail removal of the guard, lifting of the grate, and removal of the existing ball and burlapped tree, including steel root ball cage. Then the existing planting soil in the tree trench box would be prepped and the new tree installed so that the root ball sits directly on the storage rock layer. Additional planting soil would have to be installed to bring the new tree up to grade and fill the tree box to the appropriate soil depth. Fertilizer would be applied and incorporated with the new soil and finally a layer of shredded hardwood mulch would be applied before reinstalling the grate and guard.

Scientific Name	Common Name	Size	Quantity	Cost	Subtotal
Betula nigra 'BNMTF'	Dura-Heat River Birch	#10 Cont.	10	$400	$4,000
Betula nigra 'Cully'	Heritage® river birch	#10 Cont.	7	$400	$2,800
Betula nigra 'Whit XXV'	City Slicker® river birch	#10 Cont.	8	$400	$3,200
Quercus x macdaniellii	Heritage English Oak	#7 Cont.	7	$250	$1,750
Ulmus americana	Prairie Expedition Elm	#15 Cont.	15	$400	$6,000
Ulmus 'Morton Glossy'	Triumph Elm	#15 Cont.	8	$400	$3,200
Ulmus 'New Horizon'	New Horizon Elm	#15 Cont.	15	$400	$6,000
				Sub-Total:	**$26,950**

Material	Unit	Quantity	Cost	Subtotal
Shredded Hardwood Mulch	CY	18	$65	$1,170
Pelletized Fertilizer	LB	140	$5	$350
Planting Soil	CY	10	$65	$650
		Total:		**$29,120**

4.0 Rain Garden Inventory and Assessment

4.1 Rain Garden Performance Concerns

Overall, the rain gardens are performing as planned with timely inundation drawdown and healthy plantings. Two rain gardens, the southern basin of the Southlawn Garden and the southernmost cell of the West Rain Gardens appear to be slow to drawdown and often have standing water long after storm events. It is likely that the slow filtration is due to increased sediment loading over time or compacted planting soils during construction (although the Southlawn Garden basin has been slow to drain for several years, in part because it receives such a large storwmater volume).

4.2 Rain Garden Rehabilitation Cost Estimate

To increase the permeability of the subsoils and drain tile systems, these two gardens will have to undergo rehabilitation to dry down within 48 hours of a rainfall event. Steps to increase the drawdown time would include removing any standing water and existing plants on the garden bottom. Creating construction access, removing and disposing of sediment-laden planting soil and drain tile trench material, loosening subsoils, replacing the enhanced sand trench, and planting soils, and finally planting and mulching the gardens. The estimate below is a planning level opinion of cost for this work. Construction plans, specifications, and a more accurate opinion of cost can be prepared if desired.

Item	Unit	Quantity	Unit Cost	Subtotal
Mobilization and Erosion Control	LS	1	$3,000	$3,000
Removals	CY	45	$18	$810
Grading	LS	1	$2,500	$2,500
Iron Enhanced Sand	CY	18	$85	$1,530
Perorated Drain tile with Connection to Existing Storm Structure	LF	70	$12	$840
Subsoil Loosening	SY	130	$4	$520
Filtration Planting Soil	CY	32	$65	$2,080
Shredded Hardwood Mulch	CY	18	$65	$1,170
Decorative Plantings	SY	200	$18	$3,600
		Total:		**$16,050**

Appendices

COUNTY ROAD D RAINWATER GARDEN
NORTHWEST RAINWATER GARDEN
NORTHEAST RAINWATER GARDEN
NORTH TREE GROVE
NORTHWEST TREE GROVE
WOODLYN RAINWATER GARDEN
WEST TREE GROVE
MACY'S
BARNES & NOBLE
EAST TREE GROVE
ENTRANCE TWO STORMWATER PLAZA
ENTRANCE ONE STORMWATER PLAZA
KOHL'S
LYDIA RAINWATER GARDEN
ENTRANCE THREE STORMWATER PLAZA
WEST RAINWATER GARDENS
MAPLEWOOD MALL
J.C. PENNY'S
EAST TREE GROVE
ENTRANCE FOUR STORMWATER PLAZA
ENTRANCE FIVE STORMWATER PLAZA
SOUTHLAWN RAINWATER GARDEN
WHITE BEAR AVE RAINWATER GARDEN
SOUTHWEST TREE GROVE
SEARS
SOUTHEAST TREE GROVE
SOUTHWEST RAINWATER GARDEN
SOUTH TREE GROVE
BEAM RAINWATER GARDEN
SOUTH RAINWATER GARDEN

0 50 100 200

N

BARR

Appendix 1 -

Maplewood Mall Stormwater Retrofit Site Plan

RAMSEY-WASHINGTON METRO WATERSHED DISTRICT

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Aerial Image: August 2018

- Good Condition
- Poor Condition
- Not Inspected

N

0 100 200 400 Feet

Appendix 2
Overall Structure Condition
Ramsey-Washington Metro - Watershed District
Little Canada, MN

Aerial Image: August 2018

- Agridrain (No Weir Data)
- Agridrain (Weir Not Present)
- Agridrain (Weir Present)
- Not Inspected

N

0 100 200 400 Feet

Appendix 3
Overall Agridrain Condition
Ramsey-Washington Metro - Watershed District
Little Canada, MN

Barr Footer: ArcGIS 10.6, 2018-09-12 08:54 File: I:\Client\Ramsey_Washington_Metro_WD\Work_Orders\Maplewood_Mall\Maps\Misc\20180912_iPad_Inspections\Tree Health Condition.mxd User: amm

Aerial Image: August 2018

- Inspected (no health value)
- A (Strong Growth)
- B (Good Growth)
- C (More than 75% Canopy)
- D (Less than 50% Canopy, stunted growth)
- F1 (Dead, to be replaced)
- F2 (Dead, to be removed, not replaced)
- Not Inspected

N

0 100 200 400 Feet

Appendix 4
Tree Health Condition
Ramsey-Washington Metro - Watershed District
Little Canada, MN

February 2019 Board Packet
Agenda Item 10B

resourceful. naturally.
engineering and environmental consultants

BARR

Technical Memorandum

To: Tina Carstens, RWMWD District Administrator
From: Matt Kumka, PLA
Subject: Ramsey Washington Metro Watershed District Office Parking Lot Rehabilitation and Retrofit Options
Date: January 30, 2019
c: Dave Vlasin, Eric Korte, Brad Lindaman, Erin Anderson Wenz

1.0 Existing Parking Lot Conditions

The porous bituminous parking lot at the Ramsey Washington Metro Watershed District (RWMWD) offices has seen steadily decreasing permeability in some areas for the past several years. Despite thorough, on-going maintenance efforts including sweeping vacuum truck and recirculating jet vacuum truck visits up to two times a year and District staff power washing with low phosphorus detergents three times, the pavement now has standing water for a limited time in certain areas after storm events.

According to District staff, the center low point of the drive lane, near the trash and recycling area, and in a strip between the garage door and the office front door sidewalk appear to be partially if not fully clogged. During rain fall, runoff will puddle in these areas, remain for up to several hours before final percolating beneath the surface of the asphalt or slowly move towards the catch basin.

Figure 1 – Shallow puddles still visible in the center of the drive lane 15 - 30 minutes after rain fall.

2.0 Original Design

The 7,200 square foot porous pavement parking lot was installed during the initial building construction in 2005. The engineering design for the porous asphalt parking lot includes a single catch basin near the entrance sidewalk to the front door of the office. This catch basin serves as a single point for runoff to overflow off the parking lot in larger rain fall events. This catch basin includes not only an overflow pipe that would contribute runoff to the rain gardens in large rainfalls but also includes two levels of perforated drain tile that reaches underneath the parking lot and distributes runoff into the rock storage section. These design details are relevant to the understanding that even with slowly draining portions of the surface bituminous asphalt any runoff reaching the catch basin is still being infiltrated into existing subsoils beneath the lot via the drain tile and rock storage system.

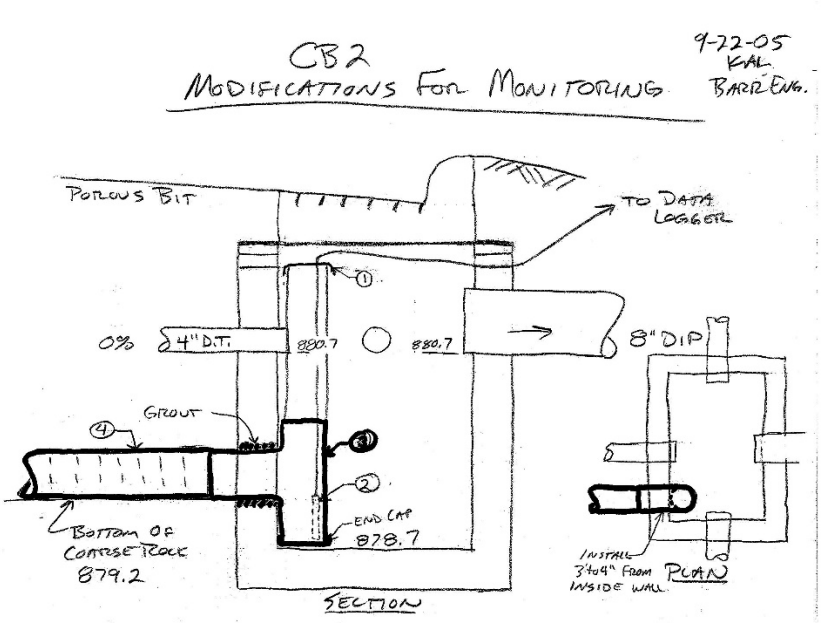

Figure 2 – This field adjustment sketch of the inlet catch basin from initial construction shows the drain tile exiting the catch basin in two runs, one lower left at the bottom of the storage rock and one in the middle of the section beneath the lot. The 8" pipe to the right is the overflow that leads to the rain garden.

Figure 3 – Construction photo showing the preparation of the rock base. Behind the red pickup, a portion of the drain tile associated with the catch basin can be seen curled up awaiting installation.

3.0 Parking Lot Rehabilitation and Retrofit Options

Several options to address the slow percolation of the bituminous asphalt parking lot have been researched and are listed below.

3.1 Option 1: Create permeable pathways to the pavement base

The plugged areas of the parking lot have been identified and appear to be consistent. Core drilling, 3" - 4" in diameter could be performed in these areas. The cores could be removed and the cross section of the pavement examined to see if the extent and depth of the clogging could be clearly identified. These cores could be removed and the base material examined. Permeability tests could be performed at this point to ensure the base material is quick to drain. These holes in the pavement could be backfilled with a variety of materials including new porous asphalt mixture or porous concrete if small batches of porous asphalt are unavailable. Another less expensive option would be to install a section of coarse angular stone (3/4" crushed granite) with smaller grade stone on the surface (1/4" granite chips). The small stone may move around a bit on site and care would have to be taken to keep it flush with the surface. Any new material would have to be leveled to ensure it didn't become a tripping hazard or wouldn't be damaged

by snow removal operations. This option would be relatively inexpensive depending on the number of cores drilled but one day of labor and materials with 3-5 cores drilled would likely cost between $1,000-2,000.

3.2 Option 2: Do nothing

Despite the current puddling that persists on the lot now, the asphalt is in fairly good shape with limited cracking or raveling. As a driving and parking surface, the lot is 14 years old and likely wouldn't require rehabilitation for another 8-10 years. At that point, normal asphalt reconditioning could occur such as a mill and overlay. The parking lot could also be subtly regraded to slope towards the existing catch basin more quickly. In this scenario, it is likely that the failed areas of the porous pavement would likely slowly expand over time.

3.3 Option 3: Partial test milling of the surface asphalt

The porous asphalt has a 3" thick pavement section. It is possible that the pavement pores are clogged with the upper portion of the cross section, which has been observed in other applications. An experimental test area could be created using light milling equipment, such as a skid steer loader outfitted with a cold planer. A cold planer would allow for milling and removal of the top ¼" to ½" while maintaining the integrity of the pavement section. The planed asphalt area could be immediately vacuumed to lift any loose milled fines and further clean pores lower in the pavement section. There is a risk that the void space would be compromised by the milling process and the finished pavement surface would likely be rough and slightly uneven..

This proposed option should be considered experimental as it is unclear as to how deep the clogging is occurring. Initially, this rehabilitation technique would be tested in a clogged area and the results monitoring to determine if it is effective and should be performed over the extent of the lot.

Barr has been in contact with local paving contractors (Bituminous Roadways and Blackstone Construction) and both have attested to the controllable depth and precision of the cold planer. An experimental test of such as this would likely cost between $500 and $1,500 for the equipment and operator for a small scale (<200 SF) area and would only take a short period of time to perform.

3.4 Option 4: Repave the lot with new porous asphalt

The porous asphalt functions as a demonstration for impervious surface reduction BMPs at the District office. To continue to demonstrate this particular BMP, the porous asphalt could be removed to the rock bedding course and a new base course and wear course of porous asphalt could be installed. Porous asphalt is a specialty product with the paving contractors spoken to for this memo indicating it isn't installed frequently in recent years in our region. Based on available non-porous asphalt costs and discussions with paving contractors, a reasonable planning level cost estimate to reclaim and rebuild the porous asphalt would be approximately $40-$50 per square yard or $32,000 - $40,000 for the entire

parking lot. Additional costs would include saw cutting, inlet protection, and striping. Including contingency this option would likely cost $50,000 - $60,000.

3.5 Option 5: Install an alternative permeable paving BMP

In 2014 the District office parking lot was expanded and now includes a section of PaveDrain permeable paving stones. The older porous asphalt portion of the lot could be retrofitted with a permeable paver system. Pave Drain or another style of permeable pavers could be installed directly onto the existing rock base after removal of the existing pavement surface. The asphalt drive lane could be graded to crown and push run off towards the permeable parking stalls and adjacent rain gardens for large rain fall events.

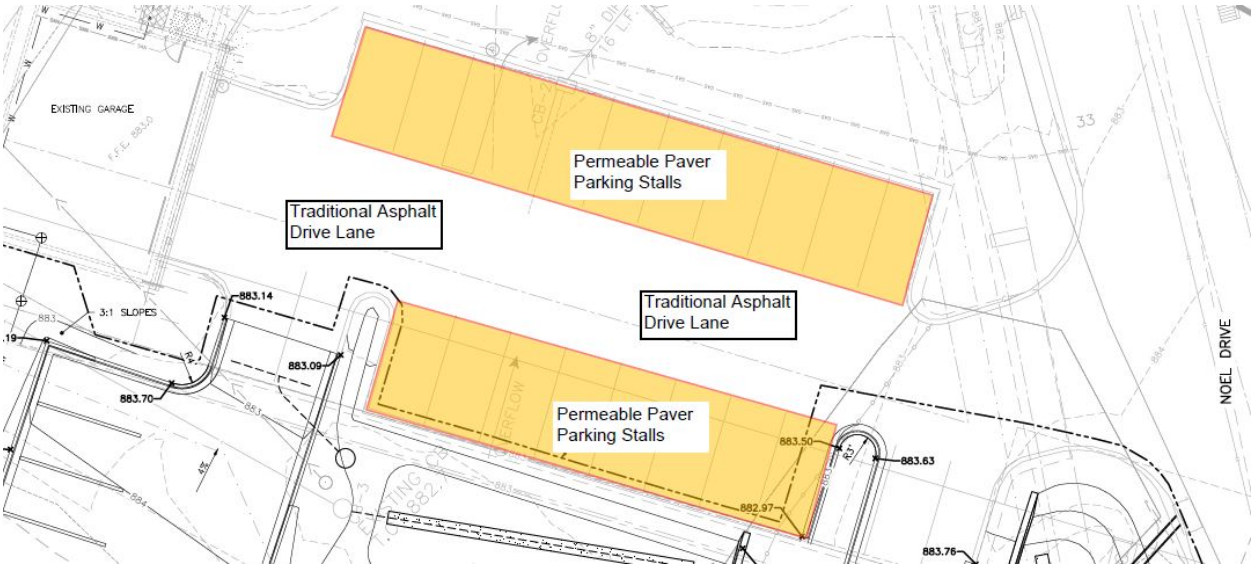

Figure 4 – This concept shows the porous asphalt removed and replaced with permeable pavers in the parking stalls and a traditional asphalt drive lane.

The estimated cost for this option which would include 7,200 square feet of existing porous bituminous removal, 3,800 square feet of permeable pavers, and 200 linear feet of concrete ribbon curb, striping and other miscellaneous expenses would be approximately $75,000 to $90,000.

4.0 Conclusion

Barr would be prepared to perform any additional research or discuss further the options described above or expand this memo to include other potential options not listed, as per the direction of District staff.

RAMSEY-WASHINGTON METRO WATERSHED DISTRICT

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Memorandum

To:	Board of Managers and Staff
From:	Tina Carstens and Brad Lindaman
Subject:	Project and Program Status Report – February 2019
Date:	January 31, 2019

Groundwater

Manager Skinner has requested that we include a section in the project and program status report that pertains directly to our efforts in groundwater management. While groundwater considerations are sprinkled throughout the following projects in this report and in our education and communications, at this time we aren't actively implementing a specific groundwater project. What we do have is some groundwater level monitoring information in the Grass Lake area as well as maps and a report that looked specifically at the groundwater and surface water interaction throughout the District. That past study does help to inform us in our future efforts for our projects and in our BMP incentive program. At a future meeting, I will highlight the goals, action and implementation items in our plan that pertain to groundwater and the Board can discuss our 2019 efforts. We can also keep the Board informed on the work other entities are doing in groundwater management around the region.

Project feasibility studies

Owasso County Park stormwater master plan and detailed design: phases I and II (Barr project manager: Matt Metzger; RWMWD project manager: Paige Ahlborg)

The purpose of this study is to assist City of Shoreview Public Works and Ramsey County Parks with creating a holistic "living streets" retrofit design for North Owasso Road and best management practice (BMP) design for new parking lots in Owasso County Park.

The City of Shoreview anticipates submitting the roadway project feasibility study to the city council soon and beginning 100-percent design in February 2019. Utility construction will likely begin this year, with the majority of roadway and stormwater management feature construction occurring in 2020. Barr and RWMWD staff will be engaged in the construction portion of the project to verify that the stormwater design implementation meets RWMMD standards and expectations.

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

The purpose of this study is to evaluate system-level flood-damage-reduction options, including real-time mechanical alteration of Lake Phalen and Keller Lake channel outlet structures, as well as other critical system infrastructure, to actively manage stormwater runoff from flood-prone areas tributary to the Beltline storm sewer in an effort to reduce flood levels that would otherwise impact homes. The evaluation will use 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 to homes adjacent to RWMWD-managed water bodies.

Barr prepared a draft geographic information system (GIS) story map to incorporate system modifications for the second phase that includes Willow Creek and Kohlman Creek. In the next month, we will review the phase II modifications with the RWMWD staff and, after incorporating their comments, will update the managers.

Barr also continued evaluating modifications to the outlet control structures on Keller Creek and Lake Phalen to identify a feasible operational plan to reduce upstream flood risk without adversely impacting downstream structures. Several structures upstream and downstream of the outlet control structures and the Phalen Chain of Lakes may be prone to flooding, so identifying a feasible operation plan is an iterative process that is anticipated to take several months.

The study is phased so that flood-prone areas in the upstream portion of the watershed are addressed first, working downstream. If the study is successful, recommendations for actual field modifications will be offered for future capital improvement programming.

Beaver Lake, Battle Creek Lake, and Lake Owasso subwatershed feasibility studies (Barr project manager: Josh Phillips; RWMWD project manager: Paige Ahlborg)

The purpose of this project is to evaluate BMP opportunities throughout the Beaver Lake, Battle Creek Lake, and Lake Owasso subwatersheds. These lakes are all considered to be "at risk" for nutrient impairment.

Barr finalized the subwatershed feasibility study reports for Beaver Lake, Battle Creek Lake, and Lake Owasso and presented a summary of these studies at the January board meeting. These studies are now considered complete, and a running list of project recommendations highlighted by the studies will be considered as implementation opportunities present themselves.

Emergency response plan for Lake Owasso (Barr project manager: Erin Anderson Wenz; RWMWD project manager: Tina Carstens)

The purpose of this project is to evaluate the level of flood risk that Lake Owasso's 100-year flood elevation poses to habitable structures along the lake's shoreline and to provide an emergency response plan for protecting at-risk structures to the City of Roseville for implementation during a flood event.

On December 31, proposed sandbag alignments were verified in the field, and some modifications were made in the emergency response plan to reflect site conditions. The updated plan will soon be turned over to the City of Roseville for its commissioners and other stakeholders, including affected homeowners, to consider. Plan implementation will be the city's responsibility. However, the RWMWD will provide lake-level, hydrologic, and general technical guidance should flooding appear imminent.

Federal Emergency Management Agency (FEMA) flood mapping updates (Barr project manager: Brandon Barnes; RWMWD project manager: Tina Carstens)

The purpose of this project is to apply Minnesota Department of Natural Resources (DNR) grant funding to use the RWMWD's updated stormwater model to develop information required to update the FEMA floodplain maps.

Barr updated the RWMWD stormwater model with new survey information provided by the DNR. We have been in communication with the DNR and received models previously used to map inundation area shown on the FEMA floodplain. The models from the DNR will be compared to the RWMWD stormwater model, and new information will be incorporated into the model.

In February, Barr will compile the RWMWD's model and source data including survey information, as-built plans, and previous models that will be submitted to the DNR for a preliminary review. While the DNR is reviewing the model, we will begin developing inundation mapping. The process for updating the FEMA floodplain maps will continue through April 2020.

Snail, Grass, and West Vadnais lakes outlet permitting with the DNR (Barr project manager: Erin Anderson Wenz; RWMWD project manager: 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.

On February 8, Barr will meet with the Vadnais Lake Area Water Management Organization's technical commission to discuss the potential lowering of the West Vadnais Lake outlet, and how best to evaluate impacts to the wetlands on the north end of the lake. At the meeting, we will briefly present the need for the project and its potential impacts.

Modeling of 500-year Atlas 14 district-wide (climate change scenario): flood map generation for future outreach efforts (Barr project manager: Erin Anderson Wenz; RWMWD project manager: Tina Carstens)

The purpose of this project is to use measured water-surface elevations to verify and fine-tune water surface elevations calculated by the RWMWD stormwater model. Following validation, the model will be used to simulate larger rainfall events, including the 500-year rainfall depth. The confidence limit (or uncertainty) associated with the 500-year flood elevation will be used to develop inundation maps that will allow for evaluation of how future climate change may affect flood inundation areas within the RWMWD and will be used for discussion with stakeholders when evaluating future flood-risk reduction projects within the RWMWD.

In the near future, the RWMWD's model will be used to simulate rainfall events with different recurrence intervals now that the model has been updated with information provided by the DNR to update the FEMA floodplain maps. Updates to the models are anticipated to be complete in February 2019, and simulation of design rainfall events could begin in March. This effort will help us better understand how lesser storms, other than the 100-year and 500-year events, affect (or do not affect) low-lying structures in order to help prioritize projects in areas that flood during more frequent events.

Water-quality/project monitoring

Auto Lake monitoring systems (Barr project manager: Chris Bonick; RWMWD project manager: Eric Korte)

The purpose of this project is to install an automated system to monitor lake levels throughout the RWMWD and allow real-time transfer of data to the RWMWD's website for public consumption.

Barr has purchased and received the monitoring equipment for the Phalen, Wabasso, and Owasso station. We have assembled the equipment, and programming and bench testing are in progress. The metal cabinets for housing this equipment have also been purchased, and delivered to the RWMWD's office.

Barr's survey crew has completed level loops for all the lake-level monitoring stations and set up elevation benchmarks. These benchmarks will be used to program the monitoring equipment with accurate lake elevations.

Ramsey County Parks is still considering the proposed monitoring stations on Grass and Snail lakes. We anticipate that these stations and their locations will be approved for installation on county property. However, the approvals are not expected until spring 2019. These monitoring stations will be used in conjunction with the emergency response plans to help guide plan implementation to protect homes.

Capital improvements

Wakefield Park/Frost Avenue stormwater project (Barr project managers: Michelle Kimble; 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.

The Maplewood city council has approved the entire project. This past month, Barr met with the city and its consultant to discuss project design and coordination. The Wakefield Park project will be bid as part of the Frost Avenue stormwater project. Barr will work with the city's consultant to coordinate plans and specifications. The project will be submitted on February 13, 2019, to the RWMWD for permit approval on March 6. Bid opening is expected on March 21, with contract award on April 8. Construction is anticipated to be completed by November 1, 2019.

Targeted retrofit projects (Barr project manager: Matt Kumka; RWMWD project manager: Paige Ahlborg)

The purpose of this project is to design, provide bid assistance for, and oversee construction of BMP retrofits on previously identified commercial, school, and faith-based properties throughout the RWMWD.

Designs were recently presented to the property managers at Cornerstone Montessori School, Redeemer Lutheran Church, and Boys and Girls Club of St. Paul. The design at Cornerstone Montessori

consists of a shoreline buffer, a small rain garden, and some site regrading to correct very significant erosion issues in the children's play yard. Proposed at the Boys and Girls Club is a permeable pavement system and associated rain garden designed to alleviate parking lot flooding as well as improve local water quality in this area of the RWMWD that does not have other local demonstration BMPs. Two large rain gardens that will accept street runoff have been proposed and accepted at Redeemer Lutheran Church in White Bear Lake. Design for Redeemer Lutheran and Cornerstone Montessori will continue, while the Boys and Girls Club project is on hold until more information regarding a City of Saint Paul project nearby is received.

Roseville High School campus stormwater retrofit feasibility study (Barr project manager: Leslie DellAngelo; RWMWD project manager: Paige Ahlborg)

The purpose of this project is to evaluate the feasibility of a regional stormwater infiltration or filtration project and other local stormwater infiltration projects at Roseville High School. The school is designing an addition to the southeast end of the building, so the project will also include coordination with Roseville High School and its design engineers to place stormwater BMP retrofits.

Barr has evaluated above-ground BMP design options on the west side of the campus. In early February, Barr will evaluate an additional BMP concept that may include an underground component. Cost estimates and water quality benefits will be updated and results will be summarized in a February memorandum. The memo results and recommendations will be discussed with stakeholders later this winter.

Willow Pond Spent Lime Filter (Barr project manager: Erin Anderson Wenz; RWMWD project manager: Tina Carstens)

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.

Construction is substantially complete. The only outstanding items are installation of a backflow preventer and instrumentation. This month, the RWMWD received the instrumentation, which was given to the contractor for installation. We expect installation will occur as soon as weather permits.

Aldrich Arena Site Design (Barr Project Manager: Matt Metzger; RWMWD project manager: Paige Ahlborg)

The purpose of this project is to incorporate green infrastructure stormwater management into the renovations to the Aldrich Arena campus. The parking lot will be milled and overlayed and/or full-depth reclaimed by Ramsey County, which would not trigger the need for a RWMWD permit. The partnership between RWMWD and Ramsey County will achieve treatment of the runoff from the parking lots where none currently exists.

At the December board meeting, Tina described this collaborative effort with Ramsey County Parks. The design effort recently began. Barr, on behalf of the RWMWD, is providing design of the site's stormwater management features. The team delivered concept civil site plans to the developer during

January to help establish a guaranteed maximum price for the redevelopment work (estimated to be around $3.6 million). A figure showing the proposed stormwater features will be presented at the February 6, board meeting.

The RWMWD is participating in the project by providing funding for the design and construction for stormwater management features above and beyond the permit requirements associated with the project. The RWMWD originally earmarked $500,000 in their 2019 budget for the stormwater feature work. However, through the design process, additional impervious area, and related BMP treatment opportunities were uncovered. The managers should consider this opportunity and provide the staff with guidance as to whether the design should be scaled back to fit the original contribution amount ($500,000) or the design should be scaled up to maximize the treatment potential (up to a $1 million contribution). Aldrich Arena is in the Wakefield Lake subwatershed and the lake is on the impaired waters list.

Barr is working to complete design documents by April 2019. This schedule will allow construction to begin in August 2019.

CIP project repair and maintenance

CIP maintenance/repairs 2019 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.

The RWMWD, Barr, and the contractor participated in a preconstruction meeting at the RWMWD office on January 4. Representatives from Ramsey County and the cities of Saint Paul and Oakdale were also in attendance. The contractor provided everything within the contract time requirements. Notice to proceed was issued on January 10, and work began the following day.

Work progress so far has been ahead of the contractor's schedule; four of the sites are substantially complete. Weekly progress meetings are keeping the project on track and all parties informed. Meeting minutes are available upon request if the Board is interested in the details of the weekly discussions. Payment application 1 is included in the bill list for the Board's consideration.

New technology review

Modular Wetland Systems Downspout

Innovative technology	The Modular Wetland Systems (MWS) is designed to treat stormwater runoff via biofiltration. The MWS Linear is a stormwater biofiltration system that utilizes an internal, linear series of stormwater runoff treatment methods to replicate natural wetland systems. The MWS Downspout is an adaptation of the MWS Linear with a minimal footprint. Unlike the MWS Linear, which is installed at ground level with heavy equipment and multiple units that are frequently installed in series, the MWS Downspout is installed aboveground without the need for heavy equipment and is used primarily for roof runoff.
Use	The MWS Downspout removes debris, bacteria, zinc, copper, total suspended solids, phosphorus, and nitrogen from industrial, commercial, and residential roof runoff.
Benefits of technology	▪ Urban runoff point-source pollutant reduction ▪ Stormwater volume attenuation and peak flow reduction ▪ For aboveground use with minimal installation equipment in connection to roof runoff downspouts; also able to use this model in shallow catch basins ▪ Has a relatively small footprint compared to other urban treatment options ▪ Built-in pretreatment chamber with easy maintenance access ▪ Various sizes and configurations for use in roof runoff; customized options available ▪ Piping is easily retrofitted for each site and can be configured for flow to be pumped to the MWS ▪ No projected replacement costs for the model structure; will need to replace biofiltration media occasionally, as described in the subsequent section ▪ Selection of plants available that are suitable for this system
Drawbacks	▪ Higher cost than some alternative options ▪ MWS Downspout requires WetlandMedia and BioMediaGreen, which need to be replaced every 10 to 15 or more years and every one to two years, respectively ▪ BioMediaGreen is approximately $80 for replacement every year or every other year; available from the manufacturer or from select suppliers
Case studies/ applications	▪ Applications include roof runoff for industrial, commercial, mixed, and residential uses; may also be installed in shallow catch basins ▪ No specific case studies for the MWS Downspout; however, several case studies for the MWS Linear (none found within the Midwest), from which the MWS Downspout was adapted: - Stericycle (Morton, Washington) for industrial runoff - Porter Ranch (Los Angeles, California) for home development runoff - Port of Tacoma (Tacoma, Washington) for industrial runoff - Liberty Station (San Diego, California) for hotel and mixed-use runoff - San Diego Airport (San Diego, California) for airport and parking lot runoff
Suppliers/ contacts	BioClean—Forterra Pipe and Products David Wright 6655 Wedgwood Road North Maple Grove, Minnesota 55311 612-877-1857

	david.wright@forterrabp.com
Conclusion	MWS Downspout is most for effective sites with a requirement to treat small volumes or low rates of runoff with high pollutant loads.

Technology description

The MWS is a proprietary runoff pollution mitigation unit and is available as the MWS Linear and MWS Downspout. The MWS Downspout is an adaptation of the MWS Linear using a similar design structure.

MWS Linear units are installed in line with a curb and gutter. The system utilizes a linear "treatment train" to separate, pretreat, and biologically filter runoff, as shown in figures 1 and 2. Polluted runoff enters the system via a catch basin, downspout, or curb inlet structure. Trash, sediment, and debris are separated in a pretreatment chamber; then total suspended solids and hydrocarbons are filtered from the runoff by passing through pre-filter cartridges filled with BioMediaGreen filter material, as shown in figure 3. Runoff then enters a wetland chamber, which is designed to further cleanse the runoff via slow filtration, plant root uptake, and bioremediation. Overflow is allowed to bypass the wetland chamber in times of heavy intake to reduce the likelihood of scouring or flooding. The MWS Linear units may also be installed in a series of units for additional treatment.

Figure 1: MWS Linear

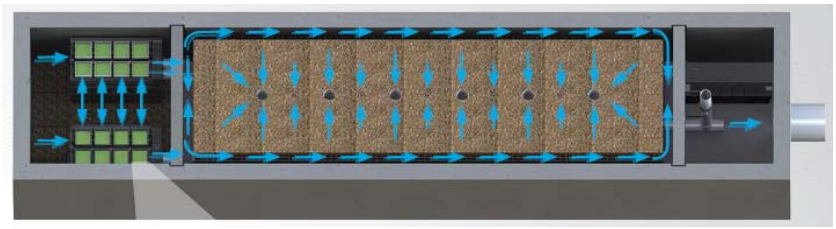


Figure 2: MWS Linear (plan view)

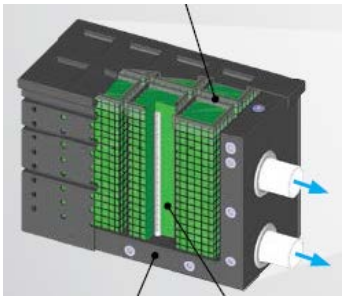


Figure 3: MWS Linear (pretreatment chamber)

The MWS Downspout is adapted from the MWS Linear and therefore uses the same technology and general structure of the MWS Linear. However, it is installed as one unit aboveground and is connected to roof runoff from downspouts. Unlike the MWS Linear, the MWS Downspout does not require heavy equipment to install and is lighter weight. The MWS Downspout allows for simple maintenance access, easy trash and debris removal, a small footprint, and a high flow bypass.

Figure 4 shows the general structure and components of the MWS Downspout, though it can be customized. Figure 5 shows the biofiltration process.

1. Runoff flows onto and through the debris collection tray for easy trash and debris removal
2. Runoff flows into the sediment storage chamber where TSS is captured
3. Runoff flows horizontally through the BioMediaGrenn biofiltration media and then the WetlandMedia (where the vegetation is planted)
4. Runoff exits the MWS Downspout unit.

The high flow bypass is located on the downstream end of the debris collection tray, as shown in the cross-sectional drawing in figure 6. Figure 6 also shows the specific location of the BioMediaGreen filter cartridges.

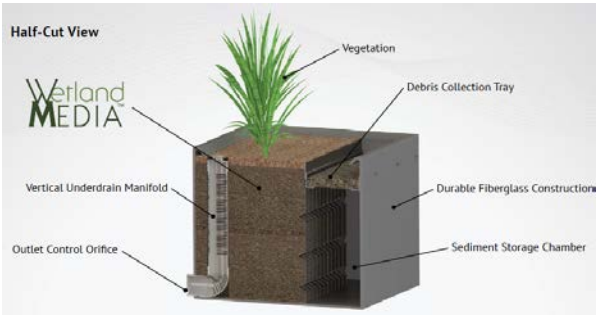


Figure 4: MWS Downspout

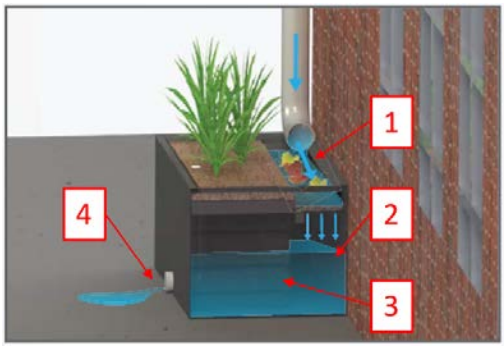


Figure 5: MWS Downspout process

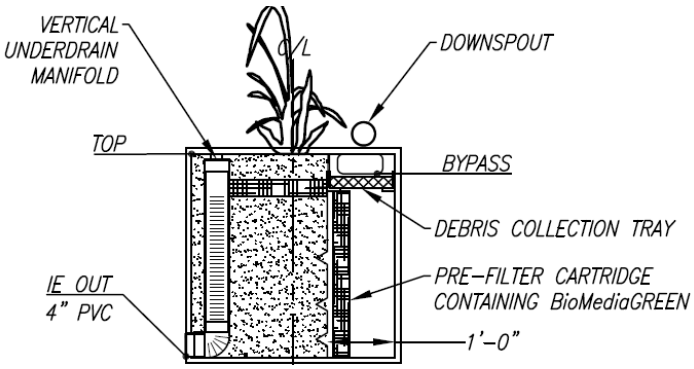


Figure 6: MWS Downspout (cross section)

Design

The MWS Downspout can be designed for site-specific applications based on flow-based sizing or volume-based sizing. Using flow-based sizing, the MWS Linear can be implemented for flow rates ranging from 0.027 to 0.120 cubic feet per second (cfs), as shown in table 1. It can also be custom-sized for footprint and, potentially, flows larger than 0.120 cfs. The MWS Linear is most effective where high concentrations of heavy metals, pathogens, or hydrocarbons are expected. The systems are typically installed and connected to the roof runoff downspout. After flowing through the MWS Downspout or through its bypass during high flow events, the water will exit via the outlet control orifice and onto the ground surface.

MODEL #	MODEL HEIGHT (ft.)	TREATMENT FLOW RATE (cfs)
FG-MWS-L-3-5	2.0	0.027
	3.0	0.044
FG-MWS-L-6-6	2.5	0.080
	3.5	0.120

Table 1: flow-based sizing table

Effectiveness

The MWS Downspout system has been reviewed and approved by the State of Washington Department of Ecology, California Water Control Board, Virginia Department of Environmental Quality, Maryland Department of the Environment, and University of Massachusetts at Amherst Water Resources Center, as well as others. As shown in table 2, the manufacturer provides the following treatment efficiencies for the MWS Downspout.

86% REMOVAL OF DISSOLVED ZINC	65% REMOVAL OF DISSOLVED COPPER	85% REMOVAL OF TSS
64% REMOVAL OF TOTAL PHOSPHORUS	45% REMOVAL OF TOTAL KJELDAHL NITROGEN	• PROVEN IN THE FIELD TO REDUCE POLLUTANT CONCENTRATIONS BELOW INDUSTRIAL BENCHMARKS

Table 2: published removal efficiencies

Cost

The cost for the MWS Downspout unit varies based on the size and model. Installation can be completed by client staff in minimal time, as detailed below. Maintenance, also detailed below, requires quarterly inspections and occasional debris removal. If necessary, staff are able to easily maintain and troubleshoot the MWS Downspout.

Installation and maintenance

The MWS Downspout is delivered fully assembled and requires no heavy machinery to be installed. The manufacturer states on its website that the MWS Downspout can be installed in less than 15 minutes by using the following procedure: 1) move the MWS Downspout to the appropriate location to sit below the roof runoff downspout, and 2) plant the desired vegetation. Recommended vegetation options are detailed on the manufacturer's website. Figure 7 shows one setup option. As a second option, the MWS Downspout and the building downspout could also be rotated 90 degrees to sit flat against the building, as shown previously in figure 5.

Figure 7: MWS Downspout installation

Maintenance of the MWS Downspout requires inspection of the model and occasional replacement of filter media. Maintenance steps include:

- Trim and maintain vegetation as needed (approximately 15 minutes, as suggested by manufacturer)
- Clean debris collection tray quarterly or after major storms (approximately five minutes)
- Clean separation sediment chamber once a year (approximately 30 minutes)
- Evaluate and replace primary filter media (BioMediaGreen blocks) every one to two years (approximately 60 minutes)
- Evaluate condition of wetland media; replace every 10 to 20 years (approximately four hours)
- Replace drain down filter media (BioMediaGreen blocks) once a year (approximately five minutes)

If the MWS Downspout is installed in an area in which the screening media, sediment, and wetland media may be loaded with a high percentage of oils, heavy metals, or pathogens, the spent screening media may be classified as a hazardous material according to the Pollution Control Agency. A certified handler of hazardous waste would be required to perform maintenance, and all waste would need to be

disposed of according to local hazardous-waste management procedures. No contained-spaces training would be needed for maintenance.

The manufacturer provides an example inspection report for generic MWS models (figure 8) and an example cleaning and maintenance report (figure 9). Both forms can be tailored for the MWS Downspout model.

Conclusion

The MWS Downspout is well suited for applications with high pollutant loading and low flow rates and treatment volumes. The MWS Downspout is primarily used for roof runoff; however, it may also be installed in shallow catch basins. In addition to providing runoff treatment, the MWS Downspout can add aesthetic value to an industrial, commercial, or residential property. The MWS Downspout is a specialty product which may not be cost effective where roof runoff is already treated further downstream with an alternative biofiltration method. In situations where point-source pollutants are identified, this technology can provide effective roof runoff treatment, but does little to store, retain, or infiltrate other sources of large volumes of stormwater. There is also limited understanding as to its effectiveness in cold climates and susceptibility to damage from freezing or thawing.

Natural Resources Update – Bill Bartodziej and Simba Blood

Vadnais-Snail Lakes Regional Park – Restoration in Progress

Buckthorn Control

The company awarded the buckthorn control contract, Cardno Inc., started work in mid-January. Most of the clearing effort is now focused on the northern part of the park. The crews are well-equipped and are working at a reasonable pace. Material that was cut along the wetland buffer is being hauled off by another County contractor. Buckthorn cut in areas further upland will be stacked and then burned later in the winter. The crews were able to get a good two plus weeks of work in before the severe cold hit. This will slow progress a bit, but they should resume in full force once we bump back up to normal winter temperatures. We are keeping updates fresh on our District website: https://www.rwmwd.org/vadnais-snail-restoration/

Large quantities of buckthorn were cut along the northern walking trail of "Wetland A". This material will be hauled off site. In May, this area will be revegetated in partnership with the Ramsey County Corrections Greenhouse facility, civic groups, and local schools.

Cattail Management

One of our primary ecological restoration goals is to establish a diversity of native emergent vegetation along the perimeter of Wetland A. Introducing a wide variety of native wetland species will substantially increase habitat quality and improve the wetland's resilience to water level fluctuation. These lush stands of vegetation will also look beautiful and be of interest to park patrons.

The first step in making this happen is to reduce the cover of the invasive narrow-leaf cattail which is currently quite abundant in the wetland system. Without disturbance like fire or a large population of muskrat, narrow-leaf cattail has the ability to take over wetlands. One way to reduce the cover of cattail

is to mow it in the winter. The premise behind this management tool has to do with the dead leaves and stalks actually providing oxygen to the roots systems. You can think of the leaves and stalks as brown straws popping out of the ice (and water). If we get a bit of an increase in water level from spring snowmelt, the cut stalks are covered with water and then oxygen supply to the root tissue cannot take place. In spring, when the plant begins to grow, its oxygen demand increases substantially. If oxygen isn't available, the cattail produce ethanol by respiration. This breaks down the plant tissues. If new shoots do not reach the water surface before a considerable amount of root tissue is damaged, the cattail will die.

On January 23rd, we had the opportunity to use a remote controlled mower called the "green climber" in Wetland A (see picture below). This is a tracked tractor (no wheels) with flail mower attached on the front end. This unit is around five times lighter than a standard bobcat or farm tractor, so our margin of safety is substantially higher when using it on the ice. Staff control the unit a safe distance away from where the cutting is taking place. These green climbers are relatively new to the market. To our knowledge, this is the first time where a unit like this has been used for this type of natural resources application. Over the next few weeks, depending on weather, we will continue to cut stands of cattail in strategic locations. We will be closely monitoring the cut stands of cattail this spring to determine the effectiveness of this control strategy.

A video of the green climber in Wetland A can be found here: green climber in action

Public Involvement and Education Program – Sage Passi

Building Blocks for 2019 Partnerships: Workshops, Events and Creating Collaborations

The Finest on Earth Blue Thumb Partner Recognition event on January 24. (left) featured a workshop on Healthy Soils. Russ Henry from Giving Tree Gardens (right) was one of three presenters.

Sage Passi and five of our Master Water Stewards attended Blue Thumb's Annual Partner Recognition Event and Healthy Soils Workshop held on January 24 at the "Workshop", a dynamic public event space in Northeast Minneapolis. RWMWD was honored for being the Blue Thumb partner who recruited the most volunteers. We recruited twelve people (staff, Master Gardeners and Master Water Stewards) who each covered 4-hour shifts each at Blue Thumb's exhibit in front of the Eco Experience Building at the Minnesota State Fair this summer. Another highlight of the night was an hour preview of the upcoming workshop, "Healthy Soils" presented by Renaissance Soil founder and educator Kassie Brown, Russ Henry (Giving Tree Gardens) and Organic Bob (Bob Dahm). RWMWD will participate in a Blue Thumb train the trainer workshop on Healthy Soils in late March with these partners. We also hope to host a public workshop on this subject sometime later this spring (date TBA). Renaissance Soil, a non-profit, by engaging and inspiring people, aims to advance soil regeneration as a key tool in their work to address climate change, environmental/water pollution, biodiversity loss, and diet-related disease.

Preparing For the Mural Project at Lake Phalen at WaterFest 2109

This Eastside mural project as shown above was designed and painted by artists from GoodSpace Murals with input and participation by local youth (Urban Roots) from east St. Paul. Artist Liv Novotny drew upon Urban Roots for ideas for the design and engaged these youth in helping paint the mural this past summer.

Chris O'Brien and Sage met with Kate Clayton and Amy Kilgore from Friends of the Mississippi (FMR) and the artist, Liv Novotny on January 15. Liv was chosen to be the lead artist to help facilitate RWMWD/ FMR and St. Paul's collaborative mural project to be installed at Lake Phalen during WaterFest this spring after a call for artists was sent out by FMR in November. FMR interviewed six prospective artists who sent resumes and expressed interest in the project. Liv was chosen after the interview process was completed. Liv is a muralist, printmaker, and graphic designer from Minneapolis who currently works as a painter and mosaic artist for GoodSpace Murals, an organization that promotes community development through mural painting. Working with the community to design, teach, and paint murals is their favorite process.

Patrick Murphy from St. Paul Public Works proposed this collaborative mural project last year to coincide with WaterFest's 20th anniversary in spring 2019. He'd like to encourage education and foster engagement in storm drain adoption and non-point source stewardship at the local level. St. Paul partnered with FMR on a similar type of project last year at Como Lake.

The City of St. Paul and FMR are paying for most costs of the project including hiring the artist for developing a design using community input gathered from the public's participation in a community workshop to be held on February 21 at First Covenant Church on the east side of St. Paul. This event is planned to engage the public in offering design ideas and themes and encourage participation in the actual implementation of the mural project at WaterFest. Design ideas will also be collected from several schools that RWMWD works with and from the East Side Boys and Girls Club. On Tuesday, February 5, Sage and Liv will conduct a workshop for Urban Roots youth to solicit their input and ideas for the mural project. The cost for the artist's role in this Urban Roots event will be covered by RWMWD.

Phalen Freeze Fest on February 23

Details for this event at https://www.facebook.com/events/2047964451989496/

ROTC Involvement

Sage and Chris began attending meetings with other Phalen Freeze Fest St. Paul organization, sponsors, partners and St. Paul Parks and Recreation staff in December to prepare for this event coming up on Saturday, February 23 at Lake Phalen from 1-4 PM. This will be the fifth year of this collaboration. Sage approached Junior ROTC leaders again to solicit and secure the involvement of 35 JR ROTC volunteers from Harding High School, Johnson High School and Washington Tech who will help with this event this year. We are excited to continue this partnership with these local school-based youth leaders who also help us each year with WaterFest. These volunteers do a fantastic job at both events each year!

Indigenous Involvement

Sage has been working together with David Woods from Urban Roots over the past month to seek out and involve local indigenous representation in this winter event. Urban Roots has been instrumental in creating and performing the pageant, Shingebis based on an Ojibwe legend for the past four years. Sage and the Watershed have been supporting their performance efforts each year. This year we felt that we needed to strengthen the event by seeking out more indigenous involvement in the performance and find additional program participants. Unfortunately, there is another local event scheduled on that same day as Phalen Freeze Fest that many of the local indigenous groups will be a participating in, but we have made connections to include them in our WaterFest event.

RWMWD Tent and Salt Display

In the meantime, we are planning to have our salt exhibit at Phalen Freeze Fest and will be setting up a tent on the ice which should give us more visibility at the event. Watch for us there!

We are also participating in another winter event on White Bear Lake - The Bearly Open event. We will be bringing our Salt Exhibit to that event this Saturday, February 2, in collaboration with Rice Creek Watershed District and Vadnais Lake Area Watershed Management Organization.

Communications Update – Chris O'Brien

WaterFest planning

Believe it or not, planning is already well underway for WaterFest 2019. District staff are working closely with Maddy Bohn, our new coordinator for the event, on a variety of tasks. These include updating sponsorship agreements, recruiting exhibitors and volunteers, and exploring ideas to make this 20th annual WaterFest especially memorable.

On January 15, we held a brainstorming session with a dozen key WaterFest volunteers, including several Master Water Stewards and Citizen Advisory Committee members. Lots of a good ideas came out of that meeting, such as:

- Bring in food cart vendors (ice cream, hot dogs, etc.) that can set up along park paths
- Invite one or more indigenous performance troupes
- Explore feasibility of a WaterFest mobile app
- Develop display of historical Lake Phalen photos
- Potentially set up a large tent to help serve as a rain contingency, and to shelter the mural painting (more on that below)

Lake Phalen mural workshop

We are co-hosting a community workshop with Friends of the Mississippi River on **February 21, 6:30 PM, at First Covenant Church in St. Paul** to gather input for a water-themed mural at Lake Phalen.

Local artist Liv Novotny will lead this interactive session aimed at generating creative ideas for the mural, which will be installed during WaterFest on June 1st. Here's an example of a mural Liv worked on for Permaculture Action Day in the Phillips neighborhood of Minneapolis:

Lillie News is planning to run a story on the mural and workshop, and we'll also be reaching out directly to schoolteachers, the Citizen Advisory Committee and Master Water Stewards to invite participation.

Ames Lake sculpture

Following grant approval at last month's District board meeting, we are working with organizers of the Ames Lake Community Sculpture project to recruit artists and gather community input on the design.

We are finalizing communications and will send out information through our website blog, email and social media this coming month.

The goal is to design a new sculpture for Ames Lake while educating the local community about wetland conservation.

Cleveland Middle School students helped mold the original Ames Lake blue heron sculpture in 2000.

Polar Vortex climate change post

With temperatures hitting 27 below zero the morning of January 30, we posted a CBS news link on our Facebook page explaining how extreme cold snaps like this one may become more common as polar ice melts and destabilizes the jet stream.

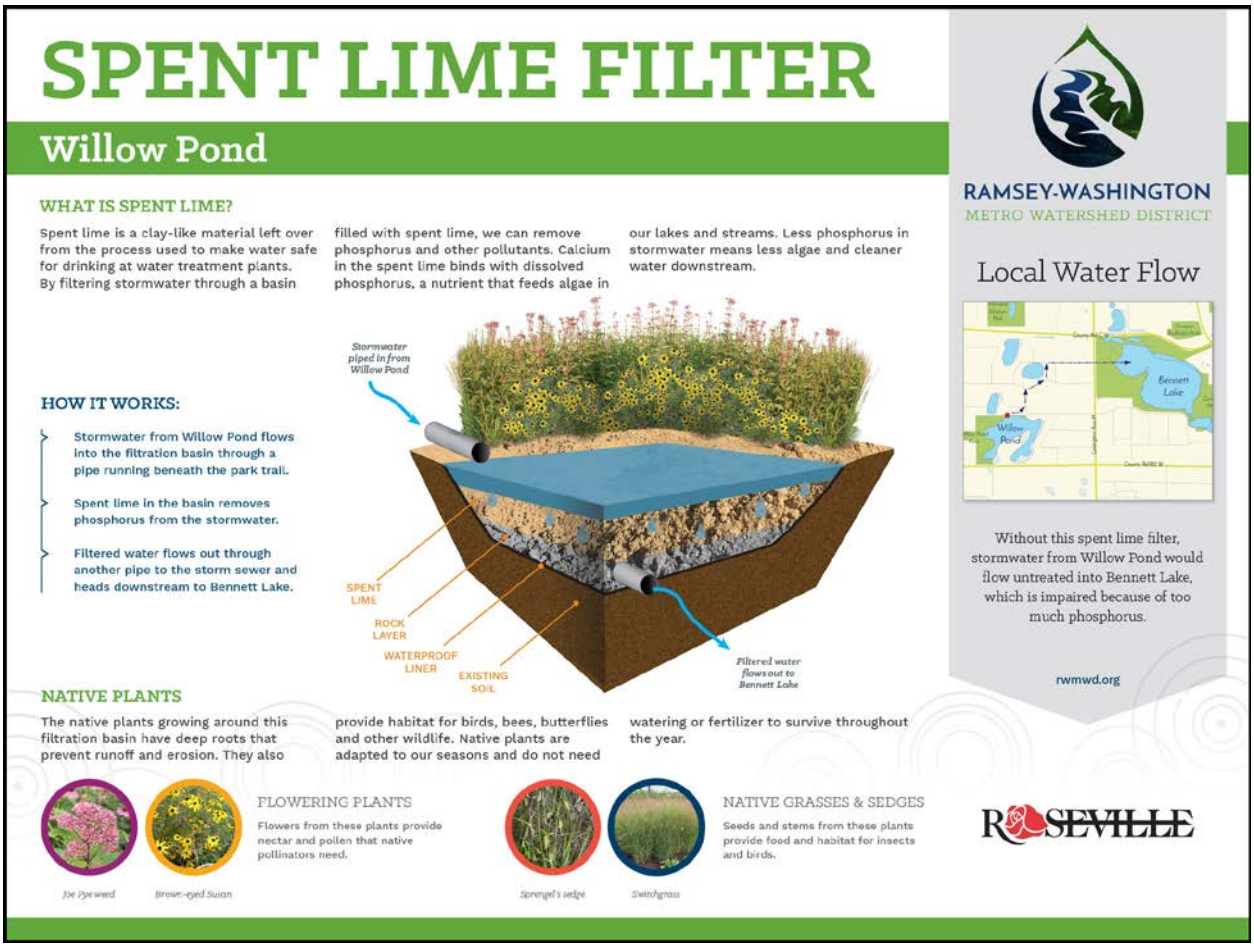
This was also an opportunity to point out that while extreme cold snaps can be a good thing (by killing emerald ash borer larvae, for example), the long-term warming trends in Minnesota tend to favor invasive species.

The post generated a lot of interest and had been viewed by over 2,000 people by noon.

New interpretive signs for spring

We approved final designs for several new interpretive signs to be installed this spring. The rain garden signs are updated versions of a sign currently on display at many of our targeted retrofit locations, and the Willow Pond sign is our first interpretation of a spent lime filter. New signs include:

- House of Prayer Lutheran Church rain garden
- New Horizon Academy rain garden
- Maplewood City Hall rain garden
- Willow Pond spent lime filter (see below)



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Informational Items

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We are pleased to announce the research projects selected for funding by the Minnesota Stormwater Research Council and the Water Resources Center (WRC). 2019 begins with an investment in new research to answer questions to improve the efficiency and effectiveness and alleviate challenges in urban stormwater management. The WRC in collaboration with the council supported nine projects for work in 2019-2020. These projects will generate much needed information that will improve stormwater management practices, policies, and planning for Minnesota communities, policy leaders, and professionals across the state.

Stormwater research projects funded and underway include:

- Biofiltration media optimization
- Detecting phosphorus release from stormwater ponds to guide management and design
- Developing a street sweeping credit for stormwater phosphorus source reduction
- Draft stormwater geospatial data standard: pilot and proof-of-concept
- Effectiveness of sump manholes for pretreatment particulate removal
- Identifying sources of contaminants in urban stormwater and evaluation of their removal efficacy across a continuum of urban best management practices
- Inspiring community action for stormwater management
- Pond treatment with spent lime to control phosphorus release from sediments
- Temporal dynamics of pathogens and antibiotic resistance in raw and treated stormwater
- Determining which iron minerals in iron-enhanced sand filters remove phosphorus from stormwater runoff

The end of 2018 also saw the completion of these exciting research projects:

- Capture of gross solids and sediment by pretreatment practices for bioretention
- Phosphorus release from stormwater ponds
- Polycyclic aromatic hydrocarbons in stormwater pond sediments throughout Minnesota
- Stormwater research roadmap for Minnesota

More information on each of these is or will shortly be available on the Water Resources Center website

It is also worth noting that these projects are being completed by a large diversity of researchers and experts including engineers in private enterprise, researchers from multiple academic institutions including the University of Minnesota and St. Cloud State, city professionals and state agency representatives.

Support for these projects comes from the Clean Water Fund established by Minnesota Clean Water Land and Legacy Amendment and from the Minnesota Stormwater Research Council with financial contributions from:

- *Capital Region Watershed District*
- *Comfort Lake-Forest Lake Watershed District*
- *Mississippi Watershed Management Organization*
- *Nine Mile Creek Watershed District*
- *Ramsey-Washington Metro Watershed District*
- *South Washington Watershed District*
- *Valley Branch Watershed District*
- *City of Edina*
- *City of Minnetonka*
- *City of Woodbury*
- *Wenck Associates*

The pooled funds from these organizations are crucial to leverage Legacy funds and other sources. We extend our gratitude to these watersheds, cities, and businesses and we encourage all council and board members to extend their thanks as well. It will be important that you continue to be engaged and express your support for the investment of resources to continue this great work.

We anticipate distribution of project summaries and other promotional materials soon and we encourage you to share this information with local leaders, policy makers, and other professionals.

For more information about WRC stormwater efforts and the council, visit the Water Resources Center website

Sincerely and with much appreciation,
John Bilotta and Jeff Peterson

CLEAN WATER LAND & LEGACY AMENDMENT

Water Resources Center
UNIVERSITY OF MINNESOTA
Driven to Discover℠

The Water Resources Center is a unit of the University of Minnesota College of Food, Agricultural and Natural Resources Sciences and University of Minnesota Extension.

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