Riley-Purgatory-Bluff Creek Watershed District

Board of Managers Regular Meeting
Wednesday, **August 8, 2018**
7:00 pm Public Hearing and Regular Board Meeting
DISTRICT OFFICE
18681 Lake Drive East
Chanhassen

Tentative Agenda

1. **Call to Order**

2. **7:00 pm Approval of the Agenda** (Additions/Corrections/Deletion) **Action**

3. **Public Hearing: Alum Applications for Lotus and Rice Marsh Lake** **Information**

4. **Matters of general public interest** **Information**

   Welcome to the Board Meeting. Anyone may address the Board on any matter of interest in the watershed. Speakers will be acknowledged by the President; please come to the podium, state your name and address for the record. Please limit your comments to no more than three minutes. Additional comments may be submitted in writing. Generally, the Board of Managers will not take official action on items discussed at this time, but may refer the matter to staff for a future report or direct that the matter be scheduled on a future agenda.

5. **Reading and approval of minutes** **Action**
   Board of Manager Meeting, July 11, 2018

6. **Consent Agenda**
   (The consent agenda is considered as one item of business. It consists of routine administrative items or items not requiring discussion. Any manager may remove an item from the consent agenda for action.)
   a. Accept June Staff Report
   b. Accept June Engineer's Report (with attached Inspection Report)
   c. Approve 2nd permit review timeline extension for 2018-028: Oak Point Elementary Park Lot
   d. Approval to the Liability Coverage - Waiver Form with the League of Minnesota Cities
   e. Approve staff/CAC recommendations for residential cost-share application Ross
   f. Approve Staff recommendation for residential cost-share application Jay.

7. Citizen Advisory Committee **Information**

8. Action Items **Action**
    a. Accept June Treasurer's Report
    b. Approve Paying of the Bills
    c. Adopt Resolution 2018-005 Rice Marsh Lake Alum Ordering
    d. Adopt Resolution 2018-006 Lotus Lake Alum Ordering
    e. Adopt Resolution 2018-007 Adopting Amendments to Rules
    f. Approve permit 2018-039 Emerson Site Improvements with staff recommendations.
    g. Approve Permit 2018-043: Control Concepts with engineer's recommendation
    h. Cost-Share Application: Prairie 5th - Water Conservation
    i. Cost-Share Application: Eden Prairie School - Eden Lake - Porous Asphalt

9. Discussion Items **Information**
    a. Upcoming September Board Meeting:
        i. Governance Workshop
        ii. Budget Public Hearing
        iii. 4M Membership
        iv. Cooperative Agreements with City of Chanhassen and Eden Prairie (Bluff Creek Tributary, Lower Riley Creek)

10. Upcoming Events **Information**

- Citizen Advisory Committee monthly meeting, August 20, 6:00 pm, 18681 Lake Drive East, Chanhassen.
- Budget Workshop, August 27, 5:30pm, 18681 Lake Drive East, Chanhassen.
- Governance Board Workshop, Public Hearing and Regular Board Meeting, September 5, 5:30 pm, 18681 Lake Drive East, Chanhassen
- Citizen Advisory Committee monthly meeting, September 17, 6:00 pm, 18681 Lake Drive East, Chanhassen.

Technical Memo

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To: Claire Bleser, Riley Purgatory Bluff Creek Watershed District

From: Brian Beck, Wenck Associates, Inc.
Joe Bischoff, Wenck Associates, Inc.

Date: June 28, 2018

Subject: REVISED Lotus Lake Aluminum Sulfate Dosing Analysis

Lotus Lake is a eutrophic, deep lake, located at the headwaters of Purgatory Creek in Chanhassen, MN. In 2007, the Minnesota Pollution Control Agency (MPCA) listed Lotus Lake as impaired for excess nutrients. Lotus Lake is considered dimictic, which means it stratifies during the warm summer period, which causes anoxia throughout the growing season. The most recent Use Attainability Assessment (UAA) for Lotus Lake estimated that internal phosphorus loading accounts for 68% (732 lbs/yr) of the total annual phosphorus budget (Barr 2017; Figure 1). Thus, the primary goal of this technical memorandum is to develop a cost estimate for an aluminum sulfate (alum) treatment on Lotus Lake to reduce internal phosphorus loading.

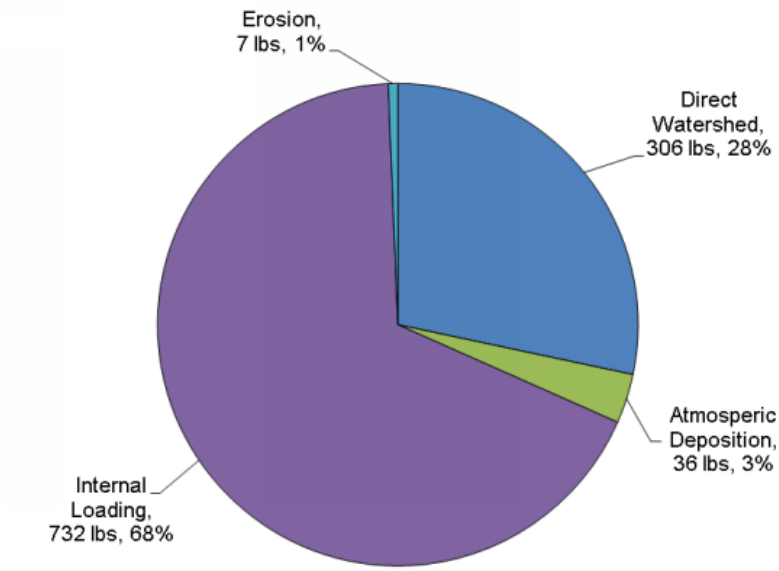

Figure 1. Lotus Lake phosphorus budget from Lotus Lake UAA (Barr 2017)

To evaluate internal phosphorus release and sediment chemistry, a gravity sediment coring device (Aquatic Research Instruments, Hope ID) equipped with an acrylic core liner (6.5-cm ID and 50-cm length) was used to collect sediment in October, 2017 (Figure 2). Anoxic phosphorus release rates were measured in the deep arms of Lotus Lake (Stations 50 and 30; Figure 2) and oxic release rates were measured in shallow central region of Lotus Lake (Station 20; Figure 2). Additional sediment cores were sectioned vertically at 1-cm intervals over the upper 6-cm layer, 2-cm from 6-10 cm and 2.5-cm intervals below 10 cm to evaluate variations in sediment physical-textural and chemical characteristics (Figure 2).

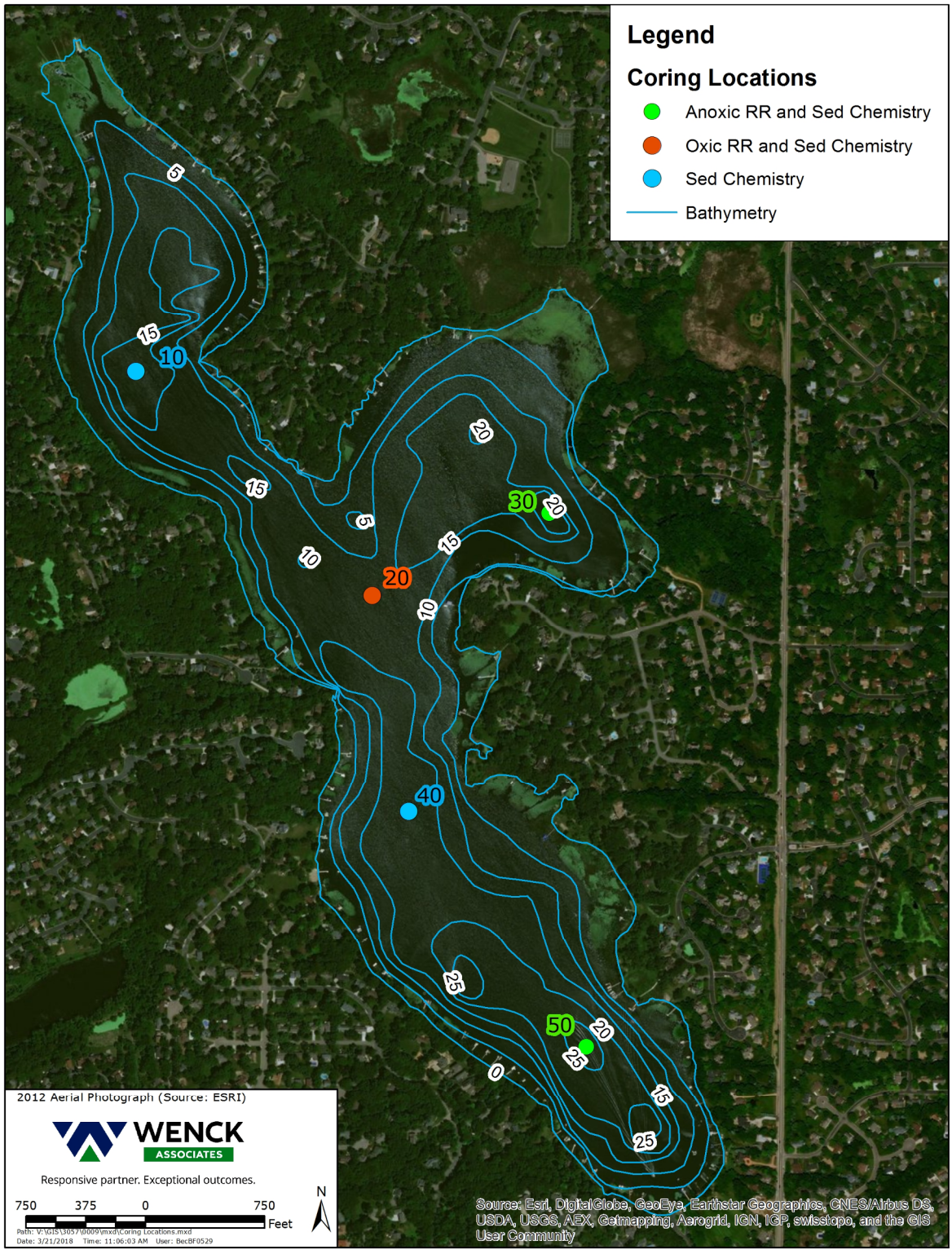

Figure 2. Lotus Lake sediment coring locations.

Water Column Phosphorus Processes

Water column process often dictate how a lake processes phosphorus from internal and external sources. Lake stratification and mixing are the primary process that govern how a lake process phosphorus from sediment phosphorus release. Lotus Lake stratifies during the warm growing season, which results in low dissolved oxygen in the hypolimnion (Figure 3). The hypolimnetic depth changes throughout the year but reaches a maximum in late June and persists until early September (Figure 3).

Low dissolved oxygen concentrations in the hypolimnion cause phosphorus release from sediments. The release of phosphorus from sediments results in hypolimnetic phosphorus build up throughout the summer (Figure 4a). Lotus Lake typically mixes in late summer (Figure 3), which results in hypolimnetic water enriched with phosphorus to mix with surface water. These mixing events lead to late season algal blooms, which are a signature of lakes with high internal loading issues (Figure 4b).

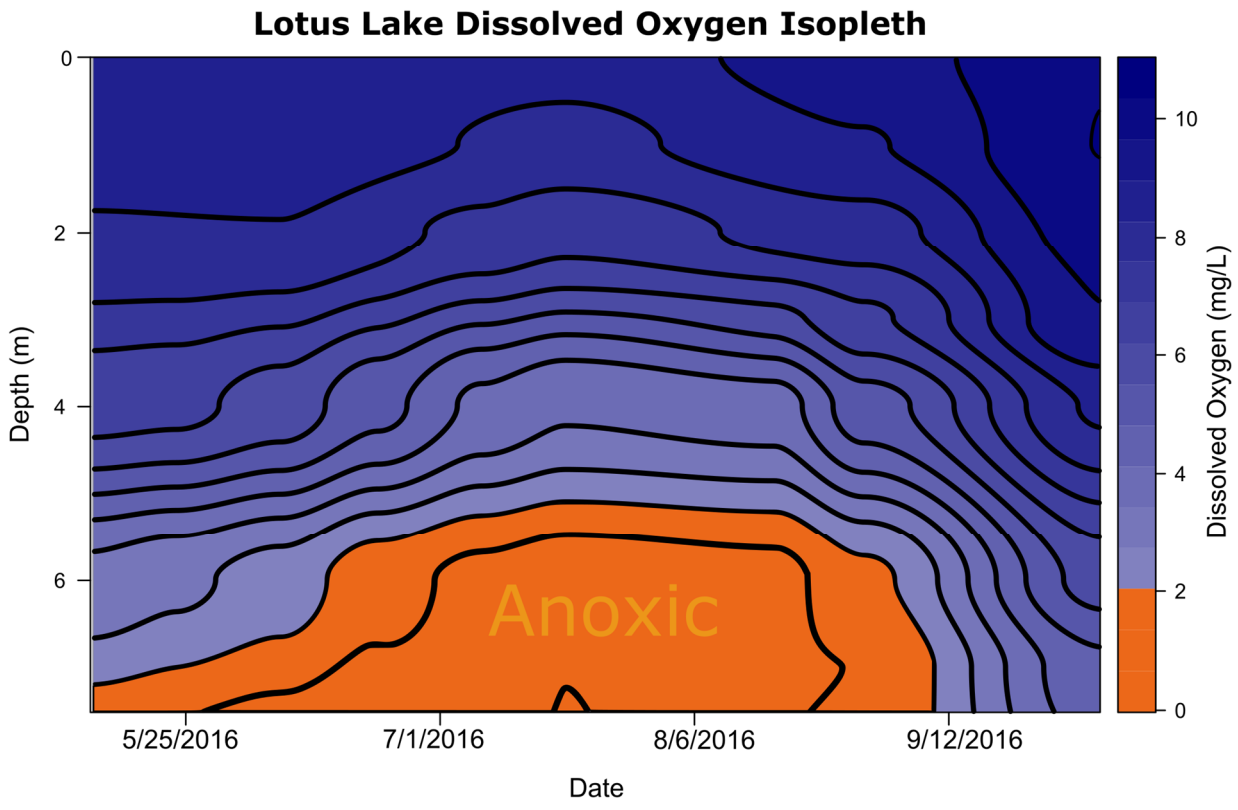

Figure 3. Isopleth depiction of Lotus Lake dissolved oxygen concentrations in 2016

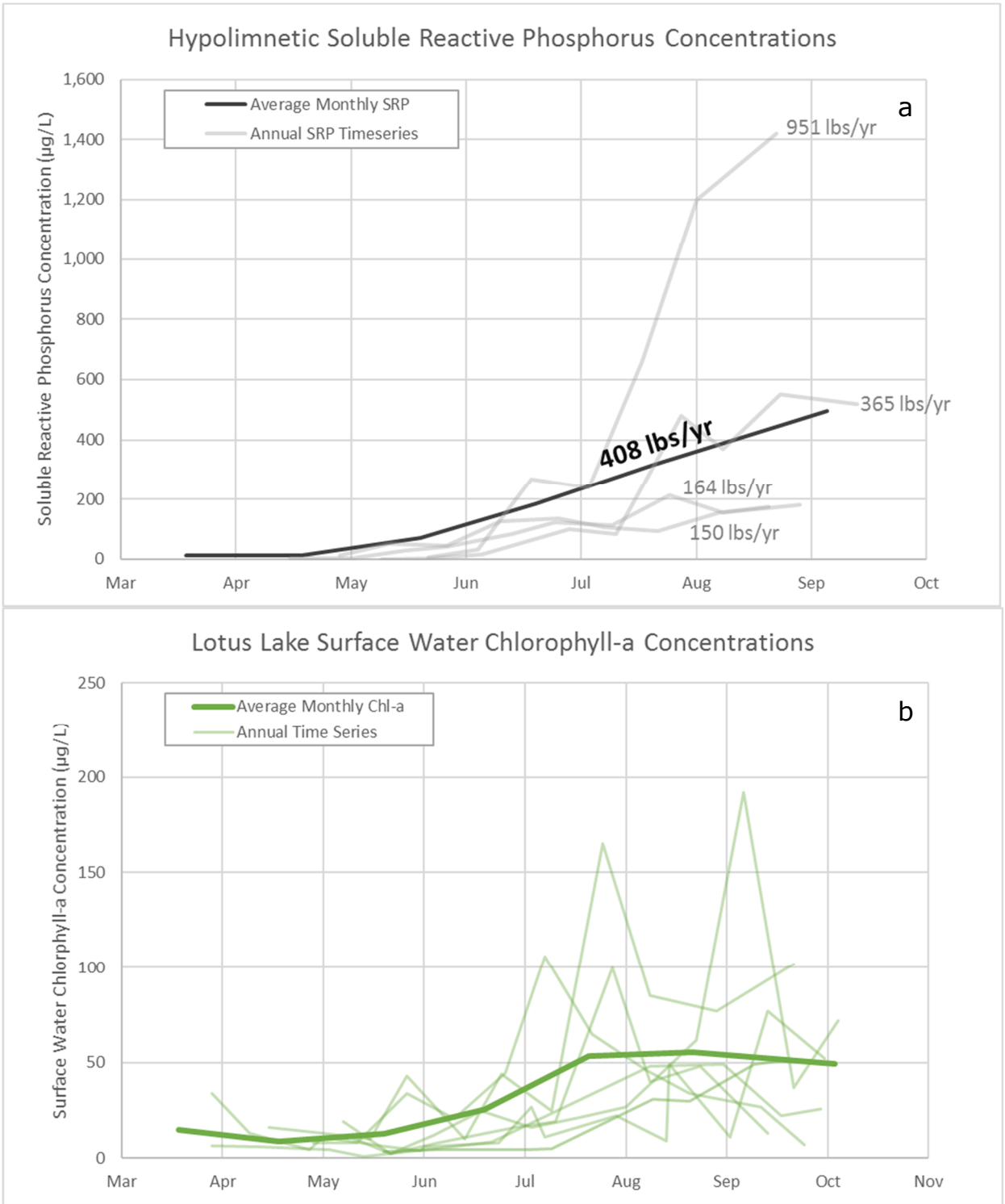

Figure 4. Lotus Lake hypolimnetic soluble reactive phosphorus (a) and chlorophyll-a (b) recent time series. Light gray numbers located on the soluble reactive phosphorus chart represent annual internal loading from deep regions of the lake, while the bolded black number represents the average annual loading.

Phosphorus Release Rates

The 2017 Lotus Lake UAA estimated that internal loading comprises 68% of the internal load (Barr 2017). Our phosphorus release rate measurements confirmed that sediments in Lotus Lake are releasing phosphorus at an elevated rate in both deep locations (Figure 5). Other lines of evidence such as elevated hypolimnetic phosphorus and elevated surface water total phosphorus during fall turnover provided more evidence that internal loading is occurring and impacting surface water quality. This analysis confirms that reducing internal loading would substantially reduce the total phosphorus loading to Lotus Lake.

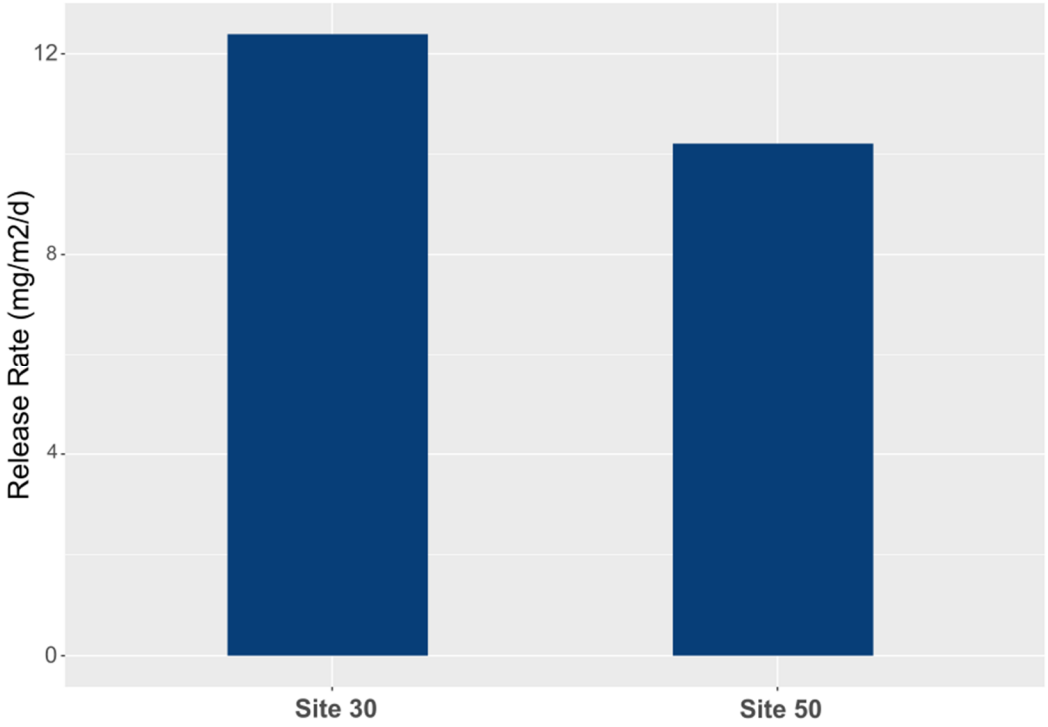

Figure 5. Anoxic phosphorus release rates at site 30 and 50 in Lotus Lake

Sediment Chemistry

Typically, iron-bound and loosely-bound P (redox-P) are the fractions of phosphorus associated with sediment P release during periods of low dissolved oxygen (<2 mg/L). Sediments with more iron-bound or redox-P typically have higher phosphorus release rates. Sediments that have high internal release rates typically have a large peak of iron-bound P near the sediment-water interface.

Results from sediment coring on Lotus indicate that sites 30 and 50 (deep sites) have redox-P peaks from 0-4 cm and 0-7 cm, respectively (Figure 6). The sites from the shallow portion of the lake (Sites 10, 20, and 40) lack a redox-P peaks, which suggests that phosphorus release at these sites are lower than the deep sites. Thus, areas deeper than 15 ft in the eastern arm and 20 ft in the southern arm of Lotus Lake would benefit most from an alum treatment since they have the largest redox-P peaks (Figure 6).

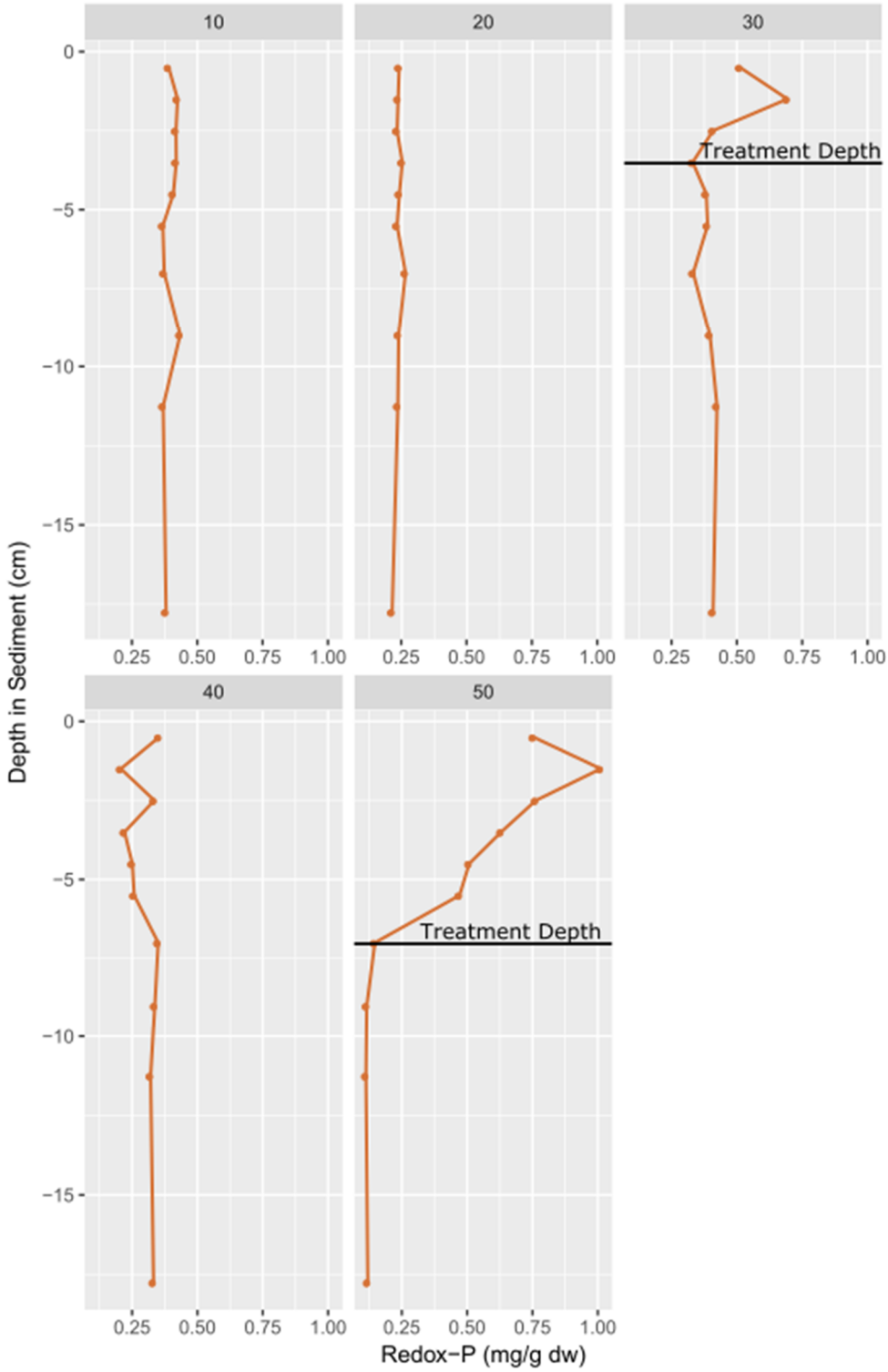

Figure 6. Lotus Lake sediment chemistry profiles for stations 10-50.

Aluminum Sulfate Dose Recommendation

Two factors are typically considered when determining the area that will be treated with alum, which include redox-P concentration and the average depth of anoxia. Dissolved oxygen data indicates that the two deep areas of Lotus Lake regularly experience low dissolved oxygen conditions. Each deep area deep area requires a unique alum dose since redox-P concentrations are different at each site (Figure 5). Furthermore, the depth of the redox-P peak is 7 cm at Site 50 and 4 cm at Site 30.

Based on this information, Wenck recommends applying 70 g Al/m^2 in Zone 1 and 222 g Al/m^2 in Zone 2 (Figure 7). Wenck recommends two half applications on Lotus Lake. This process will increase the effectiveness and longevity of the alum application by increasing the time that fresh alum is exposed to the uppermost sediment layer containing high redox-P. Routine monitoring should occur between the alum applications to track the progress of the alum application. The total cost of the recommended alum treatment is $450,000 which includes bidding, specs, application observation, and follow up monitoring (Table 1).

In addition to alum dose measurements, the maximum allowable dose was measured for Lotus Lake. This is a measurement of the maximum non-buffered alum dose possible without driving the pH below 6.0 in the water column. This measurement indicated that the maximum allowable dose during the alum application for Lotus Lake is 15 mg Al/L, which is very close to the actual prescribed dose of 15.5 mg Al/L. However, the full dose will not be applied all at once. Rather the dose will be split in half. It is unnecessary to use a buffered alum solution to apply a half dose since Lotus Lake water column is well buffered, which will ensure that pH will stay well above 6 during the alum application.

The focus of the alum application is in the deep region of the lake since these areas have the largest contribution to internal phosphorus loading. The dose Wenck outlined will reduce internal phosphorus loading in deep regions of Lotus Lake by 400-500 pounds per year; However, it is important to note that shallow regions of the lake may also contribute to internal loading, but to a smaller degree.

Wenck recommends continued surface and hypolimnetic water quality monitoring in years following the alum treatment to confirm water quality improvements in Lotus Lake. Wenck also recommends that anoxic release rates be measured at stations 20, 30, 40, and 50 after the initial alum application to assess if dosing in deep regions of the lake is sufficient to lower internal phosphorus loading. Water quality and sediment release rate data will assess if the second alum application will need to expand into shallower regions of Lotus Lake.

Table 1. Lotus Lake alum application cost estimate

Item	Unit	Quantity	Unit Cost	Total Cost
Initial Aluminum Sulfate Application	Gal AlSO4	108,055	$ 1.80	$195,000
Second Aluminum Sulfate Application	Gal AlSO4	108,055	$ 1.80	$195,000
Application observation and monitoring				$15,000
Bidding, Permitting, and Specifications				$20,000
Follow Up Monitoring				$25,000
Total Cost Estimate				**$450,000**

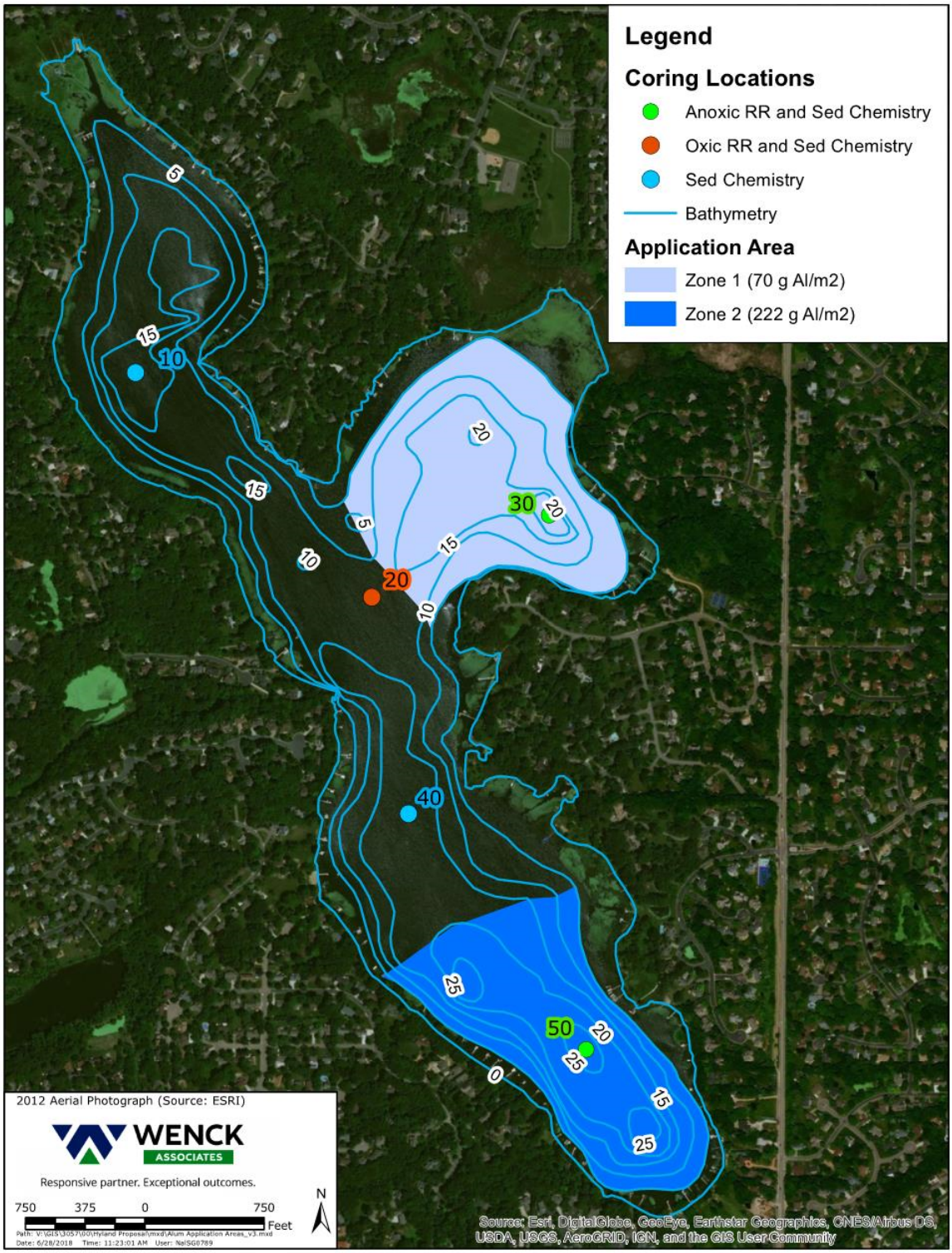

Figure 7. Alum application rates for Lotus Lake

References

Barr Engineering. 2017. Lotus, Silver, Duck, Round, Mitchell, Red Rock Use Attainability Analysis Update; Lake Idlewild and Staring Lake Use Attainability analysis; and Lower Purgatory Creek Stabilization Study. Technical Report.

Technical Memo

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To: Claire Bleser, Riley Purgatory Bluff Creek Watershed District

From: Joe Bischoff, Wenck Associates, Inc.

Date: June 29, 2018

Subject: DRAFT Updated Rice Marsh Lake Alum Dosing

INTRODUCTION

An alum dose for Rice Marsh Lake was developed in January of 2018 using traditional dosing methods (Wenck 2018; Rydin and Welch 1999; James and Bischoff 2015). However, sediment phosphorus in Rice Marsh Lake is predominantly labile organic phosphorus which is atypical for lakes recently dosed in Minnesota and Wisconsin. Since the sediment phosphorus fraction is expected to release at a slower rate than redox-P and modern dosing techniques more typically address the redox-P fraction, the dose prescribed for Rice Marsh Lake was evaluated using several approaches.

METHODS

To evaluate internal phosphorus release and sediment chemistry, a gravity sediment coring device (Aquatic Research Instruments, Hope ID) equipped with an acrylic core liner (6.5-cm ID and 50-cm length) was used to collect sediment in February, 2016 (Figure 1). Three intact sediment cores were collected from station 5 for determination of P release rates under aerobic and anaerobic conditions. Additional sediment cores were sectioned vertically at 1-cm intervals over the upper 6-cm layer, 2-cm from 6-10 cm and 2.5-cm intervals below 10 cm to evaluate variations in sediment physical-textural and chemical characteristics (Figure 1).

PHOSPHORUS RELEASE AND INTERNAL PHOSPHORUS LOADING

Previous measurements of phosphorus release rates in 1988 and 2004 were reported to be greater than 20 mg/m^2/day (Barr 2016). Wenck also measured anaerobic and aerobic release rates, which were 6.3 mg/m^2/day and 0.13 mg/m^2/day, respectively. The rates measured by Wenck are substantially lower than those previously measured, however, it is unclear if similar methodologies were used to measure release rates in each study, which makes direct comparisons difficult. According to measurements conducted by Wenck Associates, anaerobic release rates are moderately high suggesting that an internal load reduction would have a substantial impact on the nutrient budget (Table 1).

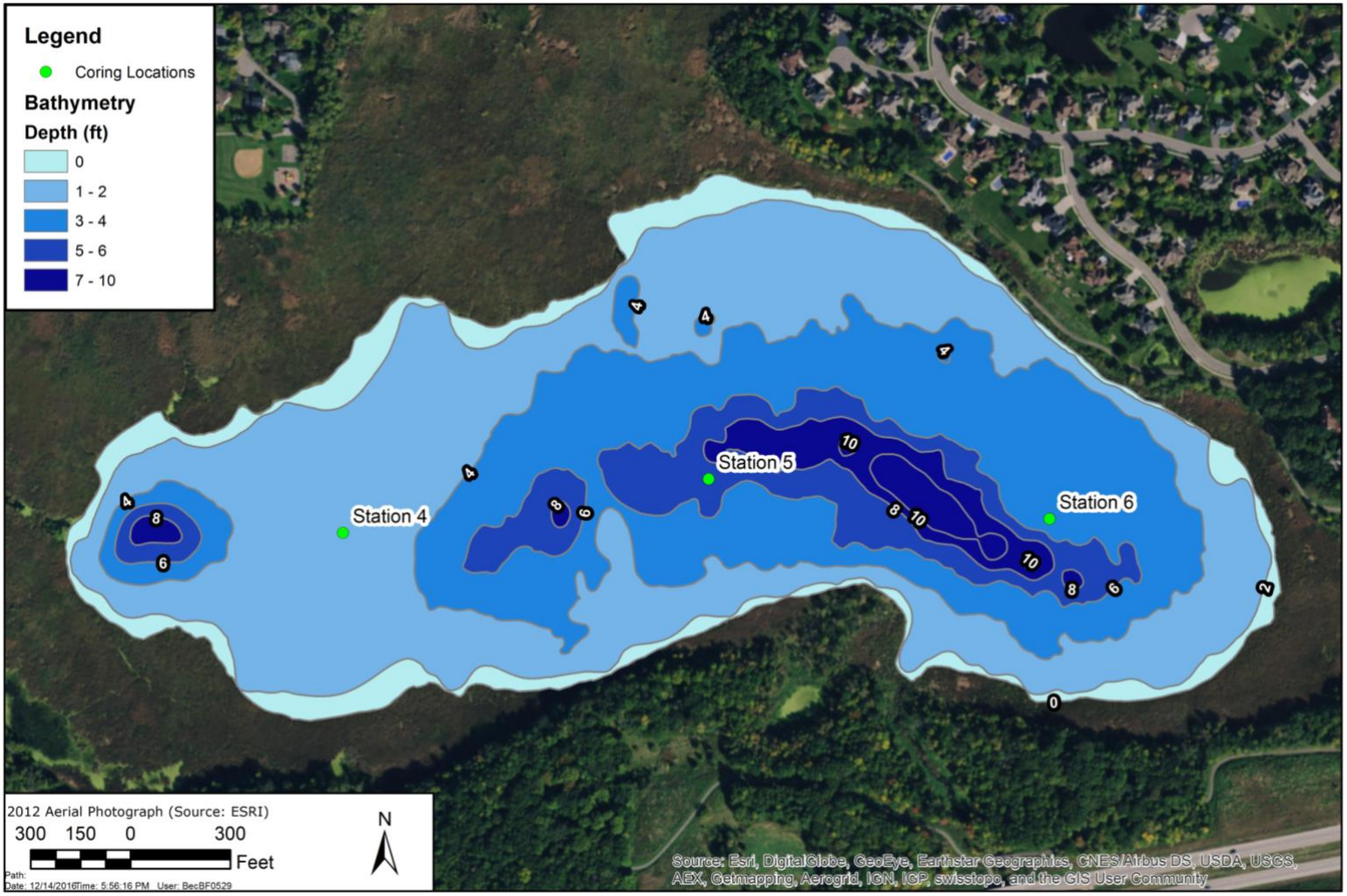


Figure 1. Sediment sampling locations on Rice Marsh Lake

Table 1. Mean phosphorus release rates under anaerobic and aerobic conditions for intact sediment cores collected at the deep spot (Station 5) in Rice Marsh Lake.

Station	Anaerobic P Release ($mg/m^2/day$)	Aerobic P Release ($mg/m^2/day$)
5	6.3	0.13

SEDIMENT CHEMISTRY

In most lakes the primary factor driving internal loading in lakes is phosphorus bound to iron (iron-bound P) and phosphorus contained in labile organic matter (labile organic P). Vertical sediment chemistry profiles were measured in Rice Marsh Lake in addition to sediment phosphorus release rates. Results indicated that the phosphorus typically associated with anoxic sediment release (redox-P, primarily as iron bound P) was unusually low for a lake that has moderately high phosphorus release rates. Rice Marsh Lake, unlike many other lakes with high internal phosphorus loading, has sediments that are dominated by labile-organic P. The accumulation of large amounts of labile organic phosphorus is likely due to macrophyte growth throughout the lake and high algal growth due to Rice Marsh Lake's hypereutrophic state.

ALUM DOSE APPROACHES FOR INTERNAL LOAD REDUCTION

Following is a description of the dosing approaches used for Rice Marsh Lake. The selected application area was maintained for all of the scenarios.

Mobile Phosphorus Approach

An alum dose of 80 g Al/m^2 was calculated as the application rate required to inactivate the top 8 cm of labile organic P in addition to the small amount of iron bound and loosely-bound phosphorus (Bio-labile P). This approach used the Rydin and Welch (1999) approach to quality the mass of phosphorus to inactivate and James and Bischoff (2015) to select the Al:P ratio. This approach relies heavily on a relationship between redox-P and the AL:P ratio. However, the majority of phosphorus in the sediments is labile phosphorus suggesting the Bischoff and James (2015) relationship may not be accurately predicting the required ratio.

Biogenic P Approach

Research out of Washington suggests that as much as two thirds of the total organic phosphorus may be labile. Their approach has been to use an Al:P ratio of around 9:1 (Gibbons, pers. comm.) on top of the selected Al:P ratio for redox-P which is typically between 10 to 100:1. This would suggest increasing our overall dose from 80 g Al/m^2 to approximately 86 g Al/m^2, only a slight increase.

Annual Released P Approach

Another approach is to attack the soluble phosphorus after it has been released into the water column. Two release rates were used for this approach: Barr Engineering's modeled annual mass internal load of 539 pounds P per year and the mass load expected using measured release rates and an anoxic factor (112 pounds P per year). Using the areal mass release over our application area, a dose between 50 and 240 g Al/m2 was calculated (Table 2). These applications are periodic applications expected to be effective for a minimum 2-3 year interval.

Table 2. Al dose estimation based on annual internal P loading and desired years of control. In this example, Al dosage is estimated for 2 years of internal P loading control. The Al:P binding ratio is from James (2017). The Al binding efficiency was set at 50% to account for Al floc aging and polymerization.

Annual internal P loading	Years of control	Areal P mass control	Al:P ratio[1]	Al binding efficiency loss due to polymerization[2]	Al dose
(g/m^2 y)	(y)	(g/m^2)		(%)	(g/m^2)
0.3465	2	0.693	36.0	50	50
1.669	2	3.338	36.0	50	240

Literature Review

Finally, a literature review of other lakes was used to provide context for the alum dose for Rice Marsh Lake. Recently dosed lakes using modern dosing techniques resulted in alum doses ranging from 94 to 145 g Al/m^2. These results suggest that an overall dose of 80 g Al/m2 is on the low end of recently completed alum treatments.

Table 3. Recent alum (as Al) dosages for various lakes.

Lake	Al Dose (g Al m^{-2})	Reference
Susan Lake[1]	160-180	Present study
Rice Marsh Lake[2]	100-125	Present study
Lake Riley	100	Present study
Bald Eagle, MN	100	(unpubl. data)
Black Hawk, MN	145	(unpubl. data)
Tiefwarensee, Germany	137	Wauer et al. (2009)
East Alaska, WI	132	Hoyman (2012)
Half Moon, WI[3]	115	James (2011)
Susser See, Germany	100	Lewandowski et al. (2003)
Green, WA	94	Dugopolski et al. (2008)

[1]Over the upper 4-cm sediment layer
[2]Over the upper 10 to 12.5 cm sediment layer
[3]West and east arm dosages were 150 and 75 g/m^2, respectively

RECOMMENDED APPROACH

Since labile organic P may be converted to aluminum bound P at a slower rate that redox-P, it may be necessary to apply the alum in a multi-step process (Table 4). The final dose needed to control internal loading is difficult to determine with the high labile P fraction but is likely somewhere between 80 and 240 g Al/m^2. A good place to start is to use the phosphorus release approach which estimated a dose of 50 g Al/m^2. It should be noted that lake alkalinity can only handle a maximum dose of 60 g Al/m2 before buffering is necessary. So, focusing on 50 g Al/m2 is a good starting point for Rice Marsh Lake. Periodic treatments with sediment monitoring will likely be needed to achieve the long-term goal in Rice Marsh Lake. Generally, any areas shallower than 4 feet cannot receive alum since the alum applicator cannot reach these areas. Therefore, areas deeper than 4 feet will receive the alum treatment and areas shallower than four feet will not (Figure 2).

Table 4. Rice Marsh Lake alum application time table.

Year	2017	2022
Annual Dose (g Al/m^2)	50	50
Cumulative Dose (g Al/m^2)	50	100

A cost estimate for the initial application of 50 g Al/m2 is provided in Table 5.

Table 5. Rice Marsh Lake alum application cost estimate.

Item	Unit	Quantity	Unit Cost	Total Cost
Initial Aluminum Sulfate Application	Gal AlSO4	33,058	$1.80	$59,504
Mobilization	--	--	Lump Sum	$10,000
Total Cost Estimate				**$69,504**

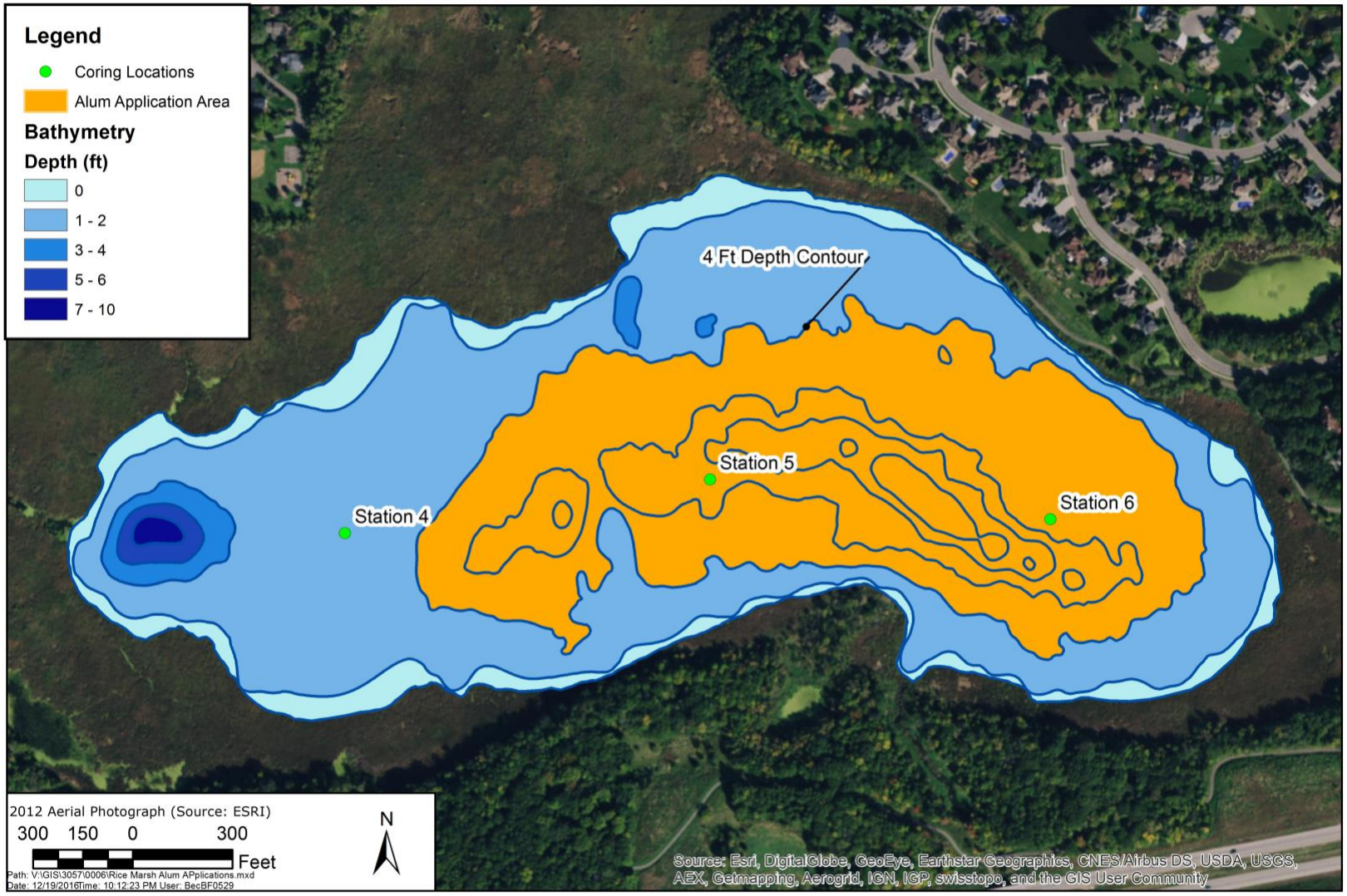


Figure 2. Alum application rates for Rice Marsh Lake. Note: the 79.6 g Al/m^2 alum dosing rate will be split up over a 4 year period.

References

Barr Engineering. 2016. *Rice Marsh Lake and Lake Riley: Use Attainability Analysis*. Technical Report

MEETING MINUTES

Riley-Purgatory-Bluff Creek Watershed District

July 11, 2018, Board of Managers Monthly Meeting and Public Hearing

PRESENT:

Managers:	Richard Chadwick, Secretary	
	Jill Crafton, Treasurer	
	Dorothy Pedersen, Vice President	
	Dick Ward	
Staff:	Claire Bleser, District Administrator	
	Terry Jeffery, Project and Permit Manager	
	Emma Nyquist, RPBCWD Intern	
	Louis Smith, Attorney (Smith Partners)	
	Scott Sobiech, Engineer (Barr Engineering Company)	
	Maya Swape, RPBCWD Staff	
Other attendees:	Greg Hawks, Chanhassen Environmental Commission	Bryan Maloney, LRIA
	David Knaeuble, Civil Sine Group	Sharon McCotter, CAC
	Larry Koch, Chanhassen Resident	David Ziegler, CAC; Eden Prairie Resident

1. Call to Order

Vice President Pedersen called to order the Wednesday, July 11, 2018, Board of Managers Meeting at 7:03 p.m. at the District Office, 18681 Lake Drive East, Chanhassen, MN 55317.

2. Approval of the Agenda

Manager Crafton announced that two escrow release checks need to be added to and approved under the Treasurer's report. Vice President Pedersen announced that agenda item 7d – approval of the 60-day review period extension for Culvers - has been removed and item 9j – Approve Permit 2018-026 Culvers with Staff Recommendations – is added. Manager Ward moved to approve the agenda as amended. Manager Crafton seconded the motion. Upon a vote, the motion carried 4-0.

3. Public Hearing: RPBCWD Draft Rules Revisions

Vice President Pedersen opened the public hearing on the RPBCWD draft rules revisions.

Mr. Terry Jeffery provided background on the 45-day comment period, which closed June 25. He noted that the City of Chaska emailed comments to the District on July 6. He reported that seven entities submitted comments, including the City of Chaska.

Mr. Jeffery talked about the comments received. He provided staff feedback about the comments. He noted that the new MS4 permit could have a significant impact on the District. Mr. Jeffery said the permit has language in it prohibiting infiltration in "D" soils and high-risk emergency response areas. He explained that staff did respond to the Minnesota Pollution Control Agency (MPCA) about the language and the significant impact it would have on the District. Mr. Jeffery said that 27% of the watershed has "D" soils and up to 40% of the watershed would be impacted by the language in the permit. He said that staff would continue working through this issue.

Mr. Jeffery said staff is looking to come back to the Board in August with draft responses to the comments received on the draft rules revisions and to ask the Board to take action to approve the responses to comments, approve revisions to the memorandum, set a date on which the rules will take effect, and adopt a resolution to adopt amendments to the District's rules.

Vice President Pedersen called for public comments on the District's draft rules revisions.

Attorney Smith said that the Board will have more opportunity to discuss in this item more detail at the next meeting. He said that the Board could offer additional comments now or if there are none, then staff will assume that the staff recommendation about the direction on each of these issues is something the Board is generally comfortable with and staff will proceed to develop more information to bring back to the Board at the next meeting.

The Board indicated that it is comfortable with the direction recommended by staff.

Upon hearing no additional comments, Vice President Pedersen closed the public hearing.

4. 4M Membership

Administrator Bleser stated that this presentation is a follow-up to the discussion last month about the 4M Fund and fund membership. She introduced Corey Boyer, Municipal Advisor with PMA Financial, which manages the fund for the League of Minnesota Cities.

Mr. Boyer explained that the 4M Fund is designed specifically for public entities and is a cash/investment management program. He said that the fund focuses on short-term investment needs for municipal entities and is very liquid. Mr. Boyer provided more specific details about the fund and talked about its history. He responded to questions.

5. Matters of General Public Interest

Mr. Larry Koch, Chanhassen resident, asked if the Scenic Heights school forest project had been inspected and completed in accordance to the agreement. He commented that he thinks it is important for the District to identify its short-term and long-term needs and its restricted funds versus unrestricted funds. Mr. Koch noted that an investment is an investment and he suggested that the Board Treasurer or a committee look at the District's fund requirements and consider the risk versus reward of investments. Mr. Koch said that the minutes from last month's meeting indicate that regarding the 4M Fund, District Counsel was planning to review the trust agreement and comment that it is compliant. Mr. Koch had questions about two of the cost-share grant applications and asked the Board and staff to ensure they are following the District's rules for its cost-share grants.

Staff responded to Mr. Koch's questions and comments.

6. Reading and Approval of Minutes

a. June 6, 2018, RPBCWD Board of Managers Monthly Meeting

Attorney Smith pointed out that he was not in attendance at the June 6th meeting and instead Legal Counsel Michael Welch attended it. Vice President Pedersen noted two spelling corrections. Manager Chadwick moved to accept the minutes as amended. Manager Crafton seconded the motion. Upon a vote, the motion carried 4-0.

7. Consent Agenda

Manager Chadwick asked to pull from the Consent Agenda item 7a – Accept June Staff Report; Vice President Pedersen moved it to Action item 9k. She read aloud the Consent Agenda: 7b – Accept June Engineer's Report (with Attached Inspection Report); 7c – Approve Payment Application #2 for Scenic Heights Elementary School Forest Restoration Project; 7d – Approve 60-Day Review Period Extension for Permit 2018-026 Culver's of Eden Prairie 7e – Approve staff/CAC Recommendations for Residential Cost-Share Applications.

Manager Ward moved to approve the Consent Agenda as amended. Manager Crafton seconded the motion. Upon a vote, the motion carried 4-0.

8. Citizen Advisory Committee (CAC)

Mr. Zielger, CAC president, reported that the CAC would like to spend up to $150 on materials for storm drain stenciling. He asked if the Board needs to approve the use of funds in the CAC budget for this expense. Administrator Bleser responded that storm drain stenciling is a District Education and Outreach budget item and can provide the funds for those costs. She noted that not all cities permit storm drain stenciling and instead use other methods to mark storm drains. Administrator Bleser said that the District will coordinate it on a city-by-city basis.

Mr. Ziegler commented that the CAC reviewed the Cost-Share grant applications. He noted that he has seen muskrats carrying off plantings from lakeshore restoration projects so he agrees that fencing around the plantings would contribute to the success of such projects.

Administrator Bleser announced that the next CAC meeting will be on Monday, July 16.

9. Action Items

a. Accept May Treasurer's Report

Treasurer Crafton communicated that the report was reviewed in accordance with the District's internal controls and procedures and everything was in order. She moved to accept the Treasurer's Report. Manager Ward seconded the motion. Upon a vote, the motion carried 4-0.

b. Approve Paying of Bills

Manager Crafton moved to pay the bill from Life Time in the amount of $16,600 and the bill from APR Properties in the amount $67,590, which comes out of the assurance. Manager Ward seconded the motion. Upon a vote, the motion carried 4-0. Manager Crafton moved to pay the remaining bills. Manager Ward seconded the motion. Upon a vote, the motion carried 4-0.

c. 4M Fund Membership

Administrator Bleser asked for direction from the Board about 4M Fund membership. There was discussion about the District's current investments. Manager Ward said that he likes the idea of the District investing its funds but would like the Board to take time to review the information and look at the interest rates. Vice President Pederesn said she would like to review the District's current investments and interest rates in order to have the information she needs to make a decision. Manager Ward suggested that staff bring the requested information to the Board and the Board discuss this item again in September. The Board agreed with this direction.

d. Approving the Shorewood Local Surface Water Management Plan

Administrator Bleser reported that she has met with City of Shorewood staff to discuss the City's draft Local Surface Water Management Plan (LSWMP). She described the clarifications and revisions made to the plan.

Manager Crafton moved to approve the Shorewood Local Surface Water Management Plan with the suggestions from staff in its draft letter to the City and to authorize staff to send the letter as drafted to the City of Shorewood. Manager Ward seconded the motion. Upon a vote, the motion carried 4-0.

e. Resolution 2018-004 to Approve the Riley Purgatory Bluff Creek Watershed District 2018 Water Resources Management Plan

Manager Ward moved to adopt Resolution 2018-004 to Approve the Riley Purgatory Bluff Creek Watershed District 2018 Water Resources Management Plan. Manager Crafton seconded the motion. Vice President Pedersen read the resolving paragraphs of Resolution 2018-004. By call of roll, the motion carried 4-0.

Manager	Aye	Nay	Absent	Abstain
Chadwick	X			
Crafton	X			
Pedersen	X			
Ward	X			

f. 2015-036 Saville West Permit Extension

Mr. Jeffery provided a brief history of this permit. He said that the permit holder still has not fulfilled the conditions of the permit approval and there are significant issues with the site at this time. Mr. Jeffery requested that instead of seeking the Board's approval of the permit extension, staff is asking the Board to approve a request for a 60-day extension of the District's review of the permit holder's request for a permit extension. Mr. Jeffery explained that an extension of the District's review would provide the permit holder time until October 2 to come into compliance with its permit as approved or to show a good faith effort to do so.

Manager Ward asked what issues are not in compliance with the permit. Mr. Jeffery responded. Attorney Smith added that the permit was approved with the condition that storm water facilities be constructed,

and they have not. Mr. Jeffery noted that the permit holder is also in arrears with their permit fee additional costs.

Manager Crafton moved to approve the District's 60-day extension of the District's review of the permit extension request. Manager Ward seconded the motion. Upon a vote, the motion carried 4-0.

Attorney Smith responded to questions about possible courses of action for the District if the permit does not come into compliance. He explained what happens in a violation hearing and following such a hearing.

g. Approve Permit 2018-005 Hampton Inn in Eden Prairie with Staff Recommendation

Mr. Jeffery commented that staff will present to the Board all permit applications until the two new RPBCWD Board members are in place and the Board decides which permits it wants presented.

Mr. Jeffery said that this permit triggers Rules C, D, and J. He explained that the buffers are not compliant with the District's rules and the applicant is requesting a variance. He pointed out the information on this permit and variance in the meeting packet. Mr. Jeffery provided detailed information about the buffers, the site, and the applicant's proposals.

Mr. Jeffery said that staff recommends approval of the variance and the permit.

Manager Chadwick moved to approve the variance request for permit 2018-005 based on the findings set forth in the staff report. Manager Crafton seconded the motion. Upon a vote, the motion carried 4-0.

Manager Chadwick moved to approve permit 2018-005 based on the findings and recommendations set forth by staff. Manager Crafton seconded the motion. Upon a vote, the motion carried 4-0.

h. Approve Permit 2018-038 Eden Prairie Senior Living -Variance Request and Permit with Staff Recommendations

Engineer Sobiech described the location of the property. He said the property owner is looking to combine three individual lots into a single lot to construct an apartment building with underground parking and an underground storm water management system.

Engineer Sobiech went through the Engineer's review of the permit application and proposed project. He said that the applicant is requesting a variance for rate control. Engineer Sobiech noted that for the abstraction the Engineer has a condition to the permit approval that the applicant collect an additional soil boring. He reported that the applicant has already undertaken the additional soil boring and it shows that there is sand material on the site.

Engineer Sobiech talked further about the variance request. He explained that the water runoff from the roof and streets will be routed to be collected in an underground chamber and then flow off site through an underground storm sewer to connect with an offsite storm sewer. Engineer Sobiech said that the reason the variance is needed in this case is because the applicant is changing where the storm water leaves the site.

There was discussion about the removal of trees for the project.

Manager Chadwick moved to approve the variance request for Permit 2018-038 based on the findings and recommendations of the District Engineer and staff. Manager Crafton seconded the motion. Upon a vote, the motion carried 4-0.

Manager Ward moved to approve Permit 2018-038 with the conditions recommended by staff. Manager

Crafton seconded the motion. Upon a vote, the motion carried 4-0.

Water Conservation Cost Share

Administrator Bleser described the cost share grant application the District has received from an Homeowner's Association. She said staff is asking guidance from the Board because this project is different from other applications received due to the project being for a smart-irrigation system. She wanted the Board to provide direction on whether this type of project falls under the District's cost-share grant program. Administrator Bleser noted that the program is open for applications for water conservation projects. Mr. Jeffery provided further details about the smart irrigation system and how it works.

There was lengthy discussion .

Administrator Bleser added that a public hearing is required for this cost share because it is a homeowners association cost share, so tonight staff is seeking guidance on whether the Board will entertain this type of cost-share application for water conservation via a smart irrigation system.

Administrator Bleser suggested that the Board ask the CAC to discuss this issue and provide feedback to the Board. The Board agreed and indicated that it feels like it would consider partially funding such a cost-share. The Board also requested that the District request the applicant provide information about other water conservation steps it would be willing to take.

Administrator Bleser said that she will present this cost-share application to the CAC for feedback at its meeting next week and at the same time she will contact the lead on the cost-share application to share the Board's feedback from tonight's discussion. Administrator Bleser stated that she will add to the District's August monthly meeting a public hearing for this cost-share grant application.

i. Permit 2018-026 Culver's with Staff Recommendations

Engineer Sobiech noted that staff handed out tonight information about this agenda item. He stated that the existing Culver's building located on Technology Drive is being torn down for the Southwest Light Rail Transit. Engineer Sobiech reported that the applicant is looking to construct a new Culver's building in the southwest corner of the Byerly's parking lot, adjacent to Prairie Center Drive.

Engineer Sobiech went through the Engineer's review of the permit application. He reported that based on the soil borings from the site there is evidence of petroleum contaminants on the site and for this reason the District Engineer recommends that the applicant does not infiltrate on the site. Engineer Sobiech talked about the permit fee for this application. He said that the applicant submitted the permit fee; however, there have been seven rounds of reviews for this application and the work has cost more than the $1,500 permit fee already collected. Engineer Sobiech said that the District includes in its permit fee schedule an allowance for recovery of excess costs of reviews. He reported that collecting for these extra review costs in the amount of $2,900 for this permit is one of the Engineer's conditions for approval.

Manager Chadwick moved to approve Permit 2018-026 Culver's with the conditions recommended by staff. Manager Crafton seconded the motion. Upon a vote, the motion carried 4-0.

j. Staff Report

Manager Chadwick had questions for staff about the Aveinda development and the District's letter to raise the point about the tension between the Wetland Conservation Act and the purpose of the watershed districts. Mr. Jeffery and Administrator Bleser responded.

Manager Crafton moved to accept the staff report. Manager Ward seconded the motion. Upon a vote, the motion carried 4-0.

10. Discussion Items

a. Workshop on 2019 Budget

Administrator Bleser said that the workshop could be held immediately prior to the August monthly Board meeting or on a separate date. The Board agreed to holding the workshop the week of August 27 and Administrator Bleser will do an email poll of the managers to select the exact date.

b. August Board Meeting

Administrator Bleser noted that on August 1 there would not be enough managers in attendance for a quorum, so the August monthly board meeting will be changed to August 8 at 7 p.m.

c. Amending the Agenda

Manager Crafton moved to add to the meeting agenda election of officers to the RPBCWD Board of Managers. Manager Chadwick seconded the motion. Upon a vote, the motion carried 4-0.

d. Election of Officers to RPBCWD Board

Manager Crafton nominated Manager Ward as President of the Board of the RPBCWD. Manager Pedersen seconded the nomination. Upon a vote, the motion carried 3-0 [Manager Ward abstained from the vote.]

11. Upcoming Events

- Citizen Advisory Committee Meeting, Monday, July 16, 6, 6:00 p.m., District Office, 18681 Lake Drive East, Chanhassen
- RPBCWD Board of Managers Public Hearing and Regular Monthly Meeting, Wednesday, August 8, 7:00 p.m., District Office, 18681 Lake Drive East, Chanhassen
- Master Water Stewards Informational Session, Tuesday, August 7, 5:30 p.m.-6:30 p.m., Smith Coffee and Café, Eden Prairie

12. Adjourn

Manager Ward moved to adjourn the meeting. Manager Crafton seconded the motion. Upon a vote, the motion carried 4-0. The meeting adjourned at 9:23 p.m.

Respectfully submitted,

Richard Chadwick, Secretary

RPBCWD Staff Report
August 8, 2018

Administrative

10-Year Plan
Timeline
November 15 – release of the plan out for comments
December 6 – 6:00pm Informational session
January 15 – end of written comment period
February 7 - response to comments to board for approval (we need 10 days in between response to comments and public hearing)
March 15 – Public Hearing
April 4 – release for 90 day
June 27 - BWSR Board Approval
July 11 - RPBCWD Adoption
August 1 - 10-year Plan released and posted - The plan is available on our website.

50th Anniversary Celebration: Come explore with us!

Winter: Lake Ann Winter Festival, Snow shoeing family event
Spring: Get out and explore, walking challenge
Summer: Celebrating our community, Lake Riley Jacques Barn
Fall: Half Century Bike Ride
December: Discover our community through your lens (Annual communication will include photos from photo contest engaging our community to capture the beauty of our natural resources). This will wrap up our 50th anniversary.

Staff has also worked on identifying bike fix stations in the District. The following partners are interested in hosting these stations: Three Rivers Parks District (Hyland Lake), Minnetonka High School, Minnetonka Middle School East. Additional locations were identified as potentials: Chanhassen High School, Round Lake Park/Eden Prairie High School, Lake Susan Park, Bluff Creek Trail Entrance (partner with LMRWD), Purgatory Creek Park (Eden Prairie), District Office, Lake Riley near trail.

Aquatic Invasive Species
The District will be host to a DNR AIS training.
Chanhassen – Tuesday August 14, 9:30am-3:30pm (capacity 35)
- Working with businesses on AIS prevention

- Supporting watercraft inspectors
- Wright County regional inspection program
- Connecting watershed/lake health to AIS prevention and management
- AIS monitoring and identification

Annual Report
No Updates

Budget
No Updates

Data Requests and Research Extension
No Updates

Grants
The MPCA grant reimbursement was submitted and has been reviewed by MPCA. The MPCA is doing final review to make sure that all documentations meet their grant requirements.

Citizens Advisory Committee

July meeting
The Citizens Advisory Committee met Monday, July 16, for their regular monthly meeting. Draft minutes are included in the board packet. The CAC reviewed residential cost-share applications and made funding recommendations. See the cost-share section for details. They also discussed the homeowner association cost share on water conservation and made recommendation to the board. The CAC was invited to a lunch and learn that the District will be hosting on September 14th with Kristin Seaman from the City of Woodbury who will be discussing the City's water conservation program. Administrator Bleser briefly discussed 2019 budget.

Technical Advisory Committee

The TAC was invited to a lunch and learn on September 14th on the City of Woodbury water conservation program.

Programs and Projects

District-Wide

Cost-share program

Residential
Two residential cost-share applications are recommended for funding by both the Citizen Advisory Committee and staff technical review. However, the Jay cost-share the CAC has recommended with conditions in the belief that the BMP is being installed in a buffer. The BMP in question is for erosion practices and does not have an aim at being a buffer. The location of

the BMP is not directly adjacent to a lake, wetland or creek. It is adjacent to woodlands that buffer the preserve. Staff recommends funding of the project with the recommendation that natives would be preferable however, it does not require the change.
Both cost shares are included in your packet. Staff is still working with one applicant whose application is still incomplete.

HOA
Staff has been working with the Prairie 5th application and has also touched base with the City of Woodbury in regards of their water conservation program. Description of the program is included in your packet and will be discussed as part of an action item.

Government
The District received an application on behalf of Eden Prairie Public School. The proposal is for the conversion of turf grass into porous asphalt. Copy of the application is included in the packet and staff would like to discuss the application with the board.

MPCA Community Resiliency Grant

Grant reporting was submitted to the MPCA for review. The District and MPCA have done a few back and forth and the District anticipates having final approval of grant reimbursement to come shortly.

Regulatory Program

Permitting
Six (6) applications were submitted to the District's online permitting system since the July 8, 2018 Board Meeting. Two of the six have not followed up with requisite submittal information. The remaining four (4) applications are in various stages of review. Two permits were approved administratively. These applications were among the eight (8) submitted last month. They are as follows.

PERMIT #	ADDRESS	PROJECT DESCRIPTION
2018-042	MN TH 5 R/W Eden Prairie	The stabilization of an EOF and vegetation management.
2018-036	6675 Horseshoe Curve, Chanhassen	Demolition of existing home and the construction of a new single-family home on existing lot of record.

Rules Update
Staff have provided responses to the comments received. These responses are found in the board packet under item 8e for review, comment, and approval by the Managers. Also included are the proposed final revisions in a strikethrough and replace format, a memorandum providing explanation for the proposed changes, a resolution adopting the rule changes, and a map of high-risk erosion areas within the District which is to be adopted as the official map.

Stormwater Research (Gulliver)

Administrator is working with legal to fine tune the agreement.

Data Collection (J. Maxwell)

Rice Marsh Aeration

No new updates. Staff will pulse the unit once a month and remove the aeration stones this summer to ensure the lines are clear.

Summer Field Season

A number of water samples were collected from the Lake Susan Spent Lime treatment system this month yielding variable results. Staff have plugged the outlet pipe to increase water contact time with the spent lime to increase pH and removal of total phosphorus. Staff conducted three lake and stream sampling events this past month. All lake level sensors were checked and were working well including the two EnviroDIY lake level units on Lake Riley and Rice Marsh Lake. Additionally, two EnviroDIY units were installed at creek locations - One on Bluff Creek at site B2 and the other on the northern tributary of Purgatory Creek on the Silver Lake Branch. These stations will address questions about water quality and quantity at both sites. Staff will be working with Limnotech within the upcoming months to learn to program the Enviro DIY units which are significantly less expensive than other products available. Staff have collected multiple water quality samples from the two automated water sampling stations in July - one at the stormwater inlet to the pond at the northwest corner of Rice Marsh Lake and one on Riley Creek in the culvert running under Powers Blvd upstream of Lake Susan. These stations are programed to trigger and take water samples when the water level rises during/after rain events. These samples will be used to analyze nutrient loading at these sites and determine whether these sites would benefit from stormwater BMPs.

Common Carp Management

Carp Removed: 1,883 - Lower Purgatory Creek Recreational Area

Staff installed the barrier trap net on May 7th and Eden Prairie staff installed the barrier on May 4th. Staff checked the net and barrier daily and have been coordinating cleaning the barrier with city of Eden Prairie staff. The barrier has been working well this year; we have not received many large rain events and have experienced limited clogging. The majority of the fish captured this year were removed via backpack electrofishing at the breached berm between Upper Purgatory Creek Recreational Area and Lower Purgatory Creek Recreational Area. Numbers of carp captured and removed dwindled as the main spawning run ended. Staff ordered 14 tags for tracking common carp this winter. Staff have begun sampling for carp in District lakes; carp monitoring will increase as we move forward into August. We again would like to recognize and thank the Shakopee Mdewakanton Sioux Community Organics Recycling Facility for allowing the District to drop off captured carp to be composted at no charge.

District staff also assisted Ninemile Creek Watershed District with fish sampling on Normandale Lake and Lake Cornelia.

Creek Restoration Action Strategy
Staff collected bank pin measurements this month for 2018 and replaced "lost" bank pins at our regular stream monitoring sites. Staff also installed pins on the southwest side of Silver Lake. Joshua Maxwell is working to submit the third revised CRAS to the Center for Watershed Protection for publication.

WOMP Station - Metropolitan Council
Staff visited the WOMP stations twice this month for baseline sample collection. A new monitoring unit was installed by METC on Purgatory Creek off of Pioneer Trail this month.

Education and Outreach (M. Swope)
Volunteer program

Service Learners
No updates.

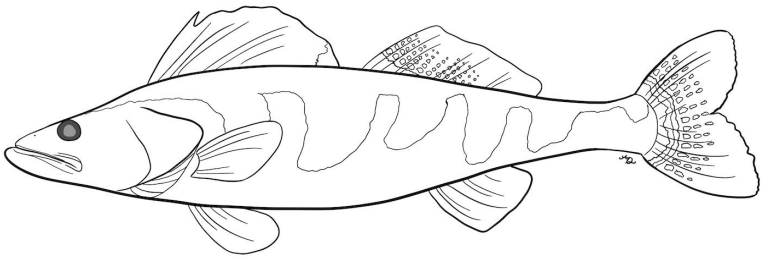
Adopt a Dock Program
Adopt a Dock volunteers continue to log observations on a monthly basis.

Master Water Stewards Program
Recruitment has begun for the 2018-2019 cohort of Master Water Stewards. An information session for interested participants was held on August 7th in Eden Prairie. Classes will begin in October and run approximately one Saturday per month, through March.

Citizen Advisory Committee
See CAC section above.

Minnetonka High School Capstone Mentorship
Aimi has continued to work with us twice a week throughout the summer, designing a 50th anniversary logo, materials for our upcoming Jr. Explorer Booklet, and other projects.

Aimi created this image of a bluegill eating carp eggs.



Example of an outline for children to color in, as part of the Watershed Junior Explorer activity book.

Communication Program

Speakers Bureau

No new updates.

Tabling at community events

Staff Swope tabled at the Chanhassen Splash Bash on July 21st. She brought the Watershed Sandbox to educate about watersheds and watershed protection.

Water Resources Report

Lake Susan and Bluff Creek fact sheets were modified to incorporate project information for our Chanhassen High School project and Lake Susan Park Pond.

Website & Newsletter

Final content for the website is being generated, and finishing details are being completed to prepare for the website's launch. The August newsletter was released.

Youth Outreach

Earth Day Mini-Grants

No new updates. Applications for 2019 will open late winter of next year.

Scenic Heights School Forest Restoration

The nurse stump sign has been finalized. Staff are working to print and install the sign. A new sign was posted at the site on 7/27/18 with updates on the restoration project.

Continuing Education Program

Winter & Turf Maintenance Training

The district is hosting a Winter Parking Lots & Sidewalks Maintenance workshop August 30th.

Businesses and Professionals Program

Professional luncheon series

The final luncheon in the series was held be on July 18th, and was designed for Property Managers. Administrator Bleser presented on winter maintenance practices and chloride

pollution, and answered questions on what to look for when hiring contractors. We had 6 participants.

The District will be hosting a lunch and learn for both CAC and TAC meeting on water conservation on September 14th.

Wetland Management

Wetland Inventory

Staff Jeffery has trained Staff Nyquist and Staff Dickhausen to perform wetland assessments using the MN Routine Assessment Methodology (MNRAM). Wetland assessments have begun within the Chanhassen area. Staff Jeffery has elected to perform the assessments beginning with the less developed areas and those likely to experience development pressures.

Currently 31 wetlands have been assessed or are in the process of being assessed.

Wetland Conservation Act Administration

Staff Jeffery has met with representatives of the Minnehaha Creek Watershed District and the City of Shorewood to discuss the steps necessary for RPBCWD to resume the Administration of the Wetland Conservation Act (WCA) within that portion of Shorewood also within RPBCWD boundaries. Base upon this meeting, Staff Jeffery will be bringing a resolution to the Board, assuming responsibility for WCA in Shorewood at the September meeting.

The contractor for the CSAH 61 project recently informed the City of Eden Prairie (the Local Government Unit (LGU) responsible for the administration of WCA in most of the corridor) about a potential release of soils into several wetlands. The extent of the release is unknown at this time. Eden Prairie has requested the the Technical Evaluation Panel (TEP) be convened to discuss the wetland impact and necessary corrective actions. As of this drafting, no date had been set.

RPBCWD has already assumed LGU status for the WCA in Deephaven. No WCA activities have occurred within this jurisdiction.

Bluff Creek One Water

Chanhassen High School

The District has been working with the City, the contractor (Peterson Construction), and the High School to make sure all is in place for building of the project. Informational boxes explaining the project were put up at the school on 7/30/18.

Bluff Creek Tributary Restoration

Cooperative agreement for Bluff Creek Tributary Project was shared with the City of Chanhassen. We have received feedbacks and making a few tweaks. The agreement will be moved forward to the board at the September meeting.

Riley Creek One Water

Lake Susan Park Pond
Construction began the week of 7/23, and info boxes were put up at the park explaining the project, the iron-enhanced filter, and the intended impact on water quality.

Riley Creek
Cooperative agreement was shared with the City of Eden Prairie. We are waiting to get their feedback.

Purgatory Creek One Water

Fire Station 2
City is close to finishing the project. Administrator Bleser will start processing close out of grant in August.

Purgatory Creek at 101
The District started the process of closing out this project.

Scenic Heights School Forest
Restoration continues at Scenic Heights. Staff is working with Vackers to have our first educational sign printed that was designed by Aimi Dickel.

Professional Workgroups and Continuing Education

Administrator Bleser was a panelist on Phosphorus and Constructed Stormwater Ponds for the Minnesota Cities Stormwater Coalition. Close to 180 individuals attended this event.

The District will be hosting a lunch and learn on September 14th. Members of the TAC and CAC were invited. The lunch and learn will be focusing on water conservation measures that the City of Woodbury has undertaken. MPR recently published an article highlighting their program (https://www.mprnews.org/story/2018/06/07/smart-irrigation-sprinkler-controller-woodbury-water-conservation).

Administrator Bleser will be presenting at the American Water Resources Association on November 7. Starting in January 2019, Administrator Bleser will be on the Board of the AWRA.

Hennepin County Collaborative Project List

Responsible Party/Agency	Name of Activity/Project/Program	Description of Activity/Project/Program	Plan reference	Water Resource(s)	Timeframe for implementation	Grant funds requested	Local match funds (minimum 10%)	Total project cost	Measurable Outcomes	Other Notes (if needed)
RPBCWD (on behalf of all County watersheds)	Countywide Chloride Collaborative - Program Development & Planning	Develop a plan to target commercial and association-based sources or chloride pollution - businesses, malls, HOAs, property management companies and the private applicators that they hire. We will hire a consultant to facilitate focus groups with private applicators, as well as those that execute contracts with private applicators. These focus groups will help identify needs and barriers for our target audience. The consultant will compile information into a plan for implementation.	LMRWD: 1.4.1,1.6.3 2015 Bassett Creek Watershed Management Plan, Section 4.1 and Section 4.2.1 policy #'s 7, 17, and 18. MCWD Watershed Management Plan, Section 3.5.4, 3.9.2, 3.9.3, 3.9.4, and 3.9.8.	All waters of the County, but especially chloride impared waters, e.g. Shingle Creek, Minnehaha Creek, Nine Mile Creek	2018-2019	$30,000.00	$3,000.00	$33,000.00	The Strategic planning process will engage property managers, property owners, applicators (public and private) and members from the industry. The engagement process will use a multi-prong approach that will include passive and active engagement. The goal of the strategic planning process is to identify barriers and solutions in the implementation of winter best management process. The outcomes will be identified through the public engagement process, but could be: needs and barriers of target audience identified; 2-4 focus groups held; plan written; work administered.	
RPBCWD (on behalf of all County watersheds)	Countywide Chloride Collaborative - Program Implementation	Specific implementation tasks will be defined by plan development and based on identified needs and barriers to our target audience. However, activities may include (but are not limited to): outreach "legwork" to reach the target audience, additional workshops, revision and/or addition of curriculum, attendance incentives, BMP cost-share program for applicators	LMRWD: 1.4.1,1.6.3 2015 Bassett Creek Watershed Management Plan, Section 4.1 and Section 4.2.1 policy #'s 7, 17, and 18. MCWD Watershed Management Plan, Section 3.5.4, 3.9.2, 3.9.3, 3.9.4, and 3.9.8.	All waters of the County, but especially chloride impared waters, e.g. Shingle Creek, Minnehaha Creek, Nine Mile Creek	2019-2021	$71,800.00	$7,180.00	$78,980.00	Measurable outcomes are to be determined based on implementation plan activities. They may include: 80-100 private applicators reached, 20-40 private applicators certified, 10-20 BMPs (e.g. equipment upgrades) made by certified applicators, curriculum development targeting property managers, curriculum updates to current training, development of a refresher course for applicators, model smart salting contract created, 80-100 salt contract executors reached, 20-40 contracts executed using model contract, database of applicators using the model contract, and others. These outputs will be revised and refined upon completion of the strategic planning process.	
RPBCWD (on behalf of all Minnesota River watersheds)	MN River Chloride BMP Implementation	The Lower Minnesota River Watersheds are coming together to offer cost-share grants.	LMRWD: 1.4.1,1.6.3	Nine Mile Creek, Riley Creek, Purgatory Creek, Bluff Creek, Minnesota River, All lakes in all 4 watershed districts	2018-2021	$197,209.00	$19,721.00	$216,930.00	Reduce Chloride through providing grants to applicators to retrofit equipment to use efficient technology to maintain sidewalks and roads. We anticipate 8-15 grants to be issued.	Match will be divided in between watershed proportionally based on the 50/50 split funding formula

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BARR

Memorandum

To: Riley-Purgatory-Bluff Creek Watershed District Board of Managers and District Administrator
From: Barr Engineering Co.
Subject: Engineer's Report Summarizing July 2018 Activities for August 8, 2018, Board Meeting
Date: July 27, 2018

The purpose of this memorandum is to provide the Riley-Purgatory-Bluff Creek Watershed District (RPBCWD) Board of Managers and the District Administrator with a summary of the activities performed by Barr Engineering Co., serving in the role of District Engineer, during July 2018.

General Services

a. Met with Administrator Bleser and Dave Modrow (City of Eden Prairie) on July 2nd to discuss the overtopping erosion of Purgatory Creek Park berm and stabilization ideas to promote carp management.

b. Participated in a July 2nd meeting with Permit Coordinator Jeffery and Counsel Welch to discuss comments received on proposed rule revisions and develop information for the July Board packet.

c. Participated in a July 3rd meeting with Administrator Bleser and Counsel Smith to discuss governance training, status of district's 2018 capital projects, and cooperative agreements for the Bluff Creek and Lower Riley Creek stabilization projects.

d. Provide the 100-year flood elevation at 9352 Wilderness Cove to James R Hill, Inc for a letter of map amendment. The 100-year flood elevation of the Purgatory Creek adjacent to 9352 Wilderness Cove in Eden Prairie is elevation 812.7 (NGVD29).

e. Met with Administrator Bleser and Permit Coordinator Jeffery on July 11th to discuss wetland delineation, tree inventory, and survey results of the area south of Silver Lake and potential impacts on the possible Silver Lake Water Quality Treatment Project.

f. Attend the July 11th regular Board of Manager's meeting.

g. Met with Administrator Bleser, Permit Coordinator Jeffery, and Counsel Smith on July 18th to discuss upcoming board meeting agendas, 2018 capital projects, and rules adoption.

h. Prepared Engineer's Report for engineering services performed during July 2018.

i. Miscellaneous discussions and coordination with Administrator Bleser about 2019 budgeting, task order status, cooperative agreements (Bluff Creek and Lower Riley Creek stabilization projects), and upcoming Board meeting agenda.

j. Project management and overall coordination of active task orders.

Permitting Program

a. *Permit 2018-016: Avienda*: This project involves a mixed-use regional development in the southwest quadrant of the intersection of Lyman Boulevard and Powers Boulevard in Chanhassen Minnesota. The project will trigger the RPBCWD Floodplain, Erosion Control, Wetland and Creek Buffer and Stormwater Management Rules. The applicant is proposing an initial construction phase to include mass grading and construction of all public infrastructure. The applicant will seek future permit approvals, as development occurs to account for site-specific impervious coverage. Conducted fourth round of review of revised submittal materials received on July 16th and provided numerous review comments to applicant on July 25th. Responded to several calls from applicants engineer with questions about stormwater modeling and floodplain management requirements.

b. *Permit 2018-026: Culvers-Eden Prairie*: This project involves the removal of an existing parking lot and the construction of a new Culver's restaurant, as well as parking lot modifications, utilities installation, stormwater management features implementation, and landscaping in the northeast quadrant of the intersection of Prairie Center Drive and Plaza Drive in Eden Prairie. The project will trigger the RPBCWD Erosion Control and Stormwater Management Rules. Participated in a July 11th conference call with permit Coordinator Jeffery and applicant discuss the potential need for a special meeting for Board consideration of the permit in the applicants timeline. Conducted a fourth round of review of the revised information and drafted permit review report for Board consideration at the July 11th meeting. Reviewed information submitted by applicant to fulfil conditional approval items. Several rounds of draft declaration review prior to applicant recording with Hennepin County.

c. *Permit 2018-027: MAMAC SYSTEMS:* This project involves construction of building expansion, additional parking, and the installation of an infiltration basin on MAMAC Systems property east of Century Boulevard in Chanhassen. The project will trigger the RPBCWD Erosion Control and Stormwater Management Rules. Met with applicant on July 16th to discussion conditional approval items and information needed to fulfil conditions.

d. *Permit 2018-028 Oak Point Elementary Parking Lot*: This project involves construction of a new parking lot and walkway in the southwest portion of the Oak Point Elementary School parcel on Staring Lake Parkway in Eden Prairie. The project will trigger the RPBCWD Erosion Control, Wetland and Creek Buffers, and Stormwater Management Rules. As of July 26th revised application materials have not been submitted by the applicant in response to the May 4th review comment. Discussed the need for additional information and comments with applicant on July 26th

e. *Permit 2018-038 Eden Prairie Senior Living*: The project proposes the construction of a new senior multifamily residential apartment building along with new parking lot, underground parking and landscaping on a site in the SW quadrant of Prairie Center Drive and Franlo Road Trail in Eden Prairie. An underground infiltration system and area of permeable pavers will provide stormwater quantity, volume and quality control. The project will trigger the RPBCWD Erosion Control, and Stormwater Management Rules. Reviewed June 7th, June 13th, June 14th, and June 20th submittals and provided three rounds of comments to applicant. Notified applicant of the Board's July 11th conditional approval. Responded to questions from applicant about potential revisions to the approved plans.

f. *Permit 2018-043 Control Concepts*: The project proposes the construction of an approximately 50,000 SF Office and Warehouse facility at 8077 Century Boulevard in Chanhassen. The project will trigger the RPBCWD Erosion Control, Wetland and Creek Buffers, and Stormwater Management Rules. Reviewed the revised submittal received on July 13th and provided review comments on July 19th. The application is considered complete as of the July 13th submittal.

g. Met with Permit Coordinator Jeffery and the applicant for permit 2016-032 – CSAH 61 to discuss permitting requirements to address resolve unexpected erosion of the Riley Creek streambank adjacent to the recently installed WOMP station monitoring weir just upstream of Flying Cloud Road (CASH 61). A second meeting occurred on July 17th to discuss Ames construction work outside the construction limits to the northeast of Riley Creek.

h. Reviewed a pre-application submittal from Hennepin County Regional Railroad Authority for the replacement of two waterbody crossing along their regional trail and provided comments on July 26th

i. Performed erosion control inspections of active sites during the week of July 23rd (see attached inspection report).

j. Developed permit location maps based on Permit Coordinator Jeffery's requests.

k. Participated in a preapplication meeting with Permit Coordinator Jeffery for the property located on the west side of Lake Ann (a.k.a. the Prince Property).

l. Miscellaneous conversations with Permit Coordinator Jeffery about technical questions on permit requirements for potential development and redevelopment projects.

Education and Outreach

a. Worked on informational exhibit of toe wood per Administrator Bleser request.

Data Management/Sampling/Equipment Assistance

a. Began developing auto-alert notification system for when RPBCWD staff submit new field data using the custom built application.

b. Uploaded and verified 24 laboratory reports from RMB into EQuIS.

Task Order 6: WOMP Station Monitoring

Purgatory Creek Monitoring Station at Pioneer Trail

a. Download and review data.

b. Storm event sampling - Collect, prep, and deliver sample to MCES lab.

c. File management – organize lab sheets.

Purgatory Creek Monitoring Station at Valley View Rd

a. Download and review data.

b. Storm event sampling – Collect, prep, and deliver samples to MCES lab.

c. File management – organize lab sheets.

Task Order 7b: Purgatory Creek Stabilization near Hwy 101—Construction

a. Completed a change order to install seven cedar trees at the construction entrance. The cedar trees will provide additional screening between residents and Highway 101, and they will also discourage pedestrian access from the paved trail along Highway 101. The trees will be installed towards the end of August or the beginning of September to reduce the risk of a combination of transplant shock and a summer heat wave resulting in a significant adverse impact on the freshly planted trees.

Task Order 13b: Lake Susan Watershed Treatment and Stormwater Reuse Enhancements Design and Construction Administration

a. Review submittals from Peterson Companies and compare against construction plans and specifications. Eleven (11) submittals were reviewed in July to ensure compliance with the contract documents, i5 original submittals (first-time review) and 6 resubmittals, including:

    1. Alarm Beacon (original)
    2. Concrete Masonry (1st resubmittal)
    3. Earthwork (2 resubmittals)
    4. Electrical (original)
    5. Metal Doors (original and 1 resubmittal)
    6. Piping and Appurtenances (3rd resubmittal)
    7. Pump Station (3rd resubmittal)
    8. Treatment Shelter (original)
    9. Truss Plan (original)

b. Construction administration tasks including submittal management, coordination with engineers for approval of submittals, and preparation for construction observation.

Task Order 14b: Lower Riley Creek Final Design

a. Submitted permit applications to be submitted to the US Army Corps of Engineers, MnDNR, and RPBCWD.

b. Continued worked on draft contract documents to prepare the project for bidding.

c. Worked on edits to the 60% plans to incorporate comments from the City and bring the plans up to 90%.

d. Continued working on corridor enhancement plan.

Task Order 16: Watershed Management Plan Refresh

a. Compiled final PDF of plan as a single documents and individual chapters for posting to the RPBCWD website

b. Produced prints of the plan for distribution..

Task Order 19: Chanhassen High School Stormwater Reuse Design

a. Review and commented on 16 submittals (original and resubmittals) from Peterson to assess compliance with the contract documents and correspondence about project schedule. Submittals reviewed in July included:

   1. Concrete
   2. Structural
   3. Electrical Schematic
   4. Electrical conduit and fixtures
   5. Roof truss plan
   6. Non Frost susceptible fill

b. Coordinate and participate in call with Peterson regarding PE signature requirement for CMU shelter roof design.

c. Coordinate construction oversight points in preparation for construction observation. Construction started the week of July 23rd with the installation of erosion control and the preparation of the foundations for the treatment building and pump pad.

Site photo facing southwest illustrating the preparation of the pump pad (lower left) and treatment building foundations (middle right)

Task Order 21B: Bluff Creek Stabilization Project

a. Continued work on draft contract documents to prepare the project for bidding

b. Met with Jill Sinclair from the Chanhassen on July 12th to review trees within the project area and develop a plan for tree protection and clearing.

c. Addressed comments received from the City on the plan set, including additional modifications to the revegetation plan.

Task Order 23: Scenic Heights School Forest Restoration

a. Monthly management visits consisting of herbicide treatments and spot mowing with a handheld brush saw continued on re-sprouts of honeysuckle and buckthorn as well as herbaceous invasive species such as garlic mustard and motherwort. One total site management visit including inspections will occur through October.

Task Order 24: Preliminary Engineering Study for Silver Lake Water Quality Treatment Project

a. Staff met with Administrator Bleser and Permit Coordinator Jeffery to discuss the results of the tree inventory and wetland delineation. Permit Coordinator Jeffery will plan to discuss potential site impacts with City of Chanhassen staff. After receiving input from City staff on potential site impacts, Barr staff will finalize the feasibility study.

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engineering and environmental consultants

BARR

To: RPBCWD Board of Managers

From: Dave Melmer

Subject: June 21-22, 2018—Erosion Inspection

Date: July 27, 2018

Project: 23/27-0053.14 PRMT 9016

Barr staff has inspected construction sites in the Riley Purgatory Bluff Creek Watershed District for conformance to erosion and sediment control policies. Listed below are construction projects and the improvement needed for effective erosion control. The sites were inspected on July 21-22, 2018.

Site Inspections

2015-008	**3520 Meadow Lane - Existing Single-Family** **3520 Meadow Ln Minnetonka, Minnesota 55345 United States** Construction complete. Temporary BMP's have been removed. Seeded grass has sprouted and is established. Landscaping appears to be completed. Site is stable. This will be last field inspection for this permit. (July-2018)	**2018-07-22**
2015-010	**Children's Learning Adventure - Private - Commercial/Industrial** **Northwest Corner of Highway 5 and Galpin Avenue Chanhassen, Minnesota 55317 United States** Area near SW overflow (riprap) still has minimal bare areas on east side slope-however site is stable. All temporary BMP's have been removed with exception of-inlet protection observed at catch basin on Galphin-- SE corner on site side (photo). Wetland and Do Not Mow signage has been installed near NW ponds. (July ,2018)	**2018-07-22**
2015-016	**Blossom Hill - Private - Residential** **10841 Blossom Rd Eden Prairie, Minnesota 55347 United States** House construction at several site continues. BMP's look good. Minor tracking to street observed.	**2018-07-21**
2015-035	**LaMettry's Chanhassen - Private - Commercial/Industrial** **Audubon RD and Motorplex CT Chanhassen, Minnesota 55317 United States** Construction complete. Site is stable. Three inlet protections still in place. Site is stable. (July-2018)	**2018-07-22**
2015-036	**Saville West Subdivision - Private - Residential** **5325 County Road 101 Minnetonka, Minnesota 55345 United States**	**2018-07-22**

	Construction complete at 5320 Spring Ln. House site. Silt fence perimeter control in place. BMP's look good. Landscaping not complete -lot has been graded for sod or seeding. Silt fence installed on southwest and west side of development. Additional lot has silt fence perimeter control installed- no activity at this lot. Lots to south have been brushed/cleared. (July-2018)	
2015-050	**Arbor Glen Chanhassen - Private - Residential** **9170 GREAT PLAINS BLVD Chanhassen, Minnesota 55317 United States** Perimeter control (silt fence) installed. Heavy equipment onsite and earthwork/grading complete. Roadway and detention pond installed. All slopes have been stabilized and covered. BMP's look good. Construction at first site underway. BMP's for this location are good. (July-2018)	**2018-07-21**
2015-056	**Oster Property - Private - Residential** **9008 & 9010 Riley Lake Road Eden Prairie, Minnesota 55347 United States** Construction complete. Silt fences /bio-logs have been removed. Vegetation mats and wood chips have been installed on all bare soils. All other BMP's look good. Landscaping completed. Small area needs to sprout and establish.	**2018-07-21**
2015-058	**Prairie Center Clinic Addition - Private - Commercial/Industrial** **8455 Flying Cloud Drive Eden Prairie, Minnesota 55344 United States** Construction complete on building. Some BMP's have been removed for landscaping. Vegetation is established. Parking lot top coat complete. Site is stable. BMP's are still in place--silt fence. Silt fences can be removed.	**2018-07-21**
2016-004	**Round Lake Park Improvements - Government - Other** **16700 Valley Road Eden Prairie, Minnesota 55344 United States** BMP's look good. Site construction complete. Vegetation is established. All temporary BMP's have been removed with exception of BMP's at infiltration areas-silt fences. Infiltration basins vegetation is established. Basin silt fences can be removed. Site is stable. (June-2018)	**2018-07-22**
2016-015	**18321 Heathcote Lane - Existing Single-Family** **18321 Heathcote LN Deephaven , Minnesota 55391 United States** Construction complete. Landscaping is complete/site has been graded and prepped for sod installation.	**2018-07-22**
2016-017	**SWLRT - Government - Other** **Varies Eden Prairie, Minnesota 55344 United States** No construction observed to date.	**2018-07-21**

2016-020	**Prairie View Enclave - Private - Commercial/Industrial** **12701 Pioneer Trail Eden Prairie, Minnesota 55347 United States** No activity observed to date.	**2018-07-21**
2016-021	**Cedar Hills Park - Government - Other** **9580 Eden Prairie Rd Eden Prairie, Minnesota 55347 United States** Construction complete. All temporary BMP's have been removed with exception of some bio-logs at infiltration basin. Vegetation growing. Site is stable. This will be last field inspection for this permit.	**2018-07-21**
2016-026	**Foxwood Development - Private - Residential** **9150 and 9250 Great Plains Blvd Chanhassen, Minnesota 55317 United States** Multiple house construction continues-BMP's look good- silt fences and rock entrances installed/ good perimeter control. Silt fences have been installed on unsold lots. Catch basin protection has been reinstalled. Additional silt fences have been installed across site. Some tracking to streets. Site is swept regularly. Sediment built up in some locations and some sites need rock entrances refreshed. Spoke with Gonyea representative onsite and these will be addressed. (July-2018)	**2018-07-21**
2016-030	**IDI Distribution Building Expansion - Private - Commercial/Industrial** **8303 Audubon Road Chanhassen, Minnesota 55317 United States** Open CA(s): Bare soils on slopes eroded to parking lot. No catch basin protection at some basins. Site representative was notified. (July -2018) Deadline: 7/31/2018 Parking on north side installed/curb and gutter installed and paved. Building addition complete. Landscaping underway. Bare soils on slopes eroded to parking lot. No catch basin protection at some basins. Site representative was notified. (July -2018)	**2018-07-22**
2016-032	**CSAH 61 Improvements - Government - Linear** **N/A Eden Prairie, Minnesota 55347 United States** Construction continues. Slopes are being cover with matting. Area near creek crossing is under construction continues. BMP's to date look good. Site was under flood conditions. South side of site has areas that are being addresses due to flood conditions. Spoke with site representative onsite and he stated that a crew is aware of the silt fence conditions and bare slope erosion--they are working on these areas.	**2018-07-21**

2016-040	**18995 Minnetonka Blvd - Existing Single-Family** **18995 Minnetonka Blvd Deephaven, Minnesota 55391 United States** Construction complete. Slopes with vegetation mats have growth. Southwest corner has more BMP's to control sediment erosion. BMP's installed. Entire site has been covered with matting and vegetation has sprouted. Driveway installed- some class five near south end of driveway has been graded. No change since June.	**2018-07-22**
2016-041	**Chanhassen West Water Treatment Plant - Government - Other** **2070 Lake Harrison Road Chanhassen, Minnesota 55317 United States** Silt fences installed on site. Construction continues. Landscaping and grading underway. BMP's look good. Entrance installed and paved. SW hillside and pond work under construction--exposed soils on a slope day of inspection-newly graded. July2018.	**2018-07-22**
2016-042	**18663 St. Mellion Place--Eden Prairie (Bear Path)** Construction resumed. BMP's are good silt fence replaced with bio-logs. Site grading and sod installation has occurred on a large portion of site.	**2018-07-21**
2016-043	**Bongards Redevelopment - Private - Commercial/Industrial** **8330 Commerce Drive Chanhassen, Minnesota 55317 United States** Parking lot complete. Curb back needs to be done.	**2018-07-22**
2016-044	**Dell Rd & Riley Creek Repair Project - Government - Other** **9980 Dell Road Eden Prairie, Minnesota 55347 United States** Vegetation was growing appears to have died off. Rip-rap was installed at dirt road edge to control erosion from road. Additional erosion prevention from road needs to be addressed. More rock installed along flow path and silt deposit at beehive catch basin remains. Representative was contacted in September (2017) and is aware of site condition. July-2018. Same conditions exist.	**2018-07-21**
2016-045	**MCES Blue Lake Interceptor Rehab - Government - Linear** **See attached multiple , Minnesota 55354 United States** Construction complete. Silt fences installed/bio-logs in place. Bare soils covered with spray-tac. Some vegetation growing--observed areas of minimal growth. (July-2018)	**2018-07-22**
2016-047	**9507 Sky Lane Eden Prairie - Existing Single-Family** **9507 Sky Lane Eden Prairie, Minnesota 55347 United States** Final landscaping is underway.	**2018-07-21**

2017-001	**Kopesky 2nd Addition - Private - Residential** **18340 82nd St Eden Prairie, Minnesota 55347 United States** Site has been cleared and perimeter control--silt fence has been installed. Rock entrance installed. Heavy equipment onsite. Road and storm sewer installation underway- site grading work still underway. BMP's are good.	**2018-07-21**
2017-003	**18761 Heathcote Dr Building Addition - Existing Single-Family** **18761 Heathcote Dr Wayzata, Minnesota 55391 United States** House construction complete. Pool installation complete. Landscaping complete--sod and shrubs installed. Temporary BMP's have not been removed (silt fence/ bio-logs). Debris pile onsite. July-2018.	**2018-07-22**
2017-006	**6687 Horseshoe Curve Chanhassen** No activity observed to date.	**2018-07-22**
2017-007	**Cedarcrest Stables - Private - Residential** **16870 CEDARCREST DR Eden Prairie, Minnesota 55347 United States** No activity observed to date.	**2018-07-21**
2017-009	**Emerson Chanhassen East Renovation - Private - Commercial/Industrial** **8200 Market Boulevard Chanhassen, Minnesota 55317 United States** Construction complete. Temporary BMP's removed. Landscaping underway. West infiltration basin installed and complete-temporary BMP's removed. July-2018	**2018-07-22**
2017-010	**Riley Lake Park Renovations - Government - Other** **9100 Riley Lake Rd Eden Prairie, Minnesota 55347 United States** Construction complete. All temporary BMP's have been removed. Grading and landscaping in is complete. Vegetation growing. Vegetation is established. Site is stable. This will be last field inspection for this permit.	**2018-07-21**
2017-011	**Galpin Blvd Watermain Improvements - Government - Linear** **Galpin Blvd & Lake Harrison Road Chanhassen, Minnesota 55317 United States** Construction complete. Soils were covered with erosion control mats-growth observed to date. Silt fence still installed in one area. (Across from Galpin Blvd. and Harrison Bay Rd. Site is stable. July-2018.	**2018-07-22**

2017-022	**Chanhassen High School Stormwater Reuse - Government - Other** **220 Lyman Blvd Chanhassen, Minnesota 55317 United States** No activity observed to date.	**2018-07-21**
2017-023	**Eden Prairie Assembly of God - Private - Commercial/Industrial** **16591 Duck Lake Trail Eden Prairie, Minnesota 55346 United States** Construction continues. Perimeter control silt fence and rock entrance installed. BMP's look good. (July-2018)	**2018-07-22**
2017-024	**Prairie Bluffs Senior Living - Private - Residential** **10280 Hennepin Town Rd Eden Prairie, Minnesota 55347 United States** Open CA(s): Catch basin at Hennepin Town Road and Normandy Crest (SW corner) needs protection. Rock entrances needs updating and tracking to street needs to be addressed. Site representative was notified. Deadline: 7/30/2018 Site clearing and earthwork has begun. Perimeter silt fence installed and catch basin protection in place. BMP's look good. Catch basin at Hennepin Town Road and Normandy Crest (SW corner) needs protection. Rock entrances needs updating and tracking to street needs to be addressed. Site representative was notified.	**2018-07-21**
2017-026	**6135 Ridge Road - Existing Single-Family** **6135 Ridge Road, Shorewood, , Minnesota 55331** Construction continues. Foundation in and rock entrance installed. Rock entrance is good. Silt fence maintenance has been completed--however it is overtopping again-July Inspection Washout gully on north side has been addressed. Bare soils on site and slopes still need to be covered and stabilize--without coverage soils will continue to erode downslope. CA will stay open for the bare soils/slope is weed coverage but not stable. July-2018. Site representative/homeowner onsite and is aware of issues. Southwest corner has been cut back and bare soils exposed/tree roots exposed along roadside-- potential for erosion and undercutting of road-this area is slated for retaining wall. Photos taken.	**2018-07-22**
2017-027	**7500 Chanhassen Road - Existing Single-Family** **7500 CHANHASSEN RD Chanhassen, Minnesota 55317-8576 United States** Open CA(s): Bio-logs overtopping and silt leaving site. Catch basin needs attention. Uncovered bare soils eroding. Site representative notified. Deadline: 7/31/2018 Fixed: 7/22/2018 Construction complete. Site has been graded for landscaping. Some silt fences removed and bio-logs installed. Bio-logs	**2018-07-22**

	overtopping and silt leaving site. Catch basin needs attention. Uncovered bare soils eroding. Site representative notified.	
2017-029	**Tweet Pediatric Dentistry - Private - Commercial/Industrial** **7845 Century Blvd. Chanhassen, Minnesota 55317 United States** Open CA(s): NW infiltration basin has silt fences up-sediment on upstream ends will need to be removed rigor to silt fence removal. Representative was notified. Deadline: 7/22/2018 Construction complete. BMP's are installed and good. Catch basin protection installed in this area. Infiltration areas installed. Parking lot grading and curb/gutter installation complete. Landscaping complete. NW infiltration basin has silt fences up-sediment on upstream ends will need to be removed rigor to silt fence removal.	**2018-07-21**
2017-030	**Elevate - Private - Commercial/Industrial** **12900 Technology Drive Eden Prairie, Minnesota 55344 United States** Foundation work continues. Perimeter control installed. Catch basin protection installed. Some catch basins have bladders installed and drainage will be directed to other basins. BMP's look good. New (additional rock entrance installed and maintained.	**2018-07-21**
2017-032	**11193 Bluestem Lane - Government - Other** **11193 Bluestem Lane Eden Prairie, Minnesota 55347 United States** Construction complete. All exposed soils on slope are covered and stabilized--vegetation growing--areas where seed did not sprout are observed-- matting is keeping soils stable. Bio-logs installed at toe of slope. Site is in good condition. July/2018	**2018-07-21**
2017-034	**Park Road Overlay Chanhassen - Government - Linear** **Park Road Chanhassen, Minnesota 554317 United States** Overlay complete. Landscaping complete. Bridge at stream crossing complete. All exposed soils covered. Vegetation growth observed. (July-2018)	**2018-07-22**
2017-036	**Minnetonka HS Upper Field Access Road - Government - Other** **18301 State Hwy No 7 Minnetonka, Minnesota 55345 United States** Construction complete. Vegetation sprouted and is growing--sparse in many areas and will need to be addressed. Bare areas are observed and susceptible to erosion -- photo taken and CA created. Site representative was notified after May inspection. Site representative is in process of addressing CA. No activity observed to date.(July-2018)	**2018-07-22**

2017-037	**The Venue - Private - Commercial/Industrial** **525 W 78th St Chanhassen, Minnesota 55317 United States** Security fence installed. BMP's installed. Demolition of existing buildings complete. Earthwork/construction underway. BMP's installed. Minor tracking offsite.	**2018-07-22**
2017-038	**West Park - Private - Residential** **760& 781 Lake Susan Drive 8601 Great Plains Blvd Chanhassen, Minnesota 55317 United States** Construction continues. Street installation on north side completed. Rock entrance installed on south side and to individual house sites. Perimeter control installed. Catch basin protection reinstalled. BMP's look good. Minor tracking observed on --onsite streets. South construction site activity has begun-roadway installed-BMP's look good.	**2018-07-21**
2017-039	**Mission Hill Senior Living - Private - Residential** **8600 Grate Plains Boulevard Chanhassen, Minnesota 55317 United States** Construction underway. Earthwork and roadway construction. BMP's installed. Site perimeter control installed. Catch basin protection installed. Site is in good shape. South swale has been stabilized. Onsite dewatering ponds are adequate.	**2018-07-21**
2017-040	**Basin 05-12-C Cleanout - Government - Other** **14180 W 78th St Suite 118 Eden Prairie, Minnesota 55344 United States** No site activity observed to date.	**2018-07-22**
2017-044	**17064 Weston Bay Road - Private - Residential** **17064 weston Bay Road Eden Prairie, Minnesota 55427 United States** Construction complete. Landscaping is complete--majority of areas has been hydro-seeded is growing and established. All temporary BMP's have been removed. Site is stable. This will be last field inspection for this permit. (July-2018)	**2018-07-22**
2017-047	**Fawn Hill - Private - Residential** **7240 Galpin Road Chanhassen, Minnesota 55331 United States** Earthwork completed/roadway installed. Perimeter silt fence install. Exposed soils blown with straw. BMP's to date look good- (June-2018) West pond overflow installed. Minor sediment in street may need future attention and cleanup.	**2018-07-22**
2017-052	**Old Excelsior Senior Living - Private - Residential** **17705 Hutchins Drive Minnetonka , Minnesota 55345 United States** Construction continues. Perimeter control installed. BMP's in place. Street is swept regularly. Minor tracking to street observed.(July-2018)	**2018-07-22**

2017-053	**Mastercraft - Private - Commercial/Industrial** **17717 State Hwy 7 Minnetonka, Minnesota 55345 United States** Construction complete. Inlet protection installed still installed. Landscaping complete. Site is stable. Small area of mat installed-no vegetation growth to date. (July-2018)	**2018-07-22**
2017-055	**Scenic Heights Elementary 2018 Addns - Government - Other** **5650 Scenic Heights Drive Minnetonka, Minnesota 55345 United States** Construction continues. BMP's installed.	**2018-07-22**
2017-056	**Covington Rd Culvert Replacement - Government - Linear** **Covington Road Minnetonka, Minnesota 55345 United States** Construction complete. Vegetation matting installed. Wetland buffer signage installed on downstream side of Covington. Installed BMP's look good. Vegetation sprouted and growing thru matting--July- vegetation appears to be dying out-exposing matting. (July-2018)	**2018-07-22**
2017-063	**Clear Springs Elementary 2018 Gymnasium Addition - Government - Other** **5621 County Road #101 Minnetonka, Minnesota 55345 United States** Construction continues. BMP's installed. Minor tracking to street near entrance.	**2018-07-22**
2017-064	**Scenic Heights Elementary School Forest Restoration - Government - Other** **5650 Scenic Heights Drive Minnetonka, Minnesota 55345 United States** Site has been selectively cleared. Inflow area modified and BMP's installed. Restoration continues. July-2018	**2018-07-22**
2017-069	**Scheels Redevelopment - Private - Commercial/Industrial** **8301 Flying Cloud Dr. Eden Prairie, Minnesota 55344 United States** Security fence installed. Construction trailer onsite. Minimal activity observed. No BMP's installed to date.	**2018-07-21**
2017-072	**O'Reilly Auto Parts Eden Prairie - Private - Commercial/Industrial** **8868 AZTEC DRIVE Eden Prairie, Minnesota 55347 United States** Site utilities have been located and marked. No construction activity observed to date.	**2018-07-21**

2017-073	**Preserve Village - Private - Residential** **9625 Anderson Lakes Pkwy Eden Prairie, Minnesota 55344 United States** Construction has begun. Security fence installed. BMP's installed.	**2018-07-21**
2018-001	**Panera - Private - Commercial/Industrial** **531 W. 79th Street Chanhassen, Minnesota 55317 United States** Security fence installed. Construction trailer onsite. Demolition complete. BMP's installed. Earthwork/construction underway.	**2018-07-22**
2018-004	**903 Lake Drive Chanhassen - Government - Other** **903 Lake Drive Chanhassen, Minnesota 55317 United States** No activity observed to date.	**2018-07-22**
2018-007	**Lake Lucy Lane Drainage - Government - Other** **1720 Lake Lucy Lane Excelsior, Minnesota 55331 United States** Construction complete. All exposed soils covered. Temporary BMP's removed. Vegetation has sprouted and is growing.	**2018-07-22**
2018-008	**Staring Lake Park Play Court - Government - Other** **14800 Pioneer Trail Eden Prairie, Minnesota 55344 United States** Construction still 95% complete. Security fence removed. Temporary BMP's installed where needed. Seeding complete in areas and growing.	**2018-07-21**
2018-011	**Maloney Shoreline Stabilization - Existing Single-Family** **108 Pioneer Trail Chanhassen, Minnesota 55327 United States** No construction observed to date.	**2018-07-21**
2018-013	**Soccer Field 11 at Miller Park - Government - Other** **8250 Shoreline Drive Eden Prairie, Minnesota 55344 United States** Construction continues. BMP's in place. Catch basin protection was removed for street paving. Needs reinstallation.	**2018-07-22**
2018-014	**Eden Prairie Road Reconstruction - Government - Linear** Construction activity observed at south end. BMP's installed.	**2018-07-21**
2018-015	**Starbucks Coffee House - Private - Commercial/Industrial** **19285 Highway 7 19245 Highway 7 Shorewood, Minnesota 55401 United States** Construction trailer and heavy equipment onsite. No demolition to date. No BMP's installed to date.	**2018-07-22**

2018-017	**Eden Prairie Schools ASC Parking Lot Expansion - Government - Other** **8100 School Road Eden Prairie , Minnesota 55344 United States** Construction has begun. Perimeter control installed. BMP's have been installed.	**2018-07-21**
2018-020	**9770 Sky Lane - Existing Single-Family** **9770 sky lane Eden prairie, Minnesota 55347 United States** Construction continues. BMP's onsite are installed. Downstream catch basin protection installed- 2 basins downstream. Sediment at curbside downstream has been cleared.	**2018-07-21**
2018-021	**9810 Sky Lane - Existing Single-Family** **9810 sky lane Eden prairie, Minnesota 55347 United States** Construction continues. BMP's onsite are installed. Catch basin protection installed at southwest corner of site. Rock entrance has been improved.	**2018-07-21**
2018-022	**Sunrise Park Court Improvement - Government - Other** **9401 Bloomington Ferry Road Bloomington, Minnesota 55438 United States** Construction has begun. Perimeter control installed and temporary BMP's look good.	**2018-07-21**
2018-024	**Kittelson Pool - Existing Single-Family** **2165 Wynsong Lane Chanhassen, Minnesota 55317 United States** No activity observed to date.	**2018-07-22**
2018-025	**Magellan Pipeline UCD Dig 8 through 12 – Private - Other** No site activity observed to date.	**2018-07-21**
2018-027	**MAMAC –Private - Commercial** **8189 Century Boulevard Chanhassen, Minnesota 55317 United States** No activity observed to date.	**2018-07-21**
2018-029	**Bloomington 98th St Reconstruction – Government - Linear** **W 98th Street Bloomington, Minnesota 55438 United States** No BMP's observed to date-not needed to date. Curb and gutter installed and street base prepped for asphalt.	**2018-07-21**

2018-030	**Bloomington Dakota Rd Reconstruction – Government - Linear** **Dakota Road Bloomington, Minnesota 55438 United States** No BMP's observed to date-not needed to date. Curb and gutter installed and street base prepped for asphalt.	**2018-07-21**
2018-031	**Ridgeview Elementary School Mechanical Improvements – Government - Other** **9400 Nesbitt Avenue Bloomington, Minnesota 55438 United States** Construction continues. Work to date still appears to be roof top and indoors. No BMP's observed or needed to date.	**2018-07-21**
2018-033	**Eden Prairie High School Trail and Railroad Crossing – Government - Other** Site has been brushed/surveyed and supplies onsite. No BMP's installed to date.	**2018-07-22**
2018-034	**Basin 05-11-A Cleanout** **Corner of Sequioa and Ginger Eden Prairie, Minnesota 55346 United States** No activity observed to date at pond. Outlet and flow line downstream has been cleaned out. BMP's installed in this area. Vegetation sprouting in matted areas.	**2018-07-22**
2018-038	**Eden Prairie Senior Living - Private - Residential** **8460 Franlo Rd Eden Prairie, Minnesota 55344 United States** Construction has begun. Perimeter control installed. BMP's look good.	**2018-07-21**

Please contact me at 952.832-2687 or dmelmer@barr.com if you have questions on the projects listed above or any additional items that need to be addressed for the erosion control inspections.

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engineering and environmental consultants

BARR

Memorandum

To: Riley Purgatory Bluff Creek Watershed District Board of Managers
From: Barr Engineering Company
Subject: Permit Application 2018-028: Oak Point Elementary Parking Lot – 2nd Extension of Review Period
Date: July 27, 2018
Project: 23270053.14

Project Description

Permit No: 2018 – 028

Received complete: April 25, 2018

Applicant: Eden Prairie Schools
Consultant: Anderson-Johnson Associates, Inc., Bill Diede
Project: Oak Point Elementary Parking Lot – Construction of a new parking lot consisting of approximately 100 additional spaces and a walkway in the southern portion of the Oak Point Elementary School site. Porous pavers will be constructed on a portion of the parking lot reducing the area of new impervious area.
Location: 13400 Staring Lake Parkway, Eden Prairie, Minnesota 55427

Rules Implicated:

	Rule B: Floodplain Management		Rule H: Appropriation of Public Waters
X	Rule C: Erosion and Sediment Control		Rule I: Appropriation of Groundwater
X	Rule D: Wetland and Creek Buffers	X	Rule J: Stormwater Management
	Rule E: Dredging and Sediment Removal		Rule K: Variances and Exceptions
	Rule F: Shoreline/Streambank Stabilization	X	Rule L: Permit Fees
	Rule G: Waterbody Crossings		Rule M: Financial Assurances

Recommendation

On April 25, 2018, Eden Prairie Schools submitted a complete permit application for construction of a new parking lot with approximately 100 parking spaces and a walkway at Oak Point Elementary School. Based on the Engineer's review of the submitted plans, the latest site designs and stormwater management approach do not provide the required rate control, volume abstraction, and water quality treatment.

On June 6, 2018, staff recommended and the Board extended, in accordance with Minnesota Statutes section 15.99, the review period by 60 days to August 23, 2018, for permit 2018-028 Oak Point Elementary Parking Lot.

The extended permit review period for Permit 2018-028 expires on August 23, 2018 which is before the Board's regular September meeting. The applicant has requested an additional extension of the application-review period to allow the application to be considered at the September Board meeting. Staff recommends that the Board grant the 30 day extension to September 22, 2018 as requested for permit 2018-028 to allow the Applicant time to supply the revised design and the Engineer time to complete a review.

From: Jay Pomeroy
To: Scott Sobiech
Cc: Bill Diede; Katie J. Turpin-Nagel; Terry Jeffery
Subject: Re: Draft Permit Question 2018-028 Oak Point Elementary Parking Lot
Date: Friday, July 27, 2018 9:07:42 AM
Attachments: image001.png
image003.png

Scott,

It is apparent we will need a 30-day extension for the permit application we currently have in. Please consider this email as a formal request for that extension.

Thanks,

Jay Pomeroy, LLA
Anderson-Johnson Associates, Inc.
7575 Golden Valley Road | Suite 200 | Minneapolis, Minnesota 55427
763.544.7129
ajainc.net

On Jul 25, 2018, at 2:57 PM, Scott Sobiech <SSobiech@barr.com> wrote:

> Jay
> It is unlikely there will be sufficient time for a thorough technical and legal review prior to the August meeting Board packet being produced. Without a thorough review it will not be possible to recommend conditional approval. I would suggest you provide a written (e-mail is fine) request for a review extension identifying the length of the requested extension. This will allow time for review and likely consideration at the September meeting. Because the prior extension expires August 23, which is before the September meeting, the Board will need to take some action at the August meeting (extend review timeline, deny, conditionally approve, or approve).
>
> Thank You
> Scott Sobiech, CFM, PE
>
> Vice President
> Senior Water Resources Engineer
> Minneapolis, MN office: 952.832.2755
> ssobiech@barr.com
> www.barr.com
>
> <image001.png>
>
>
>
> ---
>
> **From:** Scott Sobiech

Sent: Friday, July 20, 2018 9:37 AM
To: 'Jay Pomeroy' <Jay@ajainc.net>
Cc: Katie J. Turpin-Nagel <KTurpin-Nagel@barr.com>; Terry Jeffery <tjeffery@rpbcwd.org>; Bill Diede <Bill@ajainc.net>; Scott Sobiech <SSobiech@barr.com>
Subject: RE: Draft Permit Question 2018-028 Oak Point Elementary Parking Lot

Jay
Thank you for the update. At the June 2018 Board of Managers meeting the board extended the permit review time until August 23, which is before the September meeting. Because the Board only meets once a month, the Board will need to take some action at the August meeting (extend review timeline, deny, conditionally approve, or approve). It is unlikely there will be sufficient time for a thorough technical and legal review prior to the August meeting Board packet being produced. Without a thorough review it will not be possible to recommend conditional approval. I would suggest you provide a written (e-mail is fine) request for a review extension identifying the length of the requested extension. This will allow time for review and likely consideration at the September meeting.

Thanks

Scott Sobiech, CFM, PE

Vice President
Senior Water Resources Engineer
Minneapolis, MN office: 952.832.2755
ssobiech@barr.com
www.barr.com

From: Jay Pomeroy <Jay@ajainc.net>
Sent: Friday, July 20, 2018 8:47 AM
To: Scott Sobiech <SSobiech@barr.com>; Bill Diede <Bill@ajainc.net>
Cc: Katie J. Turpin-Nagel <KTurpin-Nagel@barr.com>; Terry Jeffery <tjeffery@rpbcwd.org>; Bill Diede <Bill@ajainc.net>
Subject: RE: Draft Permit Question

Scott – sorry for the delay getting back to you.

We're working on moving the project through the City of Eden Prairie. Based on recent conversations with the City, we are targeting July 27th for submittal of all material so we can be on the late-August Planning Commission agenda.

With the above in mind, **we are planning to get you (RPBCWD) an updated packet next Friday, July 27th**, as well.

Jay R. Pomeroy
Anderson-Johnson Associates, Inc.
7575 Golden Valley Road | Suite 200 | Minneapolis, Minnesota 55427
763.544.7129
ajainc.net
<image002.jpg>

From: Scott Sobiech <SSobiech@barr.com>
Sent: Thursday, July 12, 2018 8:26 AM
To: Jay Pomeroy <Jay@ajainc.net>; Bill Diede <Bill@ajainc.net>
Cc: Dave Rey <Dave@ajainc.net>; Katie J. Turpin-Nagel <KTurpin-Nagel@barr.com>; Terry Jeffery <tjeffery@rpbcwd.org>; Bill Diede <Bill@ajainc.net>
Subject: RE: Draft Permit Question

Jay
Just wondering the status of the revised submittal so we can keep it moving as efficiently as possible. As previously discussed, an electronic submittal of all the materials via email of a share site would be fine.

Thanks
Scott Sobiech, CFM, PE

Vice President
Senior Water Resources Engineer
Minneapolis, MN office: 952.832.2755
ssobiech@barr.com
www.barr.com

<image001.png>

From: Jay Pomeroy <Jay@ajainc.net>
Sent: Monday, June 18, 2018 9:47 AM
To: Scott Sobiech <SSobiech@barr.com>; Bill Diede <Bill@ajainc.net>
Cc: Dave Rey <Dave@ajainc.net>; Katie J. Turpin-Nagel <KTurpin-Nagel@barr.com>; Terry Jeffery <tjeffery@rpbcwd.org>; Bill Diede <Bill@ajainc.net>
Subject: RE: Draft Permit Question

Scott:

I'm working with the City of Eden Prairie to define the project schedule- we'll be going through a PUD or variance for the project, so it'll likely put us out to late-July/ early-August for City approvals. I would assume we'd be on that same type of schedule with RPBCWD.

Jay R. Pomeroy
Anderson-Johnson Associates, Inc.

7575 Golden Valley Road | Suite 200 | Minneapolis, Minnesota 55427
763.544.7129
ajainc.net
<image002.jpg>

From: Scott Sobiech <SSobiech@barr.com>
Sent: Monday, June 18, 2018 8:27 AM
To: Jay Pomeroy <Jay@ajainc.net>; Bill Diede <Bill@ajainc.net>
Cc: Dave Rey <Dave@ajainc.net>; Katie J. Turpin-Nagel <KTurpin-Nagel@barr.com>; Terry Jeffery <tjeffery@rpbcwd.org>
Subject: RE: Draft Permit Question

Bill and Jay
Just wondering the status of the revised submittal?

Thanks

Scott Sobiech, CFM, PE

Vice President
Senior Water Resources Engineer
Minneapolis, MN office: 952.832.2755
ssobiech@barr.com
www.barr.com

<image001.png>

From: Scott Sobiech
Sent: Thursday, June 07, 2018 11:51 AM
To: 'Jay Pomeroy' <Jay@ajainc.net>; Bill Diede <Bill@ajainc.net>
Cc: Dave Rey <Dave@ajainc.net>; Katie J. Turpin-Nagel <KTurpin-Nagel@barr.com>; Terry Jeffery <tjeffery@rpbcwd.org>; Scott Sobiech <SSobiech@barr.com>
Subject: RE: Draft Permit Question

Bill and Jay
The Board approved the review timeline extension at last night's meeting. Attached is a copy for your records.

Scott Sobiech, CFM, PE

Vice President
Senior Water Resources Engineer
Minneapolis, MN office: 952.832.2755
ssobiech@barr.com
www.barr.com

<image001.png>

LEAGUE OF MINNESOTA CITIES

CONNECTING & INNOVATING
SINCE 1913

LIABILITY COVERAGE – WAIVER FORM

LMCIT members purchasing coverage must complete and return this form to LMCIT before the effective date of the coverage. Please return the completed form to your underwriter or email to pstech@lmc.org

This decision must be made by the member's governing body every year. You may also wish to discuss these issues with your attorney.

League of Minnesota Cities Insurance Trust (LMCIT) members that 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 would be able to recover no more than $500,000 on any claim to which the statutory tort limits apply. The total all claimants would be able to recover for a single occurrence to which the statutory tort limits apply would be limited to $1,500,000. These statutory tort limits apply regardless of whether the city purchases the optional excess liability coverage.

- *If the member waives the statutory tort limits and does not purchase excess liability coverage*, a single claimant could potentially recover up to $2,000,000 for a single occurrence. (Under this option, the tort cap liability limits are waived to the extent of the member's liability coverage limits, and the LMCIT per occurrence limit is $2 million.) The total all claimants would be able to 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 would be able to 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

Check one:

☐ The member **DOES NOT WAIVE** the monetary limits on municipal tort liability established by Minnesota Statutes, Section 466.04.

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

Date of city council/governing body meeting _____

Signature_____ Position_____

145 UNIVERSITY AVE. WEST
ST. PAUL, MN 55103-2044

PHONE: (651) 281-1200 FAX: (651) 281-1299
TOLL FREE: (800) 925-1122 WEB: WWW.LMC.ORG

*While reviewing the Jay cost-share, it was determined that the project is adjacent to woodland that buffers the preserve. The BMP being implemented is an erosion control feature and does not have for main purpose to act as a buffer.

APPLICANT	ADDRESS	SUB-WATERSHED	PROJECT TYPE	POLLUTION REMOVAL	AREA RESTORED	PROJECT COST	FUNDING REQUEST	STAFF REC	CAC REC
ROSS	4557 Timber Woods, Minnetonka	Purgatory Creek	Native Plant Restoration	NA	6544ft^2	$3996.50	$2996.50	$2996.50	$2996.50
JAY*		Duck Lake	Dry Creek Bed – Erosion BMP	NA	830ft^2	$4152	$3000	$3000 Approval with the condition that the creek bed uses nonwoven geotextile fabric instead of black plastic and recommends the use native plants.	Approval with the condition that the plant list to be revised to native materials since it seems that it is a buffer

Staff recommend the two residential cost-share applications in the table above be approved for funding at the amounts with staff recommendation.

Board action

It was moved by Manager_____, seconded by Manager _____ to approve funding for the four residential cost-share applications listed in the table above, in the amounts recommended by staff/CAC.

Cost share grant application
2018

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

Do not fill in gray boxes. District use only.

Applicant type (check one) ☒ Homeowner ☐ Non-profit - 501(c)(3)
☐ Business or corporation ☐ Public agency or local government unit ☐ School

Project type (check all that apply) ☐ Raingarden ☐ Vegetated swale ☒ Lake/creek/wetland buffer
☐ Shoreline/bank stabilization ☐ Wetland restoration ☐ Pervious hard surface ☐ Infiltration basin
☐ Conservation practice ☐ Other _____

Applicant information

Works or resides in district? ☐

Name Beth Ross Address 4557 Timber Woods Lane
City/State/Zip Mtka, MN 55345
Phone 612-227-6725 Alt phone _____ Email beth.ross.2011 @ gmail.com

Primary contact ☒ Same as applicant (leave blank)
Name _____ Address _____
City/State/Zip _____
Phone _____ Alt phone _____ Email _____

Project location
Address 4557 Timber Woods Lane City/State/Zip Mtka, MN 55345
Property Identification Number (PID) _____
Property owner(s) Beth & Tim Ross

Project located in district? ☐

Tributary to a waterbody? ☐ No ☐ Yes, indirectly ☐ Yes, adjacent

Project summary
Title Buckthorn Replacement / Hill Stabilization
Total project cost 3996.50 Grant amount requested ~~Sept 2019~~ 2996.50
Estimated start date September 2018 Estimated completion date Sept 2019
Sub-watershed _____

Project located in priority drainage area? ☐

Is project tributary to a water body? ☐ No, water remains on site ☒ Yes, indirectly ☐ Yes, directly adjacent

2-3 sentence project description

This project entails removing buckthorn along side of hill, alongside pond/drainage ditch and up the hill toward Hwy. Once removed planting of native shrubs, understory, and native plants to restore health of conservation area.

Is this work required as a part of a permit? ☒ No ☐ Yes
(If yes: describe how the project provides water quality treatment beyond permit requirements on the next page.)

Site visit One of the requirements for a complete application is a site visit from district staff.
Have you had a site visit? ☐ No ☒ Yes
(If you answered no, please contact staff to schedule one: 952-607-6512)

Project details

Do not fill in gray boxes. District use only.

Checklist To be considered complete the following must be included with the application.

- ☑ location map
- ☑ site plan & design schematics
- ☑ itemized budget or contractor bid
- ☑ project time-line
- ☑ proof of property ownership
- ☑ plant list & planting plan (if project includes plants)

Is time-line reasonable? ☐

Is budget reasonable? ☐

Is plan comprehensive? ☐

Does plant list conform to district's approved plant list? ☐

Description

Describe the current site conditions, as well as site history, and past management.

Hillsides full of Buckthorn draing into a drainage ditch.

What are the project objectives and expected outcomes? Give any additional project details.

Remove invasive species and stabalize hill for erosion and add shrubs and natives for water retention.

Are there multiple objectives? ☐

Does the project have well-defined, measurable results? ☐

List other key participants and their roles

Prairie Restoration - Buckthorn removal plants + planting

Does the project demonstrate strong partnerships & support? ☐

Which cost share goals does the project support? (check all that apply)

- ☐ Improve watershed resources
- ☑ Increase awareness of the vulnerability of watershed resources,
- ☑ Increase familiarity with and acceptance of solutions to improve waters
- ☑ Foster water resource stewardship

How does the project support the goals you checked?

This project shows my neighbors the benefit of improving the health of our woodlands thereby helping the watershed. Also, by posting on Facebook / Social Media I will help spread the word on how homeowners can help protect watershed.

Project details (continued)

Do not fill in gray boxes. District use only.

Benefits Estimate the project benefits in terms of restoration and/or **annual** pollution reduction. If you are working with a designer or contractor, they can provide these numbers. If you need help, contact the district cost share program coordinator.

Benefit	Amount	
Water captured		gal / year
Water infiltrated		gal / year
Phosphorus removed		lbs / year
Sediment removed		lbs / year
Land restored	6544	ft²

Drainage Pond is ~ 2000 ft² and water level varies

Does the project provide water quality treatment?

Does the project provide restoration?

How will you share the project results with your community?

Share on social media like Facebook pages for neighborhood and gardening with natives.

Is there educational value to the project?

Will the project be visible to the public?

Are there other projects that could be initiated as a result of this one?

Yes, my neighbors who also surrand the drainage ditch and have water flowing into it

Evaluation

How will the project be monitored and evaluated?

Provide follow up

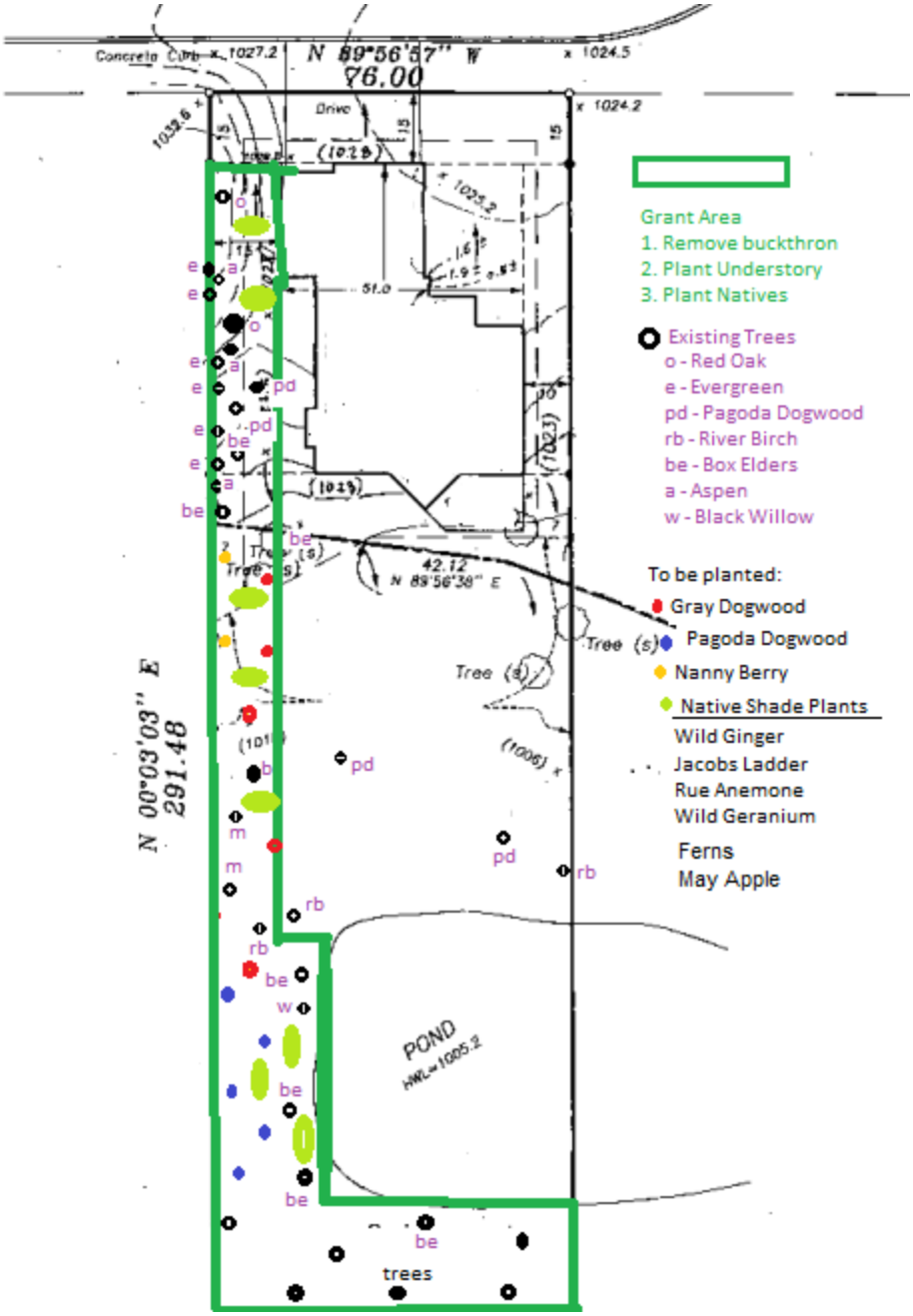
Maintenance agreement

I acknowledge that receipt of a grant is contingent upon agreeing to maintain the project for the number of years outlined in the cost share guidelines document ☑ Yes

Authorization

Name of landowner or responsible party Elizabeth Ross (Elizabeth Ross)

Signature Elizabeth Ross Date 6/11/2018


Concrete Curb
N 89°56'57" W
76.00
Drive
Grant Area
1. Remove buckthron
2. Plant Understory
3. Plant Natives
Existing Trees
o - Red Oak
e - Evergreen
pd - Pagoda Dogwood
rb - River Birch
be - Box Elders
a - Aspen
w - Black Willow
To be planted:
Gray Dogwood
Pagoda Dogwood
Nanny Berry
Native Shade Plants
Wild Ginger
Jacobs Ladder
Rue Anemone
Wild Geranium
Ferns
May Apple
N 00°03'03" E
291.48
42.12
N 89°56'38" E
POND
trees

Cost Estimating Worksheet - Ross Hillside Project 2

Beth Ross 4557 Timber Woods Lane Minnetonka, MN 55345 Buffer/Stabilization Planting	Quantity	Unit Cost	Total	Potential Source	SF- Date October 2018
Buckthorn Removal Overspray in Fall Black dirt/compost Mulch Posts Netting (deer)	 16 16 8 2	 $2.00 $2.50 $4.00 $40.00	$1900 $225 $32.00 $40.00 $32.00 $80.00	Prairie Restoration	
Pagoda Dogwoods- *Cornus alternifolia* (5 g) Gray Dogwoods *Cornus racemosa* (2 g) Nannyberry Trees *Viburnum lentago* (15 g) Native Plants #1 pots Bareroots native plants Bareroot native plants	5 5 2 20 200 50	$70 $15 $150 $6.70 $0.80 $1.50	$350 $75 $300 $134 $160 $75		
Labor Shipping/delivery	60	$10.00	$600 $80		
			$4083.00		

A)Total Requested Funds from RPDCWD: $3000.00 (Materials, Buckthorn removal and follow up, Shrub and Plant installation)
B) Total Matching/In-Kind Funds: $1083 (money/labor)
C) Project Total: $4083.00

Planting List
Understory Shrubs
Pagoda Dogwood
Gray Dogwood
Nannyberry

Bareroots
May Apple - *Podophyllum peltatum*
Wild Ginger - Asarum canadense
Ferns - Polystichum acrostichoides

Native Part Shade/Shade Plant List
Pennsylvania sedge - Carex pensylvanica
Wild Geranium - Geranium maculatum
Wild Ginger - Asarum canadense
Bloodroot - Sanguinaria canadensis
Jacobs Ladder - Polemonium caeruleum
Tall Meadow Rue - Thalictrum dasycarpum
Rue Anemone- Thalictrum thalictroides
Columbine - Aquilegia canadensis
(Save current native plants)

Project Timeline

October 2018.: - Remove Buckthorn

April - June: Clean up weeds and plant understory (Pagoda Dogwoods, Gray Dogwood, Nannyberry and and plant native plants)

September 2019 - Buckthorn follow up

Uphill towards house

Side of pond

Pond image

Past pond, uphill towards highway

Property map

Cost share grant application
2018

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

Do not fill in gray boxes. District use only.

Applicant type (check one) ☑ Homeowner ☐ Non-profit - 501(c)(3)
☐ Business or corporation ☐ Public agency or local government unit ☐ School

Project type (check all that apply) ☐ Raingarden ☐ Vegetated swale ☐ Lake/creek/wetland buffer
☐ Shoreline/bank stabilization ☐ Wetland restoration ☐ Pervious hard surface ☐ Infiltration basin
☐ Conservation practice ☑ Other Slow Erosion Flows

Applicant information

Works or resides in district?

Name Roberta Jay Address 6800 Park View Lane
City/State/Zip Eden Prairie, MN 55346
Phone 218-839-0520 Alt phone _____ Email jay.roberta@gmail.com

Primary contact

☑ Same as applicant (leave blank)

Name _____ Address _____
City/State/Zip _____
Phone _____ Alt phone _____ Email _____

Project location

Address 6800 Park View Lane City/State/Zip Eden Prairie, MN 55346
Property Identification Number (PID) 06-116-22-43-0040
Property owner(s) Roberta & Thomas Jay

Project located in district?

Project summary

Tributary to a waterbody?
No ☐ Yes, indirectly ☐ Yes, adjacent ☐

Title Jay Erosion Control
Total project cost $3424.88 Grant amount requested 2568.66
Estimated start date 9/1/2018 Estimated completion date 10/1/2018
Sub-watershed Purgatory Creek

Project located in priority drainage area?

Is project tributary to a water body? ☐ No, water remains on site ☐ Yes, indirectly ☑ Yes, directly adjacent

2-3 sentence project description

Stabilize a slope adjacent to the purgatory creek floodplain by installing a river bed with a small series of "check dams," mulch and native plants to slow erosive flows. The property collects drainage from adjacent lots and cul-de-sac and is having erosion of approx 1.5'/yr in the flow path. This project will reduc erosion and the amount of soil being loaded into the purgatory creek preserve.

Is this work required as a part of a permit? ☑ No ☐ Yes

(If yes: describe how the project provides water quality treatment beyond permit requirements on the next page.)

Site visit

One of the requirements for a complete application is a site visit from district staff.

Have you had a site visit? ☐ No ☑ Yes

(If you answered no, please contact staff to schedule one: 952-607-6512)

Project details

Do not fill in gray boxes. District use only.

Checklist To be considered complete the following must be included with the application.

- ☑ location map
- ☑ site plan & design schematics
- ☑ itemized budget or contractor bid
- ☑ project time-line
- ☑ proof of property ownership
- ☑ plant list & planting plan (if project includes plants)

Is time-line reasonable?

Is budget reasonable?

Is plan comprehensive?

Does plant list conform to district's approved plant list?

Description

Describe the current site conditions, as well as site history, and past management.

The property is situated in the lowest elevation in the neighborhood with run off traveling through the proposed erosion control slope site. An erosion control system is critical to prevent further erosion and filter runoff into the creek basin. There is currently no system or vegetation in place to slow erosion.

What are the project objectives and expected outcomes? Give any additional project details.

The objective is to stabilize the ground and slow erosion through installation of a river bed with "check dams" and the addition or mulch and native plants.

Are there multiple objectives?

Does the project have well-defined, measurable results?

List other key participants and their roles

Josh Saatzer; Creativescapes Landscaping - Contractor

Does the project demonstrate strong partnerships & support?

Which cost share goals does the project support? (check all that apply)

- ☑ Improve watershed resources
- ☐ Increase awareness of the vulnerability of watershed resources
- ☐ Increase familiarity with and acceptance of solutions to improve waters
- ☑ Foster water resource stewardship

How does the project support the goals you checked?

Reducing the amount of soil being loaded into the purgatory creek preserve ensures the health and longevity of the Purgatory Creek watershed. The project will reduce erosion and potentially improve water quality by filtering runoff.

Project details (continued)

Do not fill in gray boxes. District use only.

Benefits Estimate the project benefits in terms of restoration and/or **annual** pollution reduction. If you are working with a designer or contractor, they can provide these numbers. If you need help, contact the district cost share program coordinator.

Benefit	Amount	
Water captured	1.5 acres runoff	gal / year
Water infiltrated		gal / year
Phosphorus removed	1 1/2" soil/yr erosion	lbs / year
Sediment removed	1 1/2" soil/yr erosion	lbs / year
Land restored	N/A	ft^2

Does the project provide water quality treatment?

Does the project provide restoration?

How will you share the project results with your community?

The project will not be highly visible to the community but I am willing to capture results in before and after photos and an article describing the improvement for the district to use at their discretion.

Is there educational value to the project?

Will the project be visible to the public?

Are there other projects that could be initiated as a result of this one?

No.

Evaluation

How will the project be monitored and evaluated?

The homeowner will monitor and maintain for the lifespan of the practice. Vegetation will be managed as needed.

Maintenance agreement

I acknowledge that receipt of a grant is contingent upon agreeing to maintain the project for the number of years outlined in the cost share guidelines document ☑Yes

Authorization

Name of landowner or responsible party Roberta Jay

Signature Roberta Jay Date 7/3/2018

CREATIVE SCAPES
LANDSCAPING LLC

3795 McKnight Road • Chaska, MN 55318 • c: 952.292.6700

Name: Roberta Jay
Address: 6800 Park View Lane
Eden Prairie, MN 55346
Phone Number: (218)-839-0520

Date: 7/01/2018

Description of Work ESTIMATE	Prices
Phase One: Deck Area - Clean up and haul away existing wood and debris - Grade area under deck to have proper slope away from foundation - Install approximately 63 lineal feet of fieldstone boulder edger's - Spread approximately 4 tons of 1.5" river rock under deck area with a 6mil black plastic underlay	**$1,055.00**
Phase Two: Dry River Bed - Remove existing weeds and debris from side of house - Grade slope to proper elevations for adequate water drainage - Install approximately 115 lineal feet of 6"-12" fieldstone boulders for outside edger's and V patterns of dry river bed (approximately 4.5 tons of boulders) - Spread 3 tons of 1.5" river rock inside dry river bed area with a black plastic underlay - Spread 4 yards of hardwood fine mulch along the outsides of the dry river bed to prevent erosion and help stabilize the hillside	**$2,280.00**
Total	**$3,335.00**
Thank you!	

Jay Erosion Control Timeline

5/15 – 5/18/18	Determine project scope and design
5/20 – 5/30/18	Solicit contractor bids
5/31/18	Select Contractor
6/15/18	Schedule Project
7/15 – 8/1/18	Preparation

- Prepare access for contractor
- Prepare project area for contractor

8/1 –8/15/18	Contractor to secure all permits
8/1 – 9/1/18	Contractor to secure materials

- Washed river rock
- Mulch

9/1 – 9/15/18	Contractor work

- Removal of vegetation
- Installation of erosion control including “check dams”

/15 – 10/1/18	Vegetation Planting

- Purchase plants
- Plant Vegetation

Jay Retaining Wall/Erosion Control Timeline

5/15 – 5/18/18 Determine project scope and design

5/20 – 5/30/18 Solicit contractor bids

5/31/18 Select Contractor

6/15/18 Schedule Project

6/15 – 7/1/18 Preparation

- Prepare access for contractor
- Prepare project area for contractor

6/1 – 7/1/18 Contractor to secure all permits

7/1 – 8/1/18 Contractor to secure materials

- Washed river rock
- Drainage tile materials
- Top soil
- Retaining wall blocks
- Mulch

8/1 – 9/1/18 Project Execution

- Removal of vegetation
- Removal of existing retaining wall
- Installation of drainage tile
- Installation of retaining wall
- Installation of erosion control including “check dams”

Jay Erosion Slope Budget

Total = $3429.88

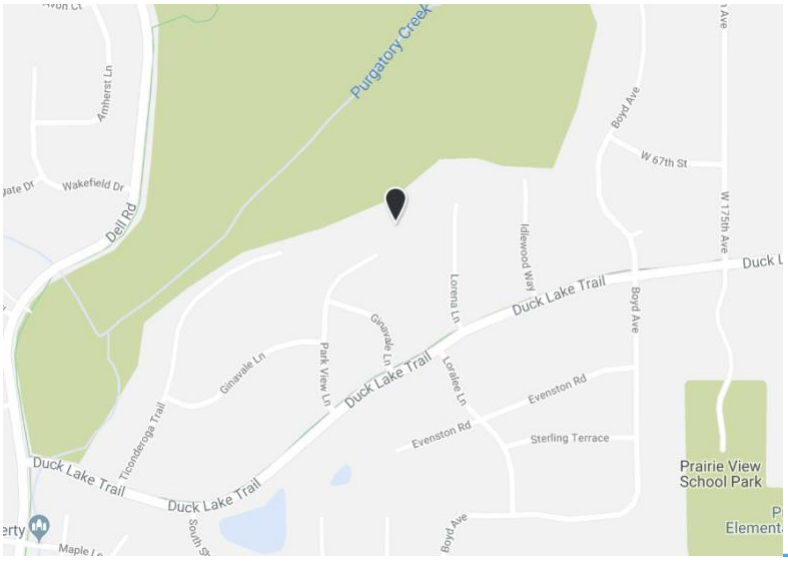
Contractor Bid: $2,280

- Remove existing weeds and debris from side of house
- Grade slope to proper elevations for adequate water drainage
- Install approximately 115 lineal feet of 6”-12” fieldstone boulders for outside edger’s and V patterns of dry river bed (approximately 4.5 tons of boulders)
- Spread 3 tons of 1.5” river rock inside dry river bed area with a black plastic underlay
- Spread 4 yards of hardwood fine mulch along the outsides of the dry river bed to prevent erosion and help stabilize the hillside

Vegetation: $1,149.88

- Budget based on “The Garden by the Woods” nursery
- Plants*:
    - Brunnera 30 @ $17 = $510 +tax
    - Sedges 16 @ $10 = $160 +tax
    - Ferns 30 @ $13.50 = $405 +tax
- Final plant selection may vary based on availability

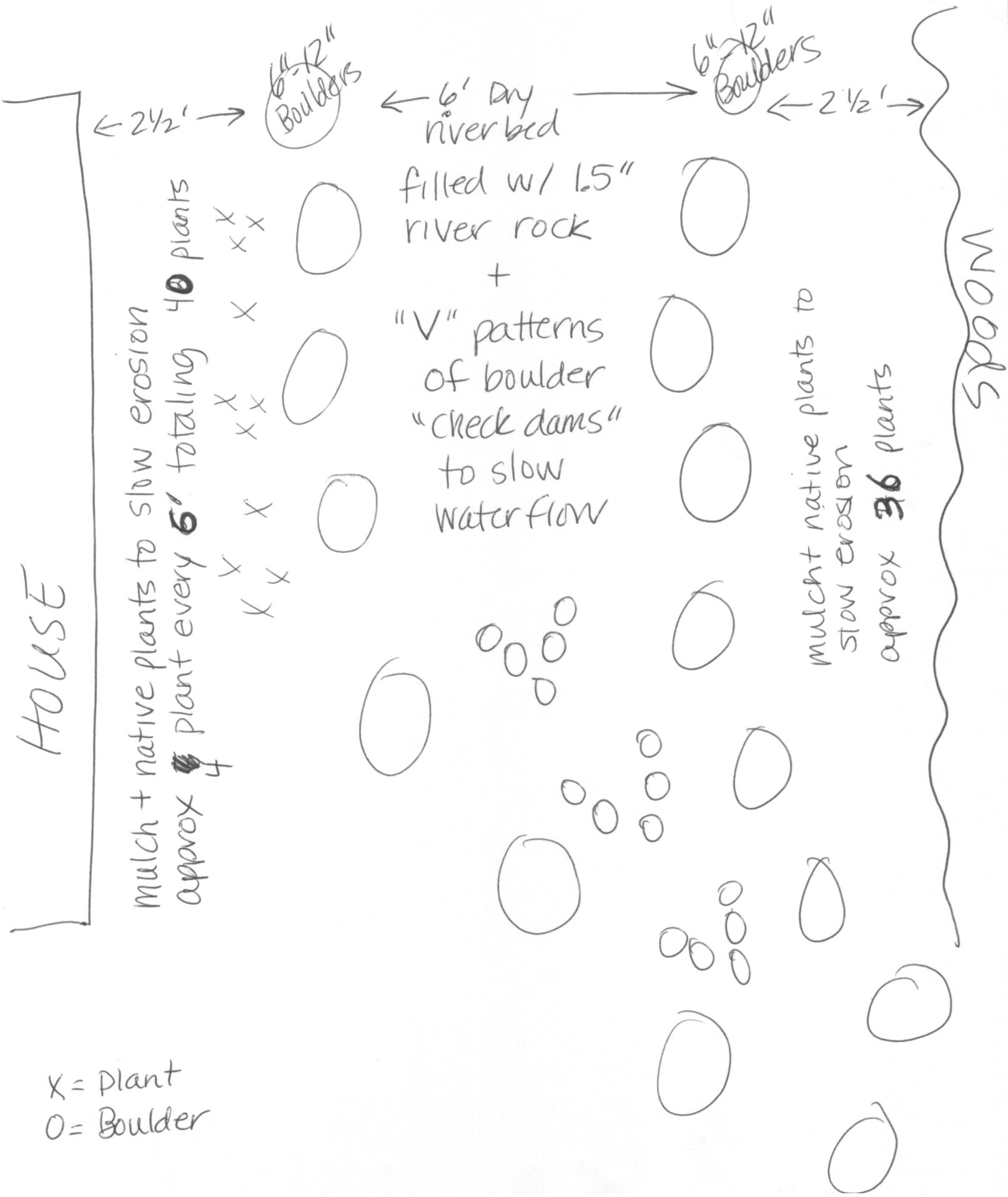
Location Map and Proof of Ownership:



PID: 0611622430040
6800 Park View La
Eden Prairie, MN 55346

Owner/Taxpayer	
Owner:	Thomas Jay & Roberta Jay
Taxpayer:	THOMAS JAY & ROBERTA JAY 6800 PARK VIEW LA EDEN PRAIRIE MN 55346
Tax Parcel	
Parcel Area:	0.32 acres 13,783 sq ft
Torrens/Abstract:	Torrens
Addition:	Edenborough
Lot:	010
Block:	002
Metes & Bounds:	

Erosion Control Slope: 11' wide x 60' long



X = Plant
O = Boulder

Minutes: Monday, July 16, 2018

RPBCWD Citizen's Advisory Committee Monthly Meeting
Location: RPBCWD offices: 18681 Lake Street, Chanhassen

CAC Members

Jim Boettcher	E	Curt Kobilarcsik	E	Marilynn Torkelson	P
Paul Bulger	P	Matt Lindon	P	Lori Tritz	P
Anne Deuring	P	Sharon McCotter	P	David Ziegler	P
Peter Iverson	E	Joan Palmquist	E		

Others

Claire Bleser	RPBCWD staff	P
Jill Crafton	RPBCWD Board Member	P

Summary of key actions/motions for the Board of Managers:
Cost Share Reviews:

1. Roberta Jay: The CAC recommends approval of the Jay cost share application with the condition that the plant list be revised to native materials since it seems that it is a buffer from the adjacent areas.
2. Beth Ross: The CAC recommend approval of the Ross Hillside project.
3. Smithson: This proposal still has no plan and needs a better plant list. Sharon moved and Lori seconded that we hold on recommending this project until we see a plan.
4. Prairie East Fifth Home Owners Association: The CAC does not recommend approval until 1) additional info on current system is provided including accountability on its performance, 2) more research on alternative cost-effective irrigation retrofit components, 3) the project include multi modal aspects, and 4) reporting of water conservation is conditional.

I. Opening

A. Call CAC meeting to Order: President Ziegler called the meeting to order at 6:05 p.m.
B. Attendance: As noted above
C. Matters of general public interest: None
D. Approval of Agenda: Anne asked that we have staff reports as an ongoing agenda item. Lori moved and Paul seconded to approve the agenda as amended. The motion carried.
E. Approval of June 18, 2018 CAC Meeting Minutes: Under item I.D., Sharon clarified that she wanted her name removed from the Watershed Pamphlet agenda item, not the whole item. Sharon moved to approve the June minutes as amended. Matt seconded. Motion carried.

II. Staff Reports

A. Claire Bleser reported that summer intern Aimi Dickel has been doing illustration work for the District, e.g. blue gills eating carp eggs, and ground water. We are invited to suggest illustrations that would be helpful and let Claire know.

We are still in data collection mode on lakes, creeks and wetlands. We are focused on Lake Lucy/Ann area and will move downstream from there. A development concept is proposed for a portion of Prince's site, so the District has been doing work on that site. Staff has been collecting plants for drying and, pressing for an inventory of wetland plants.

Tomorrow is the wetland walk and we are going to Rice Marsh Lake. Terry, Zach and Emma will be leading.

We will have a public hearing for Lotus and Rice Marsh Lake alum dealing with internal loads next month. We hope to implement this fall.

Ponds have been identified for the U of M Stormwater Pond Study: Aquila pond in Bloomington, Pond 42 in Shorewood, Pond 842B in Minnetonka, BC-P4 10C in Chanhassen, 7-14-B in Eden Prairie. These ponds can be found on website map.

The new website is on hold until Michele gets back.

Sharon asked about the One Water initiative. Claire reported that the District is leading the charge on it and has had meeting with Hennepin and Carver County. They are developing a potential grant program available to entities with approved Surface Water Management Plans. They are also developing a strategic planning process to get chloride applicators trained in using BMPs.

The Master Water Stewards information session is on August 7, at 5:30 at Smith Coffee and Café. We are seeking a junior water steward.

Terry Jeffrey will be the staff liaison at the August CAC meeting and Claire will be at September and maybe October meetings.

Claire reported the budget workshop will be Monday, August 27 at 5:30 pm. There is not much changed except the addition of a permit data base software system that would streamline reporting and violations tracking, in partnership with other districts.

The four summer interns are working out well. We'll probably have 3 next year.

Claire mentioned installing bike fix stations in honor of the Districts 50th Anniversary themed "Come Explore with us." Let her know of good places for bike fix stations.

III. Old Business

A. Updates from subcommittees as available.

1. Sharon presented the Silver Lake Homeowners Association stormwater drain stenciling program at the Board of Manager meeting, got approval for $150, but found we don't need Board approval. Claire can approve. The events flyers for the Chanhassen Splash Bash on July 21 have been approved.

B. Cost Share reviews

1. Roberta Jay: The project is a dry creek bed to slow down the runoff from the cul-de-sac to the wetland at the back of the lot. The runoff is currently causing erosion. Claire proposed a dry creek bed that requires no plastic. They choose not to vegetate the creek bed. Seth feels the design will effectively slow down erosion, but the questioned the plant material choices and prices. Marilynn moved and Lori seconded that the CAC recommend approval of the Jay cost share application with the condition that the plant list be revised to native materials since it seems that it is a buffer from the adjacent areas. Motion carried.
2. Beth Ross: The project involves buckthorn removal and planting understory materials. Seth recommends the project. The first phase of this same property was well done and maintained. Again the plant prices seem high. Sharon moved and Paul seconded that the CAC recommend approval of the Ross Hillside project. Motion carried.
3. Smithson: This proposal still has no plan and needs a better plant list. Sharon moved and Lori seconded that we hold on recommending this project until we see a plan. Motion carried.
4. Prairie East Fifth Home Owners Association: This project is requesting funding for updating the controllers on a one-year old irrigation system to be more water smart. The Association has a lot of turf grass and an inefficient irrigation system. The Board of Managers asked the CAC to discuss this application to see if we feel it is an appropriate use of cost share funds. On one hand the retrofit enables the perpetuation of unsustainable, water-wasting turf grass. On the other hand, retrofitting the system to be more efficient would conserve water. Water saving

irrigation systems are listed as an eligible project on the cost share application, so we can't use turf irrigation as a reason to reject this project. Claire has done a lot of research on cost, effectiveness and ease of use of irrigation controllers to help understand the situation. She feels more homework is needed. Discussion included the possibility of a conservation program other than the Watershed Cost Share, the possibility of requiring water education as a condition, possibly partnering with the City, why would a one-year old system be performing so poorly, the solution should be multi modal and not just new sprinkler heads, considering mow high, capture reuse, and converting turf area to natives. Claire will see if the City has been contacted. Sharon moved that we not recommend approval until 1) additional info on current system is provided including accountability on its performance, 2) more research on alternative cost-effective irrigation retrofit components, 3) the project include multi modal aspects, and 3) reporting of water conservation is conditional. Paul seconded. Motion carried. Claire asked if the District should sponsor a program like Woodbury's (providing smart controllers at a low cost). We agreed it would be a good idea. Kristen Semen from Woodbury would do a Lunch and Learn. Several indicated a Friday in September would work well.

C. Watershed Awareness Pamphlet: Sharon explained the idea to Claire that we feel more is needed to help guide people to the right people and resources for questions on homeowner water projects. Claire will think on it, talk to Terry, and talk about options.

D. Board of Managers meeting: David attended and prepared excellent notes which were distributed to the CAC. Highlights: We learned Claire can approve expenditures up to $1000 for CAC expenses, Dorothy Pederson will be at next CAC meeting, the 10-year plan was approved by BWSR, the Board voted to implement the plan, and Dick Ward was elected as president.

IV. New Business

A. Wetlands Walk: Tomorrow

B. MAWD Summer Tour: David attended and distributed excellent notes. 180 attended the boat tour and 120 attended the bus tour.

C. Adopt a Water/Creek/Lake/Shoreline: Tabled until next meeting.

IV. Looking Forward

A. CAC 2018 agenda items for our August meeting
   a. Adopt a Water/Creek/Lake/Shoreline
   b. Water conservation and incentive program
   c. Idea for education requirement for grant applicants
   d. Develop strategy on educating native plants with homeowners and equipping staff to promote it.

B. Upcoming events
   1. Wetlands Walk July 17, 6:00 – 8:00 pm
   2. RPBCWD Board of Managers meeting, August 1 at 7:00 pm, 18681 Lake Drive East
   3. RPBCWD CAC meeting August 20 at 6:00 pm, 18681 Lake Drive East
   4. RPBCWD Board Workshop August 27 at 5:30 PM, 18681 Lake Drive East
   5. Splash Bash: July 21 at Lake Ann Pavilion, everything water related 1:00 to 4:00

V. Adjourn CAC meeting:

A. Motion to adjourn and second by Sharon and Lori. Motion carried. Meeting adjourned at 9:17 pm.

REDPATH AND COMPANY

August 1, 2018

Claire Bleser
District Administrator
Riley Purgatory Bluff Creek Watershed District
18681 Lake Drive E.
Chanhassen, Minnesota 55317

Dear Claire:

Enclosed please find the checks and Treasurer's Report for Riley Purgatory Bluff Creek Watershed District for the one month and six months ending June 30, 2018.

Please examine these statements and if you have any questions or need additional copies, please call me.

Sincerely,

REDPATH AND COMPANY, LTD.

Mark C. Gibbs, CPA
Enclosure

REDPATH AND COMPANY

To The Board of Managers
Riley Purgatory Bluff Creek Watershed District
18681 Lake Drive E.
Chanhassen, Minnesota 55317

Accountant's Opinion

The Riley Purgatory Bluff Creek Watershed District is responsible for the accompanying June 30, 2018 Treasurer's Report in the prescribed form. We have performed a compilation engagement in accordance with the Statements on Standards for Accounting and Review promulgated by the Accounting and Review Services Committee of AICPA. We did not audit or review the Treasurer's Report nor were we required to perform any procedures to verify the accuracy or completeness of the information provided by the Riley Purgatory Bluff Creek Watershed District. Accordingly, we do not express an opinion, a conclusion, nor provide any form of assurance on the Treasurer's Report.

Reporting Process

The Treasurer's Report is presented in a prescribed form mandated by the Board of Managers and is not intended to be a presentation in accordance with accounting principles generally accepted in the United States of America. The reason the Board of Managers mandates a prescribed form instead of GAAP (Generally Accepted Accounting Principles) is this format gives the Board of Managers the financial information they need to make informed decisions as to the finances of the watershed.

GAAP basis reports would require certain reporting formats, adjustments to accrual basis and supplementary schedules to give the Board of Managers information they need, making GAAP reporting on a monthly basis extremely cost prohibitive. An independent auditing firm is retained each year to perform a full audit and issue an audited GAAP basis report. This annual report is submitted to the Minnesota State Auditor, as required by Statute, and to the Board of Water and Soil Resources.

The Treasurer's Report is presented on a modified accrual basis of accounting. Expenditures are accounted for when incurred. For example, payments listed on the Cash Disbursements report are included as expenses in the Treasurer's Report even though the actual payment is made subsequently. Revenues are accounted for on a cash basis and only reflected in the month received.

Redpath and Company, Ltd.

REDPATH AND COMPANY, LTD.
St. Paul, Minnesota
August 1, 2018

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

Treasurers Report

June 30, 2018

REPORT INDEX

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
Cash Disbursements
June 30, 2018

Accounts Payable:

Check #	Payee	Amount	
4518	EPR Properties	$67,590.00	**Issued 7/11/18**
4519	Life Time Fitness	16,600.00	**Issued 7/11/18**
4520	Barr Engineering	52,607.81	
4521	Carver County WMO	350.49	
4522	Carver Soil & Water Conservation District	7,731.04	
4523	CenterPoint Energy	58.46	
4524	CenturyLink	561.89	
4525	City of Chanhassen	12.46	
4526	Coveral of the Twin Cities	213.68	
4527	CSM Financial, LLC	7,353.70	
4528	Freshwater Scientific Services	2,350.00	
4529	HealthPartners	1,735.22	
4530	Iron Mountain	39.95	
4531	Kari Jo Johnson	445.00	
4532	Lincoln National Life Insurance	448.21	
4533	Metro Sales, Inc.	415.76	
4534	NCI, Inc.	26.58	
4535	Noah & Associates, Inc.	2,500.00	
4536	Dorothy E. Pederson	681.36	
4537	Redpath & Company	1,200.00	
4538	Richfield Bus Company	2,907.00	
4539	RMB Environmental Laboratories	3,560.00	
4540	RMB Environmental Laboratories	2,592.00	
4541	Southwest News Media	405.72	
4542	Wenck, Inc.	6,859.70	
4543	Xcel Energy	826.78	
4544	Smith Partners	8,634.43	
	Total Accounts Payable:	**$188,707.24**	

Payroll Disbursements:

	Payroll Processing Fee	178.57
	Employee Salaries	32,206.32
	Employer Payroll Taxes	2,540.66
	Employer Benefits (H.S.A. Match)	525.00
	Employee Benefit Deductions	(396.26)
	Staff Expense Reimbursements	903.39
	PERA Match	2,020.34
	Total Payroll Disbursements:	**$37,978.02**
Ck. #4518/4519	Escrow Refunds	(84,190.00)
EFT	Klien Bank - VISA	8,873.46
TOTAL DISBURSEMENTS:		**$151,368.72**

Memos

The 2018 mileage rate is 54.5 per mile. The 2017 rate was .53.5.
Klein Bank VISA will be paid on-line.

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
Fund Performance Analysis - Table 1
June 30, 2018

	2018 Budget	Fund Transfers	Revised 2018 Budget	Current Month	Year-to-Date	Year-to Date Percent of Budget
REVENUES						
Plan Implementation Levy	$3,420,000.00		$3,420,000.00	1,900,928.80	1,900,928.80	55.58%
Permit	20,000.00		20,000.00	-	22,453.00	112.27%
Grant Income	373,175.00		373,175.00	-	5,988.27	1.60%
Data Collection Income	-		-	-	171.78	---
Other Income	-		-	-	15,016.76	---
Investment Income	-		-	7,382.34	16,685.86	---
Past Levies	1,736,968.00		1,736,968.00	-	-	0.00%
Partner Funds	445,000.00		445,000.00	-	-	0.00%
TOTAL REVENUE	**$5,995,143.00**	**$0.00**	**$5,995,143.00**	**$1,908,311.14**	**$1,961,244.47**	**32.71%**
EXPENDITURES						
Administration						
Accounting and Audit	40,000.00		40,000.00	1,378.57	26,615.90	66.54%
Advisory Committees	4,000.00		4,000.00	-	1,311.46	32.79%
Insurance and bonds	12,000.00		12,000.00	-	-	0.00%
Engineering Services	103,000.00		103,000.00	7,610.00	45,829.92	44.50%
Legal Services	75,000.00		75,000.00	1,658.52	16,123.16	21.50%
Manager Per Diem/Expense	19,000.00		19,000.00	768.00	1,884.39	9.92%
Dues and Publications	8,000.00		8,000.00	-	8,439.00	105.49%
Office Cost	100,000.00		100,000.00	14,016.43	66,893.64	66.89%
Permit Review and Inspection	90,000.00		90,000.00	13,158.67	90,430.08	100.48%
Recording Services	15,000.00		15,000.00	-	3,353.00	22.35%
Staff Cost	434,000.00		434,000.00	40,421.66	216,401.49	49.86%
Subtotal	**$900,000.00**	**$0.00**	**$900,000.00**	**$79,011.85**	**$477,282.04**	**53.03%**
Programs and Projects						
District Wide						
10-year Management Plan	9,662.00		9,662.00	4,536.89	30,028.90	310.79%
AIS Inspection and early response	75,000.00		75,000.00	255.00	26,680.64	35.57%
Cost-share	200,000.00		200,000.00	7,731.04	8,134.04	4.07%
Creek Restoration Action Strategies Phase	20,000.00		20,000.00	-	-	0.00%
Data Collection and Monitoring	180,000.00		180,000.00	12,518.88	68,562.25	38.09%
District Wide Floodplain Evaluation - Atlas 14/SMM model	30,000.00		30,000.00	-	-	0.00%
Education and Outreach	115,000.00		115,000.00	7,752.94	59,452.83	51.70%
Plant Restoration - U of M	40,000.00		40,000.00	-	10,287.09	25.72%
Repair and Maintenance Fund *	177,005.00		177,005.00	-	-	0.00%
Survey and Analysis Fund *	13,464.00	(13,464.00)	-	-	-	---
Wetland Management*	150,000.00		150,000.00	7,424.82	24,707.25	16.47%
District Groundwater Assessment	-		-	-	166.38	---
Groundwater Conservation*	130,000.00		130,000.00	-	-	0.00%
Lake Vegetation Implementation	75,000.00		75,000.00	2,350.00	17,368.26	23.16%
Opportunity Project*	100,000.00		100,000.00	-	-	0.00%
TMDL - MPCA	10,000.00		10,000.00	-	-	0.00%
Stormwater Ponds - U of M	-	22,092.00	22,092.00	-	-	0.00%
Subtotal	**$1,325,131.00**	**$8,628.00**	**$1,333,759.00**	**$42,569.57**	**$245,387.64**	**18.40%**
Bluff Creek						
Bluff Creek Tributary*	236,741.00		236,741.00	3,842.80	21,858.80	9.23%
Chanhassen High School *	282,478.00		282,478.00	5,008.00	29,418.62	10.41%
Subtotal	**$519,219.00**	**$0.00**	**$519,219.00**	**$8,850.80**	**$51,277.42**	**9.88%**
Riley Creek						
Lake Riley - Alum Treatment*	22,424.00		22,424.00	-	17,423.96	77.70%
Lake Susan Improvement Phase 1 *	7,106.00		7,106.00	-	-	0.00%
Lake Susan Water Quality Improvement Phase 2 *	353,365.00	100,000.00	453,365.00	4,312.50	52,344.25	11.55%
Rice Marsh Lake in-lake phosphorus load	150,000.00		150,000.00	2,299.80	2,772.55	1.85%
Riley Creek Restoration (Reach E and D3) *	1,427,987.00		1,427,987.00	8,976.80	84,478.36	5.92%
Subtotal	**$1,960,882.00**	**$100,000.00**	**$2,060,882.00**	**$15,589.10**	**$157,019.12**	**7.62%**
Purgatory Creek						
Fire Station 2 (Eden Prairie)	100,262.00		100,262.00	-	-	0.00%
Purgatory Creek Rec Area- Berm/retention area - feasibility/design	50,000.00		50,000.00	-	-	0.00%
Lotus Lake in-lake phosphorus load control	345,000.00		345,000.00	4,559.90	29,841.95	8.65%
Lotus Lake - Feasability Phase 1	18,802.00		18,802.00	-	-	0.00%
Purgatory Creek at 101*	246,259.00	(100,000.00)	146,259.00	-	50.00	0.03%
Silver Lake Restoration - Feasibility Phase 1	11,003.00		11,003.00	-	7,857.50	71.41%
Scenic Heights	208,957.00		208,957.00	787.50	82,555.32	39.51%
Hyland Lake in-lake phosphorus load control	20,000.00		20,000.00	-	-	0.00%
Duck Lake watershed load	220,000.00		220,000.00	-	-	0.00%
Subtotal	**$1,220,283.00**	**($100,000.00)**	**$1,120,283.00**	**$5,347.40**	**$120,304.77**	**10.74%**
Reserve	**$99,628.00**	**($8,628.00)**	**91,000.00**	-	-	0.00%
TOTAL EXPENDITURE	**$6,025,143.00**	**$0.00**	**$6,025,143.00**	**$151,368.72**	**$1,051,270.99**	**17.45%**
EXCESS REVENUES OVER (UNDER) EXPENDITURES	**($30,000.00)**	**$0.00**	**($30,000.00)**	**$1,756,942.42**	**$909,973.48**	

***Denotes Multi-Year Project - See Table 2 for details**

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
Muti-Year Project Performance Analysis - Table 2
June 30, 2018

		FUNDING SOURCE			Month Ended	Year	Lifetime	
	Total Project	District funds	Partner Fund	Grants	06/30/18	To-Date	Costs	Remaining
Programs and Projects								
District Wide								
10-year Management Plan	**187,000.00**	187,000.00	-	-	4,536.89	30,028.90	207,366.99	(20,366.99)
District Wide Floodplain Evaluation - Atlas 14/SMM model	**30,000.00**	30,000.00	-	-	-	-	-	30,000.00
Repair and Maintenance Fund	**202,005.00**	177,005.00	-	-	-	-	25,000.00	177,005.00
Survey and Analysis Fund	**23,792.00**	23,792.00	-	-	-	-	23,792.00	-
Wetland Management	**150,000.00**	150,000.00	-	-	7,424.82	24,707.25	24,707.25	125,292.75
Groundwater Conservation	**130,000.00**	130,000.00	-	-	-	-	-	130,000.00
Opportunity Project*	**100,000.00**	100,000.00	-	-	-	-	-	100,000.00
Stormwater Ponds - U of M	**64,092.00**	22,092.00	42,000.00	-	-	-	-	64,092.00
Subtotal	**$886,889.00**	**$819,889.00**	**$42,000.00**	**$0.00**	**$11,961.71**	**$54,736.15**	**$280,866.24**	**606,022.76**
Bluff Creek								
Bluff Creek Tributary*	**292,362.00**	242,362.00	50,000.00	-	3,842.80	21,858.80	76,480.26	215,881.74
Chanhassen High School *	**368,000.00**	118,000.00	50,000.00	200,000.00	5,008.00	29,418.62	139,940.49	228,059.51
Subtotal	**$660,362.00**	**$360,362.00**	**$100,000.00**	**$200,000.00**	**$8,850.80**	**$51,277.42**	**$216,420.75**	**$443,941.25**
Riley Creek								
Lake Riley - Alum Treatment 1st dose *	**260,000.00**	260,000.00	-	-	-	17,423.95	254,999.82	5,000.18
Lake Susan Improvement Phase 1 *	**275,000.00**	275,000.00	-	-	-	-	267,894.28	7,105.72
Lake Susan Water Quality Improvement Phase 2 *	**662,491.00**	330,000.00	99,091.00	233,400.00	4,312.50	52,344.25	162,378.67	500,112.33
Rice Marsh Lake in-lake phosphorus load	**150,000.00**	150,000.00	-	-	2,299.80	2,772.55	2,772.55	147,227.45
Riley Creek Restoration (Reach E and D3) *	**1,565,000.00**	1,265,000.00	300,000.00	-	8,976.80	84,478.36	145,703.96	1,419,296.04
Subtotal	**$2,912,491.00**	**$2,280,000.00**	**$399,091.00**	**$233,400.00**	**$15,589.10**	**$157,019.11**	**$833,749.28**	**$2,078,741.72**
Purgatory Creek								
Fire Station 2 (Eden Prairie)	**139,287.00**	20,000.00	20,000.00	99,287.00	-	-	19,025.36	120,261.64
Purgatory Creek Rec Area- Berm/retention area - feasibility/design	**50,000.00**	50,000.00	-	-	-	-	-	50,000.00
Lotus Lake in-lake phosphorus load control	**345,000.00**	345,000.00	-	-	4,559.90	29,841.95	29,841.95	315,158.05
Purgatory Creek at 101*	**561,094.00**	561,094.00	-	-	-	50.00	414,885.60	146,208.40
Scenic Heights	**260,000.00**	165,000.00	45,000.00	50,000.00	787.50	82,555.32	133,598.26	126,401.74
Duck Lake watershed load	**220,000.00**	220,000.00	-	-	-	-	-	220,000.00
Subtotal	**$1,575,381.00**	**$1,361,094.00**	**$65,000.00**	**$149,287.00**	**$5,347.40**	**$112,447.27**	**$597,351.17**	**$978,029.83**
Total Multi-Year Project Costs	**$6,035,123.00**	**$4,821,345.00**	**$606,091.00**	**$582,687.00**	**$41,749.01**	**$375,479.95**	**$1,928,387.44**	**$4,106,735.56**

Riley Purgatory Bluff Creek WD
Balance Sheet
June 30, 2018

ASSETS

Current Assets			
General Checking-Klein	$ 91,863.01		
Checking-Klein/BMW	3,289,018.59		
Investments-FMV	947.69		
Investments-Standing Cash	285,109.13		
Investments-Wells Fargo	2,206,181.21		
Accrued Investment Interest	8,670.64		
Due From Other Govt.	154,436.00		
Taxes Receivable-Delinquent	20,556.16		
Pre-Paid Expense	17,508.63		
Security Deposits	7,244.00		
Total Current Assets			6,081,535.06
Property and Equipment			
Total Property and Equipment			0.00
Other Assets			
Total Other Assets			0.00
Total Assets		$	6,081,535.06

LIABILITIES AND CAPITAL

Current Liabilities			
Accounts Payable	$ 266,929.76		
Retainage Payable	13,469.38		
Salaries Payable	17,564.00		
Federal Withholding	19.00		
FICA/Medicare	103.28		
State Withholding	16.00		
Due to Other Govts.	32,650.00		
Permits & Sureties Payable	630,162.00		
Deferred Revenue	20,556.16		
Unavailable Revenue	6,666.00		
Total Current Liabilities			988,135.58
Long-Term Liabilities			
Total Long-Term Liabilities			0.00
Total Liabilities			988,135.58
Capital			
Fund Balance-General	4,183,187.00		
Fund Balance-Default	239.00		
Net Income	909,973.48		
Total Capital			5,093,399.48
Total Liabilities & Capital		$	6,081,535.06

RILEY PURGTORY BLUFF CREEK WATERSHED DISTRICT
Klein Bank VISA Activity
June 30, 2018

DATE	PURCHASED FROM	AMOUNT	DESCRIPTION	ACCOUNT #	RECEIPT
					Y
06/18/18	Randy's Environmental Services	62.24	Office Maintenance	10-00-4215	Y
06/21/18	Verizon	228.27	Phone Payments	10-00-4240	Y
06/22/18	Verizon	394.05	Phone Payments	10-00-4240	Y
07/10/18	Microsoft	126.17	Technology	10-00-4203	Y
07/20/18	Minnesota Judicial Branch	46.50	Parking Fee	10-00-4320	Y
		$857.23	**General Administration Total**		
06/12/18	SuperAmerica	88.46	Gas for Vehicle	20-05-4322	Y
06/14/18	Teledyne Instruments	351.04	Data Collection Supplies	20-05-4201	Y
06/14/18	Costco	170.89	Summer Tour Food	20-08-4250	Y
06/18/18	Staples	63.20	Summer Tour Publication Materials	20-08-4250	Y
06/18/18	Crumb Deli (adj.from previous month)	12.00	Eden Prairie HS Raingarden Lunch	20-03-4205	Y
06/18/18	A-Z Rental (adj.from previous month)	108.49	Eden Prairie HS Raingarden Lunch	20-03-4205	Y
06/18/18	A-Z Rental Refund	(105.49)	Eden Prairie Raingarden Native Plants	20-03-4205	Y
06/19/18	Mennard's	59.48	Data Collection Supplies	20-05-4201	Y
06/19/18	Mennard's	34.13	Data Collection Supplies	20-05-4201	Y
06/19/18	Lund's & Byerly's	13.98	Summer Tour Expenses	20-08-4250	Y
06/19/18	West Metro Supplies, Inc.	15.00	Eden Prairie HS Cost Share	20-03-4205	Y
06/20/18	Mennard's	(56.46)	Data Collection Supplies	20-05-4201	Y
06/20/18	Holiday	10.98	Summer Tour Expenses	20-08-4250	Y
06/20/18	Holiday	11.46	Ice	20-05-4201	Y
06/21/18	World Auto Repair	1,276.05	Vehicle Expense	20-05-4322	Y
06/21/18	FASTSIGNS	50.45	Car/Boat Decals	20-13-4322	Y
06/21/18	Kowalski's	94.29	Summer Tour Expenses	20-05-4205	Y
06/21/18	Holiday	62.94	Gas for Vehicle	20-05-4322	Y
06/22/18	Mennard's	97.98	Data Collection Supplies	20-05-4201	Y
06/22/18	Holiday	58.72	Gas for Vehicle	20-05-4322	Y
06/22/18	Brueggers	66.65	E & O Training Session	20-08-4205	Y
06/22/18	Kowalski's	21.30	Summer Tour Expenses	20-08-4205	Y
06/22/18	Chaska	(300.00)	Summer Tour Room Rental	20-08-4250	Y
06/25/18	Mennard's	44.71	Data Collection Supplies	20-05-4201	Y
06/25/18	Holiday	32.61	Gas for Vehicle	20-13-4322	Y
06/25/18	Cub Foods	1.79	Data Collection Supplies	20-05-4201	Y
06/26/18	Holiday	62.94	Gas for Vehicle	20-05-4322	Y
06/27/18	Amazon	118.92	Data Collection Supplies	20-05-4201	Y
06/29/18	Home Depot	88.06	Data Collection Supplies	20-05-4201	Y
06/29/18	Mennard's	75.25	Data Collection Supplies	20-05-4201	Y
07/06/18	Holiday	17.01	Gas for Vehicle	20-13-4322	Y
07/09/18	Uprinting	49.60	Labels	20-05-4201	Y
07/09/18	Minnesota Native Landscapes	927.00	Eden Prairie Raingarden Native Plants	20-03-4205	Y
07/09/18	Mennard's	6.94	Data Collection Supplies	20-05-4201	Y
07/10/18	Mennard's	63.43	Data Collection Supplies	20-05-4201	Y
07/11/18	Hoops & Trends	90.85	Apparel for Office	20-08-4260	Y
07/11/18	Holiday	32.61	Gas for Vehicle	20-13-4322	y
07/12/18	Mennard's	97.98	Data Collection Supplies	20-05-4201	Y
07/19/18	SuperAmerica	89.60	Gas for Vehicle	20-05-4322	Y
07/19/18	SuperAmerica	5.15	Data Collection Supplies	20-05-4201	Y
		$4,009.99	**District-Wide Total**		
		$4,867.22	**GRAND TOTAL**		

RESOLUTION NO. 2018-005
RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
BOARD OF MANAGERS

ORDERING THE RICE MARSH LAKE ALUM TREATMENT PROJECT

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

WHEREAS in 2016, the Riley Purgatory Bluff Creek Watershed District (District) completed the Rice Marsh Lake and Lake Riley Use Attainability Analysis, identifying alum treatment as the best management practice to reduce phosphorus internal concentrations;

WHEREAS the District has monitored and managed the carp population in Rice Marsh Lake to a level that now presents favorable conditions for alum treatment to reduce lake phosphorus levels;

WHEREAS in January 2017 Wenck Engineering prepared for the District a technical memo recommending an alum dose for Rice Marsh Lake to lower redox-phosphorus peaks;

WHEREAS in June 2018 Wenck Engineering updated the Rice Marsh Lake alum memo dosing to further detail the dosing of the alum;

WHEREAS on June 28, 2018, the Board of Water and Soil Resources Board approved the the District's 2018 watershed management plan ("Plan"); and on July 11, 2018, the Board of Managers adopted the Plan in accordance with Minnesota Statutes Section 103B.231, subdivision 10-11, and authorized its immediate implementation; the Capital Improvement Program in the Plan includes Rich Marsh Lake In-Lake Phosphorus Load Control, also known as the Rice Marsh Lake Alum Treatment Project ("Project");

WHEREAS on August 8, 2018, the District held a duly noticed public hearing on the Project, in accordance with Minnesota Statutes Section 103B.251, subdivision 3, to give interested members of the public an opportunity to comment on the Project, and the Board of Managers duly considered these comments;

NOW THEREFORE BE IT RESOLVED that the Board of Managers finds that the Project, pursuant to the recommendations of the District Engineer and Wenck Engineering enumerated above, is consistent with Rice March Lake nutrient reduction objectives of the District, and that the proposed project will be conducive to public health, will promote the general welfare, and complies with the Watershed Law, the Metropolitan Water Management Planning Law, and the District's Plan as approved and adopted;

BE IT FURTHER RESOLVED that the Board of Managers hereby confirms the Engineer's report, and orders that the Project be established and implemented through the coordination of a phased alum treatment with other best management practices to address external loading (as may be ordered separately by the Board of Managers) and thereby provide an integrated approach to

restoring Rice Marsh Lake's water quality and habitat, and that the Wenck Engineering, under direction of the Administrator, proceed to complete the necessary surveys, plans and specifications, and advertise for bids, and that the Administrator proceed, with the advice of legal counsel, to develop any necessary and appropriate site access or use agreements and necessary property rights for the Project for the due consideration and approval by the Board of Managers;

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

	Yea	**Nay**	**Abstain**	**Absent**
CRAFTON				
KOCH				
PEDERSEN				
WARD				

Upon vote, the president declared the resolution **_____.**

* * * * * * * * * * * *

I, _____ secretary of the Riley Purgatory Bluff Creek Watershed District, do hereby certify that I have compared the above resolution with the original thereof as the same appears of record and on file with the District and find the same to be a true and correct transcription thereof.

IN TESTIMONY WHEREOF, I set my hand this _____ day of _____, 2018.

_____

RESOLUTION NO. 2018-006
RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
BOARD OF MANAGERS

ORDERING THE LOTUS LAKE ALUM TREATMENT PROJECT

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

WHEREAS in 2016, the Riley Purgatory Bluff Creek Watershed District (District) completed the Lotus, Silver, Duck, Round, Mitchell, Red Rock Use Attainability Analysis Update; Lake Idlewild and Staring Lake Use Attainability Analysis; and Lower Purgatory Creek Stabilization Study, identifying alum treatment as the best management practice to reduce phosphorus internal concentrations;

WHEREAS the District has monitored and managed the carp population in Lotus Lake to a level that now presents favorable conditions for alum treatment to reduce lake phosphorus levels;

WHEREAS in March 2018 Wenck Engineering prepared for the District a technical memo recommending an alum dose for Lotus Lake to lower redox-phosphorus peaks;

WHEREAS on June 28, 2018, the Board of Water and Soil Resources Board approved the the District's 2018 watershed management plan ("Plan"); and on July 11, 2018, the Board of Managers adopted the plan in accordance with Minnesota Statutes Section 103B.231, subdivision 10-11, and authorized its immediate implementation; the Capital Improvement Program in the Plan includes Lotus Lake In-Lake Phosphorus Load Control, also known as the Lotus Lake Alum Treatment Project ("Project");

WHEREAS on August 8, 2018, the District held a duly noticed public hearing on the Project, in accordance with Minnesota Statutes Section 103B.251, subdivision 3, to give interested members of the public an opportunity to comment on the Project; and the Board of Managers duly considered these comments;

NOW THEREFORE BE IT RESOLVED that the Board of Managers finds that the Project, pursuant to the recommendations of the District Engineer and Wenck Engineering enumerated above, is consistent with the Lotus Lake nutrient reduction objectives of the District, and that the proposed project will be conducive to public health, will promote the general welfare, and complies with the Watershed Law, the Metropolitan Water Management Planning Law, and the District's Plan as approved and adopted;

BE IT FURTHER RESOLVED that the Board of Managers hereby confirms the Engineer's report, and orders that the Project be established and implemented through the coordination of a phased alum treatment with other best management practices to address external loading (as may be ordered separately by the Board of Managers) and thereby provide an integrated approach to restoring Lotus Lake's water quality and habitat, and that Wenck Engineering, under direction of

the Administrator, proceed to complete the necessary surveys, plans and specifications, and advertise for bids, and that the Administrator proceed, with the advice of legal counsel, to develop any necessary and appropriate site access or use agreements and necessary property rights for the Project for the due consideration and approval by the Board of Managers;

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

	Yea	**Nay**	**Abstain**	**Absent**
CRAFTON				
KOCH				
PEDERSEN				
WARD				

Upon vote, the president declared the resolution **_____.**

* * * * * * * * * * * *

I, _____ secretary of the Riley Purgatory Bluff Creek Watershed District, do hereby certify that I have compared the above resolution with the original thereof as the same appears of record and on file with the District and find the same to be a true and correct transcription thereof.

IN TESTIMONY WHEREOF, I set my hand this _____ day of _____, 2018.

_____

RESOLUTION NO. 2018-107

RILEY-PURGATORY-BLUFF CREEK WATERSHED DISTRICT
BOARD OF MANAGERS

Adopting amendments to rules

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

WHEREAS the Riley-Purgatory-Bluff Creek Watershed District, a governmental subdivision with powers set forth in Minnesota Statutes chapters 103B and 103D, is authorized to act to achieve the purposes set forth in those chapters for the protection, conservation and beneficial use of the waters and resources of the Riley-Purgatory-Bluff Creek watershed;

WHEREAS Minnesota Statutes section 103D.341 states that the RPBCWD Board of Managers must adopt rules to accomplish the purposes of chapter 103D and implement the powers of the managers as specified on Minnesota Statutes section 103D.335;

WHEREAS RPBCWD has a comprehensive set of rules, which were adopted November 5, 2014, as well as a map of High-Risk Erosion Areas, as described in the rules;

WHEREAS RPBCWD engaged its Technical Advisory Committee, consisting of knowledgeable and experienced representatives of government agencies and municipalities, in the review of potential amendments to the rules, developed to improve the efficiency and effectiveness of the rules, to ensure protection of water resources and property from excessive stormwater flows, and to spur more comprehensive and universal implementation of chloride-management best practices;

WHEREAS on May 9, 2018, the board authorized the issuance of draft rules amendments for comment, and RPBCWD issued the proposed amendments, along with a supporting and explanatory memorandum, and sent a copy of the proposed amendments to state review agencies, public transportation authorities that have jurisdiction within the watershed, and all cities and townships within the watershed, and posted the proposed amendments on the RPBCWD web site, and RPBCWD provided 45 days for comment in accordance with section 103D.341, and the comment period closed June 25, 2018;

WHEREAS during the comment period several parties provided RPBCWD with written comments on the proposed amendments, and on July 11, 2018, RPBCWD held a duly noticed public hearing on the proposed rules, at which RPBCWD received no further comment on the proposed amendments;

WHEREAS on July 11, 2018, in accordance with Minnesota Statutes section 103B.231, the Riley-Purgatory-Bluff Creek Watershed District Board of Managers adopted its fourth-generation watershed management plan, which recognized and planned for review and amendment of the RPBCWD rules to ensure they continue to contribute as effectively and efficiently as possible to the implementation of the powers of the managers as articulated in the plan;

WHEREAS the board has reviewed and given due consideration to all comments in preparing the final draft of the amendments, and the final memorandum supporting the amendments; and

WHEREAS RPBCWD finds the rules to be sound, reasonable and fair; to serve to protect, conserve and manage the beneficial use of the waters and resources of the watershed, and generally to promote the public welfare.

NOW, THEREFORE, BE IT RESOLVED that the Board of Managers hereby approves the attached Memorandum Supporting and Providing Explanation of the 2018 Amendments to the Riley-Purgatory-Bluff Creek Watershed District Rules and attached responses to comments, and adopts the attached amended rules of the Riley-Purgatory-Bluff Creek Watershed District with such nonsubstantive revisions as the administrator, on advice of counsel, deems necessary to properly finalize amendment of the rules, and map of High-Risk Erosion Areas;

BE IT FURTHER RESOLVED that the rules so amended will be effective for all permit applications received complete on or after October 1, 2018, except that applicants who have filed an application prior to the effective date may elect to have the application analyzed and permit-decision rendered under the amended rules, so long as RPBCWD has not issued a decision on the application as of August 9, 2018;

BE IT FURTHER RESOLVED that the RPBCWD Board of Managers directs the administrator to post the amendments, along with the final supporting memo and the responses to the comments received on the RPBCWD web site, and send the responses to commenters;

BE IT FURTHER RESOLVED that the board of managers directs the administrator to integrate the rules as amended hereby into the watershed management plan as Appendix I, consistent with the state Board of Water and Soil Resources staff determination that such an amendment is administrative, consistent with Minnesota Rules 8410.0140, subpart 1a; and

BE IT FINALLY RESOLVED, that RPBCWD administrator is directed to publish notice of the adoption of the amendments, mail a copy of the amended rules to the governing body of each city affected by the rules and public transportation authorities with

jurisdiction in the watershed, and file a copy of the amended rules in the offices of the Hennepin County Recorder and the Carver County Recorder, and otherwise to publish the amended rules in accordance with Minnesota Statutes section 103D.345.

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

	Yea	Nay	Abstain	Absent
CRAFTON				
KOCH				
PEDERSON				
WARD				

_____

Upon vote, the chair declared the resolution _____.

Dated: August 8, 2018

* * * * * * * * * * * *

I, _____, secretary of the Riley-Purgatory-Bluff Creek Watershed District, do hereby certify that I have compared the above resolution with the original thereof as the same appears of record and on file with RPBCWD and find the same to be a true and correct transcription thereof.

IN TESTIMONY WHEREOF, I set my hand this _____ day of _____, 2018.

_____

_____, Secretary

Riley-Purgatory-Bluff Creek Watershed District *draft* Rule Revision 45-Day Review Comments and Responses

#	Rule	Comment Synopsis	From	Response
1	General	The City sees and appreciates the great deal of effort that was put forth into listening to the TAC concerns related to the rules and permitting program. We appreciate the addition of administrative fast track permits, emergency repair language, utility buffer exemptions and the approach to permitting regional facilities. I look forward to working with the District on potential general permits and programmatic maintenance agreements. Thank you again for the opportunity to provide input and official comments. Please let me know if you have any questions.	Dave Modrow/ Eden Prairie	Thank you for your review, comment, and involvement.
2	General	The Metropolitan Council has finished its review of the Riley-Purgatory Bluff Creek Watershed District's draft rules. In our opinion, the District has drafted an excellent set of rules that will be a valuable tool for managing the district's water resources. The Metropolitan Council has no further comments on the draft rules.	Joe Mulcahy/ MCES	Thank you for your review, comment, and involvement.
3	General	How does the District intend to provide support for inspections related to rule enforcement? The City requests the District consider adding inspection staff, developing and hosting electronic field inspection tools, and reporting technology to assist municipalities within the District.	Vanessa Strong/ Chanhassen	RPBCWD currently inspects permit sites monthly. RPBCWD will continue its inspection program and evaluate any changes that may be necessary.
4	General	"Existing Single Family Residences" is a term used throughout the Rules. Does this include single family lots of record?	Vanessa Strong/ Chanhassen	Existing single-family refers to lots of record as of the date RPBCWD reinstated its rules.
5	General	Please continue to work with LMRWD for a consistent definition of steep slopes.	Vanessa Strong/ Chanhassen	RPBCWD appreciates the difficulties that can arise from having to comply with multiple jurisdictions and will continue to strive for uniformity with other organizations where it is practicable to do so.
6	Definitions	You might consider a more extended bioengineering definition pulled from MN rule 6115.0216 Subp. 3.	Jennie Skancke/DNR	RPBCWD finds that the definition in the rules is consistent with the cited state rule.

#	Rule	Comment Synopsis	From	Response
7	Definitions	it's not clear to me whether, under the definition of Impervious surface, this would include pervious pavers, since the surface of pavers is "compacted".	Jennie Skancke/DNR	Pavers are impervious. The performance of pavers in assessing compliance with Rule J is addressed on a case-by-case basis.
8	Definitions	100-year Flood Elevation: Including constructed stormwater facilities could be unintentionally restrictive. Constructed Stormwater Facility is not defined and could be interpreted very widely (Ditch, storm sewer, etc.).	Dave Modrow/Eden Prairie	RPBCWD understands "stormwater-management facility" ~~ies~~ to refer to a device or practice constructed or installed to limit rate of flow, retain volume and/or provide water-quality treatment of stormwater. A device designed and used solely to convey stormwater flows (a conveyance) is not a stormwater management facility. The rules have been amended to include a definition to underscore and make operative this understanding. RPBCWD's ~~judgment~~ determination is that an expansion of the compensatory flood storage requirement to such facilities will serve to protect downgradient property and resources from excessive flows without unreasonably burdening redevelopment. It is very likely that redevelopment that eliminates flood storage provided in constructed facilities will need to replace such storage to meet stormwater-management requirements (i.e., replacement constructed facilities will be provided that provide needed replacement storage in addition to treatment capacity).

#	Rule	Comment Synopsis	From	Response
9	Definitions	"100-year flood elevation" for stormwater facilities. [1]The City requests the District consider working with municipalities to obtain 100-year flood elevations for constructed stormwater facilities rather than rely entirely upon District studies. Many constructed facilities have this design information included in their site plans. The City would like to inquire if District funding may be available for any analysis or any required improvements as a result of this rule? [2]The City would like to inquire how this rule may impact a property owners' ability to make an expansion to their structure? Would they need a variance? [3]How will we or a property owner know whether the National Weather Service or Natural Resources Conservation Service Technical Release should be used?	Vanessa Strong/ Chanhassen	[1] RPBCWD will always utilize the best available data to support its permitting decisions and is amenable to working collaboratively with watershed cities and applicants to update its hydrologic and hydraulic model to provide a higher resolution for those areas not within a creek corridor. [2] RPBCWD declines to adopt an exception that effectively accepts increased flood risk as a matter of course for additions on existing single-family home properties, and prefers to analyze such circumstances case by case. RPBCWD reasons that compliance with the low-floor requirement is a sensible flood-protection measure that all new construction and reconstruction/remodeling projects should meet. RPBCWD understands that in circumstances such as those described the requirement may be difficult to achieve, even though having even part of a home protected from potential flooding is beneficial. [3] In order to determine the 100-year flood elevation, rainfall and snowmelt conditions need to be assessed to determine which produces the higher elevation.
10	Definitions	Emergency Work: The City would like the District to evaluate this exception to be available to private property owners as well as public entities. With more and more private stormwater infrastructure, this may be an important exception to multiple property owners.	Vanessa Strong/ Chanhassen	Public entities are responsible for maintaining and repairing public infrastructure, and public entities have experience and expertise supporting their efforts to ensure that emergency work is conducted in a manner that takes preservation of a public uses into consideration. These distinguishing factors support RPBCWD's limitation of the emergency work provisions in the rules to public activities.
11	Definitions	Low Floor: Please consider being consistent with State Building Code definition for lowest floor.	Vanessa Strong/ Chanhassen	RPBCWD's low-floor definition is consistent with numerous regulatory entities (cities) with whom its jurisdiction overlaps.

#	Rule	Comment Synopsis	From	Response
12	Definitions	Outfall: Please consider being consistent with MN Stormwater Manual definition: "Outfall" means the point source where a municipal separate storm sewer system discharges to a receiving water, **or the stormwater discharge permanently leaves the permittee's MS4**. It does not include diffuse runoff or conveyances that connect segments of the same stream or water systems (e.g., when a conveyance temporarily leaves an MS4 at a road crossing)." https://stormwater.pca.state.mn.us/index.php?title=MS4_APPENDIX_B:_DEFINITIONS_AND_ABBREVIATIONS	Vanessa Strong/ Chanhassen	The definition in the RPBCWD rules is unchanged, and to date has presented no significant permitting difficulties. Under such circumstances, RPBCWD has elected to retain the existing definition.
13	Definitions	Topsoil: Will any testing be required? What if in-situ topsoil does not meet this standard?	Dave Modrow/Eden Prairie	All topsoil must demonstrate the characteristics established in the definition of "topsoil" added to the rules. In-situ topsoil that does not demonstrate the characteristics in the definition must be augmented or replaced in whole or part. In many cases, field observation by qualified personnel will be sufficient to obviate testing to demonstrate the necessary characteristics, but the characteristics in the definition are provided to establish a definitive performance standard.
14	Rule B: Floodplain Management and Drainage Alterations	2.1 - Is it also watercourse or only waterbody?	Jennie Skancke/DNR	The definition of "waterbody" (in both the RPBCWD rules and state law) encompasses both watercourses and water basins. The use of the various terms is the rules is intentional in each instance.
15	Rule B: Floodplain Management and Drainage Alterations	In general, the City has ran into many instances where the District's current model does not have the resolution necessary to accurately model and enforce regional ponding issues. We have seen significant differences when compared to the original design 100-yr levels, even after adjusting for Atlas 14 rainfall depths. The proposed language could cause issues	Dave Modrow/ Eden Prairie	RPBCWD will always utilize the best available data to support its permitting decisions and is amenable to working collaboratively with watershed cities and applicants to update its hydrologic and hydraulic model to provide a higher resolution for those areas not within a creek corridor.

#	Rule	Comment Synopsis	From	Response
		with the regulation of constructed stormwater feature's high water levels.		
16	Rule B: Floodplain Management and Drainage Alterations	2.1 (5.1) – Exceptions need to be put in place for the filling/repairs of obvious erosion and displaced rip-rap. Many variances/permits could be avoided with this language.	Dave Modrow/ Eden Prairie	Please see the response to comment 26. Otherwise, RPBCWD declines to adopt an exclusion from review of filling in the floodplain, and has not experienced the scope of the rule to unreasonably trigger variance requests.
17	Rule B: Floodplain Management and Drainage Alterations	2.1 - Pages 13+: Floodplain rules are defined. The rules require a watershed permit and call for compensatory storage for any fill below the 100-year flood elevation of any constructed stormwater facility within the watershed (as opposed to only FEMA floodplains), with the compensatory storage to be located within the same floodplain and at or below the existing 100-year flood elevation. **Chaska would like to see an exception for facilities that are within a planned and approved municipal stormwater system or otherwise regulated by local controls.** Requiring compensatory storage within the City's stormwater ponding system will greatly restrict the City's ability to effectively and efficiently manage its system.	Dan Edgerton / Stantec for Chaska	For reasons reviewed in some detail with the Technical Advisory Committee and in the memo supporting the rules, RPBCWD is electing to add constructed stormwater facilities to the scope of the rule to address the significant excess-flow problems already manifest in the watershed. Because redevelopment will likely trigger the stormwater management rule in most instances, facilities constructed or reconstructed will likely provide the required compensatory storage. If the expansion of the rule to constructed facilities produces unintended and unreasonable negative consequences, RPBCWD will not hesitate to consider adjusting the scope of the rule.
18	Rule B: Floodplain Management and Drainage Alterations	3.2 – Expanding the floodplain rule to constructed facilities will hinder redevelopment where small, site specific BMPs have been sited to meet previous stormwater requirements. Variances would be required for BMP's taking in site drainage that may need to be relocated and elevated as a site redevelops. Many of these site specific BMP's do not take in drainage from upstream facilities.	Dave Modrow/ Eden Prairie	Please see the response to comment 17.
19	Rule B: Floodplain Management and Drainage	3.4.b. - Creekside impervious restrictions and replacement. Currently the structure setback from creeks is 50 feet within the City. Has the District assessed the number of non-conformities that will be created by this rule update and the process for non-conforming properties (eg. rebuilding a	Vanessa Strong/ Chanhassen	This requirement is only triggered if there is work within the floodplain; RPBCWD will not retroactively or affirmatively impose the requirement to require changes on properties where land-disturbing work is not otherwise proposed. The

#	Rule	Comment Synopsis	From	Response
	Alterations	garage)?		imperviousness and structure restrictions in subsection 3.4 actually are relaxed slightly here from requirements that have been in place in the watershed for many years without creating hard incommensurate with the risk addressed.
20	Rule B: Floodplain Management and Drainage Alterations	4.9 – The City does not currently obtain easements for privately maintained, constructed stormwater facilities. This causes long term confusion and misunderstandings related to maintenance and ownership.	Dave Modrow/ Eden Prairie	RPBCWD has revised the relevant provisions in both Rule B and Rule J to require that an applicant provide drainage easement and flowage easements only when required by the relevant municipality. That said, longtime practice suggests that most cities require dedication of flowage and/or drainage easements in platting land.
21	Rule B: Floodplain Management and Drainage Alterations	5.1 – Add exception for utility repair and work completed under a fast-track permit for sediment removal.	Dave Modrow/ Eden Prairie	An exception has been added to Rule B for removal of accumulated sediment from a water basin.
22	Rule B: Floodplain Management and Drainage Alterations	3.1 - Please clarify if this applies to additions to existing homes. If so, the city requests that this section be revised to allow the low floors of additions to existing homes be consistent with the rest of the principal structure. Raising the low-floor elevation of an addition if the rest of the structure is non-conforming is overly burdensome to the homeowner and does not provide added flood resiliency to the overall structure.	Tom Dietrich/ Minnetonka	RPBCWD declines to adopt an exception that effectively accepts increased flood risk as a matter of course for additions on existing single-family home properties, and prefers to analyze such circumstances case by case. RPBCWD reasons that compliance with the low-floor requirement is a sensible flood-protection measure that all new construction and reconstruction/remodeling projects should meet. RPBCWD understands that in circumstances such as those described the requirement may be difficult to achieve, even though having even part of a home protected from potential flooding is beneficial.
23	Rule C: Erosion Prevention	3 - The City appreciates the addition of topsoil standards.	Vanessa Strong/ Chanhassen	Thank you for your review and feedback.

#	Rule	Comment Synopsis	From	Response
	and Sediment Control			
24	Rule C: Erosion Prevention and Sediment Control	3.2c – How will this be enforced and at what point of the permit process?	Dave Modrow/ Eden Prairie	An applicant must demonstrate compliance with this criterion prior to closing out a permit.
25	Rule C: Erosion Prevention and Sediment Control	3.2d – Consider aligning with the MPCA CSW permit language so people are not waiting 7-14 days to stabilize their site. "Stabilization must be initiated immediately to limit soil erosion whenever any construction activity has permanently or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days."	Dave Modrow/ Eden Prairie	Paragraph 3.2d of Rule C has been revised to align with the state Construction Stormwater General Permit.
26	Rule D Wetland and Creek Buffers	2.2 – This is a great addition to the rule. Is the intent to include creek buffer exemptions for simple repairs or improvements of utilities falling under the provisions of Rule F?	Dave Modrow/ Eden Prairie	Under the exception as revised, the RPBCWD buffer requirements do not apply to either creeks or wetlands when a no-loss determination is made for the utility work in question. RPBCWD concurs in that the suggested change for fast-track maintenance permitting option is sensible and promotes the intent of paragraph 3.4 of Rule F. Work qualifying for fast-track shoreline or streambank permitting has been exempted from the buffer requirement.
27	Rule D Wetland and Creek Buffers	2.2 - The City of Minnetonka is extremely supportive of this modification, and appreciates the District's efforts in including this provision.	Tom Dietrich/ Minnetonka	Thank you for your review and feedback.
28	Rule D Wetland and Creek Buffers	3.1.b - How far up gradient from the existing wetland does the land disturbing activity regulation and the need to create a non-temporary wetland buffer apply? Is this distance the same as the buffer width that we would be required to create? If the wetland is not on the landowner's property, then the buffer is not required, right?	Beth Neuendorf/ MNDOT (11/2017)	"Downgradient" is determined based on site-specific analysis and is set by assessment of whether the wetland will or may in fact receive runoff from the area where land-disturbing work will take place. If the wetland is adjacent to the applicant's property and the required buffer would otherwise extend

#	Rule	Comment Synopsis	From	Response
				onto the applicant's property, a buffer measuring the applicable width from the delineated wetland edge must be provided. An applicant is required to provide buffer only on property on which the applicant holds the necessary property rights.
29	Rule D Wetland and Creek Buffers	3.1.c. - appears to require buffers 50 feet upstream and downstream of the disturbance. How is this executed if the applicant is not the property owner 50 feet from the disturbance?	Vanessa Strong/ Chanhassen	An applicant is required to provide buffer only on property on which the applicant holds the necessary property rights.
30	Rule D Wetland and Creek Buffers	3.2.vi – There is some confusion in the development community about how the High Risk Erosion Area buffer should be applied. Are applicants allowed to grade and develop in these areas, or are they restricted to pre-project conditions?	Dave Modrow/ Eden Prairie	Rule D does not preclude an applicant from grading within the high-risk erosion area.
31	Rule D Wetland and Creek Buffers	3.3.d: Where is the 3.1.e reference or is that meant to refer to section 3.3.e?	Beth Neuendorf/ MNDOT (11/2017)	Thank you for your review and feedback. Typos in the draft rule amendments have been corrected.
32	Rule E: Dredging and Sediment Removal	5.0 Language should clarify that work under this fast track permit does not trigger permit requirements for any of the other rules (Floodplain and Buffers).	Dave Modrow/ Eden Prairie	RPBCWD buffer requirements do not apply to incidental wetlands or to wetlands that are disturbed solely by utility improvements or repairs that are the subject of a no-loss determination from the relevant Wetland Conservation Act Local Government Unit, and no permit under Rule B is required for removing accumulated sediment from a water basin.
33	Rule F: Shoreline and Streambank Improvements	Please look for additional opportunities to use plain language and develop additional outreach material for residents. This is a very technical rule where the primary audience within the City is single family homeowners. The City is concerned the majority of homeowners would not be able to understand or interpret this rule as currently written.	Vanessa Strong/ Chanhassen	Thank you for your review and feedback. RPBCWD will develop guidance and outreach to support implementation of the amended rule. But the changes and reference to specific worksheet to calculated erosive forces are meant to facilitate ready compliance. Further, RPBCWD has extended the scope of permitted designers to include landscape

#	Rule	Comment Synopsis	From	Response
				architects, with whom property owners are likely to contract for stabilization projects that are likely to trigger the rule.
34	Rule F: Shoreline and Streambank Improvements	3.3.a.i - Consider adding "emergent" to the requirement	Vanessa Strong/ Chanhassen	Emergent vegetation can indeed provide for stabilization of shorelines and streambank. The cited provision allows for emergent as well as other types of stabilizing vegetation.
35	Rule F: Shoreline and Streambank Improvements	3.3.b.iii - Consider removing the need for graded gravel below riprap when a geotextile filter is used. Graded gravel can be hard to furnish and is not easily installed in areas of active erosion or in conditions subject to constant flow.	Dave Modrow/ Eden Prairie	If there are unique circumstances that preclude the placement of graded gravel, this can be handled through the variance process. As of yet, applicants have not experience unreasonable challenges in meeting this criterion.
36	Rule F: Shoreline and Streambank Improvements	3.7 - What is the timeframe for obtaining a fast track maintenance permit for shoreline and streambank stabilization? Is it the same as the other fast track permits?	Beth Neuendorf/ MNDOT (11/2017)	RPBCWD will endeavor to process complete fast-track application as quickly as possible.
37	Rule G: Waterbody Crossings and Structures	2 - Would this requirement apply to water oriented structures?	Vanessa Strong/ Chanhassen	Docks are expressly excluded. Any other structures constructed in contact with the bed or bank of a waterbody must comply with Rule G.
38	Rule G: Waterbody Crossings and Structures	3.2.d. What does providing a wildlife passage along each bank and riparian area look like? What is involved with this and what do we need to do to provide it?	Beth Neuendorf/ MNDOT (11/2017)	The nature and configuration of wildlife passage required for a particular site will depend on the nature of the wildlife present or that may be present in the area.
39	Rule G: Waterbody Crossings and Structures	Under the proposed rule revision, "*Construction, replacement or improvement of a waterbody crossing in contact with the bed or bank of a waterbody will provide wildlife passage along each bank and riparian area and fish passage in the waterbody by means that account for wildlife that are native to the area or may be present*"	Bill Alms & Alyson Fauske/ Shorewood	Please see response to comment 38.

#	Rule	Comment Synopsis	From	Response
		(3.2.d). The unrevised rule states that existing wildlife passage will be preserved, rather than provided. If the proposed rule were to be enacted, we foresee challenges in situations of redevelopment. Providing wildlife and fish passage at crossings that don't currently allow it may require changing existing structures in ways that could alter the intended functions of the structures and waterbodies.		
40	Rule G: Waterbody Crossings and Structures	3.2.e - Public entities must be able to undertake the work. The no build option may not be reasonable. Can there be an exemption to the no build for public entities? The minimal impact option will be selected, but we must be able to build.	Beth Neuendorf/ MNDOT (11/2017)	No-build is simply one option that may be provided to demonstration that the applicant has pursued the minimal-impact solution.
41	Rule G: Waterbody Crossings and Structures	6.2 – Is it the intent of the District to permit the repair and maintenance of existing inlets and outlets within WCA regulated wetlands? As currently stated, a Waterbody seems to encompass wetlands being they are a natural depression (Water Basin). Given the amount of outfalls into WCA wetlands the City currently manages in the City, obtaining permits for this work isn't feasible, nor is it was has been practiced by the District to date. The City suggests you add similar language related to no-loss and incidental wetlands found in Rule D, 2.2.	Dave Modrow/ Eden Prairie	Inlets and/or outlets in the bed or bank of a waterbody must comply with Rule G.
42	Rule J: Stormwater Management	The City would like the District to consider adding a tree preservation credit, and other credits similar to MCWD. The improvement of one natural resource at the cost of another is a significant concern.	Vanessa Strong/ Chanhassen	RPBCWD agrees that it is possible to provide multiple benefits from some practices. Contribution of tree preservation to stormwater management, however, is too speculative to be credited as a compliance measure. Preservation of an existing condition, for example, cannot readily mitigate for curve number increases elsewhere.
43	Rule J: Stormwater	3.1.a – Consider allowing applicants to model the critical rate control events using an MSE-3 rainfall distribution with site	Dave Modrow/ Eden Prairie	RPBCWD recognizes the validity and usefulness, for regulatory purposes, of MSE-3 rainfall distribution

#	Rule	Comment Synopsis	From	Response
	Management	specific Atlas 14 rainfall depths. The MSE-3 distribution is more widely accessible to consultants and was constructed to mimic regional nested distributions. I've found the MSE-3 distribution to be more conservative than the District's posted distribution in nearly every scenario as it relates to peak flow rates. Often times in HydroCAD models, the District's distribution results in lower peak flow rates than the MSE-3 and the dated Type II distributions.		data.
44	Rule J: Stormwater Management	3.1.b.ii.C – When does the site-specific infiltration capacity need to be provided? Consider aligning with the MPCA's proposed CSW permit language 16.11 "For design purposes, permittees must divide field measured infiltration rates by 2 as a safety factor or permittees can use soil-boring results with the infiltration rate chart in the Minnesota Stormwater Manual to determine design infiltration rates. When soil borings indicate type A soils, permittees should perform field measurements to verify the rate is not above 8.3 inches per hour. This permit prohibits infiltration if the field measured infiltration rate is above 8.3 inches per hour." Consider adding the safety factor and capping design infiltration rates to the maximum MPCA design rate of 1.63 inch/hour.	Dave Modrow/ Eden Prairie	RPBCWD has elected to require an infiltration test and analysis at all BMP locations to allow for design of stormwater management facilities based upon best available data. 3.1.b.v has been added to reflect this requirement. As stormwater management facility design cannot be based upon soil borings and the MN Stormwater Manual infiltration rate chart. RPBCWD declines to adopt the 1.63" per hour MPCA design rate cap.
45	Rule J: Stormwater Management	3.2a – The water quality requirement threshold for linear reconstruction projects should match the abstraction threshold of 3.2b. Right of way is typically limited in neighborhood reconstructs forcing costly proprietary structural BMPs that have high short term capital expenditures and carry long term maintenance concerns. The City's water quality improvement efforts and funding should be aimed at regional solutions for undertreated areas based on MPCA Waste Load Allocations and other water quality studies that are aimed at strategic implementation plans.	Dave Modrow/ Eden Prairie	The rules have been amended to allow for the use of regional facilities and have always allowed for water quality treatment to be provided via offsite facilities.
46	Rule J: Stormwater	3.3 – The MPCA has proposed significant prohibitions to infiltration within its current draft of the Construction	Dave Modrow/ Eden Prairie	The RPBCWD Stormwater Management Rule as proposed to be amended provides for adequate

#	Rule	Comment Synopsis	From	Response
	Management	Stormwater Permit that will become effective August 1st, 2018. In particular, these prohibitions include all areas with Type D soils and all areas within an Emergency Response Area. Both of these prohibitions will widely restrict the use of infiltration to meet the District's abstraction requirements. Consider adding more guidance for restricted sites to allow for more feasible alternatives outside of capture and reuse to avoid the subjectivity of the "Maximum Extent Practicable." Consider allowing enhanced filtration as an alternative where infiltration is prohibited.		avenues to compliance for sites with the conditions cited.
47	Rule J: Stormwater Management	3.6.a and c – Consider revising to read "At least two feet above the 100-year high water elevation and one foot above the …"	Dave Modrow/ Eden Prairie	RPBCWD has not found that its freeboard requirement is less than fully protective.
48	Rule J: Stormwater Management	3.7 – The City does not currently obtain easements for privately maintained, constructed stormwater facilities. This causes long term confusion and misunderstandings related to maintenance and ownership.	Dave Modrow/ Eden Prairie	It appears that the reference to a rule provision here is not quite right. But RPBCWD has revised the relevant provisions in both Rule B and Rule J to require that an applicant provide drainage easement and flowage easements only when required by the relevant municipality. That said, longtime practice suggests that most cities require dedication of flowage and/or drainage easements in platting land.
49	Rule J: Stormwater Management	3.8 - The City requests that this provision of the rule not apply to public agencies, as chloride use and reduction documentation is already a component of the MS4 permit, which does not apply to private entities.	Tom Dietrich/ Minnetonka	Absent a criterion-specific reason to distinguish certain types of impervious surface from others, RPBCWD must apply its requirements uniformly across all types of property. Public entities' experience and leadership in chloride management can facilitate quicker and more comprehensive compliance by private property owners without adding significant additional burden to public entities.
50	Rule J:	3.8 - Under the proposed rule revision, applicants (other than	Bill Alms &	RPBCWD will provide, via its web site, guidance

#	Rule	Comment Synopsis	From	Response
	Stormwater Management	single-family home sites) must provide a plan for post-project chloride management. To enable this rule revision to have the desired effect, we would like to see the District issue guidance regarding the development of chloride management plans and set up a framework for enforcement of submitted plans.	Alyson Fauske/ Shorewood	and a template for compliance with the chloride management plan requirement.
51	Rule J: Stormwater Management	4 - Page 47+: Regional stormwater management is allowed with an approved regional plan. Does a City's local surface water management plan qualify as a regional plan under this rule? If so, does this supersede the need for compensatory fill on a stormwater facility basis?	Dan Edgerton / Stantec for Chaska	RPBCWD will review and approve plans on a case-by-case basis, but as a general matter city local water management plan would not provide the necessary detail to serve as a regional management plan, which must provide for facilities to achieve compliance with the criteria in subsection 3.1 of the rule for a defined drainage area or subwatershed.
52	Rule J: Stormwater Management	4 - The City is very supportive of the new section 4 of Rule J. The City prioritizes regional stormwater management in its draft LWMP, and tends to pursue opportunities for regional stormwater management.	Vanessa Strong/ Chanhassen	Thank you for your review and comment.
53	Rule J: Stormwater Management	Appendix J1 – The City appreciates this very useful document	Vanessa Strong/ Chanhassen	Thank you for your review and comment.
54	Rule J: Stormwater Management	Chloride management: Can public entities use their MS4 SWPPP to comply with the chloride post project management plan? Can this be written into the Rules?	Beth Neuendorf/ MNDOT (11/2017)	A public entity's stormwater pollution prevention plan may serve as a chloride management plan if it complies with the criteria.

Comments Received from:

City of Chanhassen
City of Eden Prairie
City of Shorewood
City of Minnetonka
City of Chaska
MN Department of Natural Resources
Metropolitan Council
MN Department of Transportation

RILEY-PURGATORY-BLUFF CREEK WATERSHED DISTRICT
Memorandum Supporting and Providing Explanation of ~~Proposed Revisions of~~ the 2018 Amendments to the Riley-Purgatory-Bluff Creek Watershed District Rules

~~May~~ August ~~8~~10, 2018

This memorandum presents background on, technical support for and an explanation of ~~proposed~~ amendments of the Riley-Purgatory-Bluff Creek Watershed District rules adopted August 8, 2018. ~~RPBCWD proposes to adopt a new enforcement rule as well.~~ The memo supports RPBCWD's ~~judgment~~ determination that the ~~proposed~~ changes to the rules will improve the capacity of its regulatory program to protect water resources in the watershed. It describes the basis for RPBCWD's ~~determination~~ finding that the effectiveness of the rules, as revised, in protecting water resources and minimizing flooding reasonably balances the burden incurred by property owners in complying with the rules.

~~After a period in which RPBCWD did not operate a permitting program, RPBCWD reestablished its regulatory role near the end of 2011, and the ensuing three years' experience implementing the rules led to many of the changes proposed.~~

RPBCWD ~~proposes to~~ amended the following rules:

- Rule A – Procedural Requirements
- Rule B – Floodplain Management and Drainage Alterations
- Rule C – Erosion and Sediment Control
- Rule D – Wetland and Creek Buffers
- Rule E – Dredging and Sediment Removal
- Rule F – Shoreline and Streambank Improvements
- Rule G – Waterbody Crossings and Structures
- Rule I – Appropriation of Groundwater
- Rule J – Stormwater Management

In addition, RPBCWD ~~proposes to~~ adopted accompanying changes to the rules definitions and a new Rule N – Enforcement.

Opportunities to comment

In accordance with statutory requirements RPBCWD ~~wishes to receive~~ provided opportunity for written comments on ~~its proposed~~ the draft revisions~~, and invites interested persons and organizations to submit written comment on the revisions on or before the close of business on~~ The written comment period closed ~~Tuesday,~~ June 25, 2018. Representatives from state agencies, most of the cities in the watershed and the Metropolitan Council submitted written comments on the proposed amendments. No private landowners commented.

RPBCWD also held ~~prefers submission of comments by email to Terry Jeffery, permit coordinator, at tjeffery[at]rpbcwd.org. But comments also may be sent to Mr. Jeffery at the RPBCWD offices, 18681 Lake Drive East, Chanhassen MN 55317.~~

~~State and regional resource protection agencies, local governments and potentially regulated parties are particularly encouraged to review the proposed changes to help RPBCWD ensure~~

~~that they are fully protective of water resources without creating excessive administrative costs or placing an undue burden on those subject to them. Comments on specific provisions in the proposed rules and how they may apply in practice are very useful. Similarly, critique is most valuable when accompanied by notes on a specific change RPBCWD could make or a suggested alternative approach it could take.~~

~~In addition to the written comment period, RPBCWD will hold~~ a public hearing on the revisions as part of the regular meeting of the managers~~, starting at 6 p.m.,~~ on July 11, 2018~~, at the RPBCWD offices at 18681 Lake Drive East, Chanhassen~~. No further comments were offered a~~A~~t the hearing~~ any interested person will have the opportunity to address the RPBCWD Board of Managers concerning the proposed revisions and the incorporation of the rules into the RPBCWD plan~~.

The amendments ~~may~~ were ~~be~~ revised and supplemented in response to comments. ~~In addition, t~~This memo – which was originally drafted to support and explain the amendments when first proposed – has been revised ~~will be updated, as needed, to address comments received, and will be reissued in final form~~ to support the managers' adoption of the final revisions to the rules and to provide property owners and project proposers with guidance and background on the rules.

In adopting the rules, t~~T~~he RPBCWD Board of Managers ~~will consider adopting the revised rules at the regular meeting on July 11, 2018. When adopting the revised rules, the managers will set a date on which~~ established that the amended rules will be effective throughout the watershed ~~. RPBCWD has tentatively identified~~ for all applications received complete on or before October ~~August~~ 1, 2018~~.~~; Prior to the effective date, however, the managers also allowed applicants who wished to have their applications considered under the new rules to affirmatively elect to do so ~~as the target effective date. Permit applications that are not complete as of the effective date will be subject to the amended rules, though an applicant who has submitted a complete application prior to that date may request to have the matter determined in accordance with the revisions.~~

The RPBCWD rules as amended ~~are~~ have been administratively incorporated ~~by reference~~ into the district's updated watershed management plan, *Planning for the Next Ten Years 2018-2027*, which is available at www.rpbcwd.org, along with the amended rules, this memo and the comments received on the amendments and RPBCWD's responses thereto ~~the final draft of which is at the time of this memo undergoing final review for approval by the state Board of Water and Soil Resources. In conjunction with finalizing and adopting the amendments to the rules, RPBCWD will incorporate the updated rules into the watershed plan.~~

~~II.~~ BACKGROUND

Authority

Minnesota Statutes chapters 103B and 103D provide legal authority for RPBCWD's rules. Section 103D.341 requires watershed districts to develop and adopt rules, and section 103D.345 provides authority and basic structure for permitting programs. Watershed districts in the Twin Cities metropolitan area are authorized to regulate the water-resource impacts of land use and development where cities have not adopted district-approved local water management plans or

where cities elect to defer exercise of regulatory authority to the watershed district.[1] A regulatory program is a critical and necessary component of a metro watershed district's implementation of its watershed management plan.[2]

RPBCWD reestablished its regulatory program in late 2014 after a roughly seven-year period during which implementation of regulatory goals and policies was left to the cities in the watershed. In conjunction with and to support the reinstatement of the program, RPBCWD provided extensive findings and analysis, as well as detail on the legal framework for the regulatory program. (Please see the Supporting Documents section of the permitting program web page at http://rpbcwd.org/permits/.)

~~If it wishes, a city in the watershed may elect to amend its local water management plan and submit implementing ordinances to RPBCWD for review. On RPBCWD's approval of the city's plan[3] and determination that the implementing ordinances will protect water resources as well or better than RPBCWD's rules, the city and watershed organization would agree that the city will exercise sole regulatory authority for the relevant rule areas.[4] Importantly, this does not mean that a watershed city needs to adopt the RPBCWD rules; it means that the RPBCWD board must find, based on analysis of the engineer, counsel and staff, that the city's approach is reasonably likely to produce equivalent protection. (RPBCWD will continue to exercise authority for regulatory responsibilities that are uniquely watershed organizations'.) The delineations of authority would be articulated in a memorandum of understanding submitted for approval of the city council and the RPBCWD Board of Managers. The MOU also would provide a framework whereby the two entities will regularly meet and collaborate to ensure that fully protective water resource standards and criteria are in place, effectively implemented and diligently enforced.~~

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1 Minn. Stat. §§ 103D.335, subd. 23; 103B.211, subd. 1, providing metro watershed organizations with authority to regulate the use and development of land in the watershed when one or more of the following conditions exists:

> (i) the local government unit exercising planning and zoning authority over the land … does not have a local water management plan approved and adopted in accordance with the requirements of section 103B.235 or has not adopted the implementation program described in the plan;
> (ii) an application to the local government unit for a permit for the use and development of land requires an amendment to or variance from the adopted local water management plan or implementation program of the local unit; or
> (iii) the local government unit has authorized the organization to require permits for the use and development of land.

2 Minn. R. 8410.0105, subp. 6.

~~3 For RPBCWD to approve a local water management plan wherein the city indicates that it will exercise sole regulatory authority, the city water plan would have to include a commitment to timely update city ordinances in response to any substantial amendment (e.g., adoption of a new standard or requirement) of the RPBCWD rules.~~

~~4 *See* Minn. R. 8410.0105, subp. 6 (setting out framework for relationship between watershed district rules and city ordinances).~~

Development of the ~~Proposed~~ Changes

RPBCWD undertook updating of its rules as a so-called housekeeping endeavor. After three years of implementing the rules adopted in late 2014, staff had identified several respects in which the rules could be made to function more efficiently. As revisions were being prepared, though, RPBCWD staff and managers elected to explore a couple of key policy-driven revisions as well.

The limited scope of the rulemaking allowed RPBCWD to conduct an efficient feedback-gathering program with its Technical Advisory Committee. The TAC met in November 2017 and provided feedback on an initial set of changes. The TAC met again in late February 2018 to review amendments that had been revised in response to the initial feedback and discuss the option of requiring development and redevelopment projects to reduce stormwater rates from existing conditions. (The results of this review are discussed below.) ~~In the final draft issued now, the proposed~~ The final adopted amendments remain largely clarifying and streamlining, with ~~; the~~ limited policy initiatives ~~proposed~~ that are discussed in some detail below.

In implementing its amended rules~~keeping with the basic intent of the proposed changes~~, RPBCWD will continue to seek to make its permitting process more efficient through streamlining of its administration of the program.

III. ~~PROPOSED~~ CHANGES

Highlights – Changes in Response to Comments

In the main, the comments received on the draft amendments covered technical specifics and reprised issues that had been addressed in Technical Advisory Committee meetings. A handful of comments broached substantive policy questions that staff brought to the managers for review and direction at the July 11, 2018, meeting. Following are brief discussions of each of these substantive comment areas, along with the ultimate direction RPBCWD took in response.

- **The 2-foot freeboard requirement in Rule J subsection 3.6 should not apply to additions to existing homes.**

RPBCWD elected not to adopt an exception that effectively allows increased flood risk for additions and other work on existing single-family home properties. Rather, challenges of complying with the freeboard requirement that lead a homeowner to request a variance from the requirement and accept a deed record of the flood risk should be heard by the managers case-by-case.

- **RPBCWD's requirements for stabilization of sites at which construction activity has ceased, permanently or temporarily, should match state general permit requirements.**

Staff and the engineer concurred that construction site owners should not be allowed or encouraged by RPBCWD rules to leave property, at which land-disturbing activities have started, in an unstable condition after work has ceased, creating risk of erosion and sedimentation to nearby water resources and infrastructure. Requiring small projects (that would not be subject to the state requirements) to comply with shorter stabilization times

should not impose substantial burden (such sites need to be stabilized anyway) and will mitigate a not-uncommon risk to water resources.

- **Exempt projects eligible for fast-track shoreline and streambank stabilization permits from compliance with buffer requirements.**

Staff and the engineer concur that the goal of the fast-track permit option in Rule F – to encourage property owners to maintain stable shorelines and streambanks – is somewhat undermined by requiring that a buffer be established when the work to be undertaken on the shoreline or streambank is maintenance. Exemption language was added to paragraph 2.2 of the Rule D to eaffect this decision.

- **Consider rule changes and production of guidance to more readily facilitate compliance with stormwater-management requirements for work in areas with predominantly hydrologic soil group D soils (clay) and in areas designated Emergency Response Areas for purposes of city drinking-water purposes.**

The RPBCWD Stormwater Management Rule provides for adequate avenues to compliance for sites with the types of conditions cited, as well as contaminated sites – i.e., places where infiltration may be ineffective and/or threaten groundwater. Rather than a blanket no-infiltration approach for such sites, staff and the engineer determined that case-by-case analysis of specific site conditions remains warranted. The subjectivity, as the commenter refers to it, of the maximum extent practicable fallback standard in subsection 3.3b of the rule has proven a very useful provision for the engineer's determinations that infiltration systems are ineffective on certain sites, and has allowed for approval of projects deploying non-infiltrative stormwater-management systems without variances, while continuing to ensure best-possible protection of water resources.

In addition to the above-described changes, in finalizing the amendments in response to comments, RPBCWD:

- Concurred that removal of accumulated sediment from a water basin should not trigger floodplain-management requirements. (See paragraph 2.1 of Rule B.)
- Clarified that it is only *flood* storage that need be compensated for when there is filling in the 100-year floodplain. Dead storage in a water resource need not be replaced. (Subsection 3.2 of Rule B.)
- Clarified that documentation of drainage and flowage easements over stormwater-management facilities must submitted to RPBCWD only when the relevant city required dedication of such easements. (Rule B, paragraph 4.9; Rule J, paragraph 5.4h.)
- Clarified that a pervious path or boardwalk that is *not* for access to a water resource may be created or maintained in a buffer area outside of the minimum required buffer width. (Rule D, paragraph 3.3e.)

Highlights – Policy Changes

As noted, most of the ~~proposed~~ amendments were drafted to address questions, issues and interpretive ~~questions~~ uncertainties that have emerged since RPBCWD reinstated its regulatory program more than three years ago. ~~While there is a fair amount of strikeout/underline text in the rules, m~~Many of the changes ~~are~~ were simple clarifications or corrections that ~~do~~ did not change the nature or extent of any regulatory requirement. At the same time, RPBCWD ~~is~~ moved~~ing~~ forward with a few key policy initiatives that have likewise emerged since the re-initialization of its regulatory program:

- RPBCWD ~~proposes to~~ extended the definition of **"100-year flood elevation"** to constructed stormwater facilities as part of an effort to strengthen the rules' protection of downgradient properties and resources from increased stormwater flows resulting from redevelopment. The change is coupled with the extension of the regulatory scope of Rule B to require replacement of floodplain storage capacity lost when a constructed stormwater-management facility is filled – even if the property in question is not adjacent to a waterbody. This change is made especially critical by RPBCWD's decision – discussed below – not to take a regulatory approach to addressing extant erosion problems in the watershed caused in significant part by high stormwater flow rates from impervious surfaces. The final, adopted amendments include a definition of "stormwater-management facility" to facilitate the extension of the floodplain rule, and to define the extent of the extension: to facilities, but not to constructed conveyances (e.g., storm sewer pipes). Further, in the finally refining the amendments, RPBCWD clarified that compensatory storage for the filling of a stormwater-management facility – when required under 3.2 of Rule B – need not be met at or below the same elevation as the facility. Rather, offsetting storage just needs to be provided within the same floodplain.

- RPBCWD ~~proposes to~~ required projects that trigger its Stormwater Management Rule to prepare and submit a simple plan for effective snow and ice control to avoid **chloride** (salt) contamination of the watershed's waterbodies. New subsection 3.8 of Rule J – ~~Stormwater Management~~ provides a very straightforward requirement: All projects triggering the rule except those on single-family home properties will be required to submit for approval a chloride-management plan that designates for ongoing property-management activities an individual responsible for management of chloride use for ice and snow removal and an individual who has been certified by the Minnesota Pollution Control Agency as having completed its salt-application training. The person responsible for implementation should have the authority to fulfill this responsibility, but the MPCWD-certified person need not be an employee of the property owner; a contractor could serve. RPBCWD staff and managers realize the chloride plan requirement will be new to many applicants, and even though the requirement has been drafted to require a largely educational effort from applicants, basic forms and guidance materials will be provided to support applicants' compliance.

  In addition, RPBCWD will not require the completed chloride management plan to be submitted before issuing a permit. But RPBCWD will not conduct the final inspection

needed to release an applicant's financial assurance until the plan is provided. (*See* amendment to section 4 of Rule M – Financial Assurances.)

RPBCWD supports legislation providing a liability exemption for property owners who manage chloride use in accordance with MPCA protocols.[5] But even in the absence of such a reasonable legal innovation, public and private property owners ~~both~~ will be required to comply with the provision. Though no waterbody in the watershed has been declared impaired for chlorides yet, RPBCWD has determined that a local regulatory requirement is a critical complement to implementation of the Twin Cities Metro Chloride Management Plan.[6]

- RPBCWD has added an option in new section 4 of Rule J for compliance on a **regional** scale with the stormwater-management standards in subsection 3.1. ~~RPBCWD is particularly keen to receive comments on this alternative approach to onsite, site-by-site stormwater management.~~
- Correcting an oversight from the 2014 rulemaking, RPBCWD ~~proposes to~~ adopted new regulatory **enforcement** provisions as Rule N. The rule provides the regulated community with fair, complete, straightforward information on the process and procedures RPBCWD will use to enforce its rule requirements and ensure compliance with permits. The rule makes clear (in section 4) that RPBCWD may recover costs of enforcement actions from private property owners.
- RPBCWD also has carefully reassessed the need for technical expertise in two different related arenas: Submissions from applicants, and review and recommendations to the board of managers. In each case, engineer or other technical review and approval is specified only where necessary (e.g., stormwater-management plans must be signed by an engineer, Rule J, subsection 5.4).
- Also important in this rulemaking ~~is~~ was a substantial change RPBCWD decided not to make – yet. In ~~late~~ February 2018 staff met with the Technical Advisory Committee to present and discuss a proposed amendment to the rate-control requirement in section 3.2a of Rule J – Stormwater Management. The RPBCWD engineer presented the results of a significant research effort prompted by the long-observed dramatic erosion of inherently unstable creek banks and gullies in the watershed – especially in lower valleys running down to where the watershed's namesake creeks ~~run toward and contribute sediment to~~ enter the Minnesota River. The engineer's research showed that the problem could be addressed, in part, by restricting the rate of offsite flows from development and redevelopment projects to rates close to natural conditions. Further, the research showed that even on properties with poorly infiltrating soils, such reduced rates could be achieved through outlet restrictions and similar design modifications. Several TAC members, however, pointed to the difficulty of reducing rates on projects

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5 Information on the agency's program generally and salt-application training specifically is available at: https://www.pca.state.mn.us/water/salt-and-water-quality (last visited January 7, 2018).

6 *Id.*

such as road reconstructions that take place on narrow, restricted property, and the maintenance challenges of small orifices on stormwater facilities. On a more positive note, TAC members suggested undertaking collaborative projects retrofitting stormwater facilities into key areas where regional benefits could mitigate runoff rates. The RPBCWD managers found the engineer's research compellingly supported the feasibility of a below-existing rate control criterion and are deeply concerned about the ongoing erosion in the watershed. But the managers determined that additional stakeholder engagement on the potential impact of such a provision is required before adoption is considered. RPBCWD will pursue collaborative retrofit projects as feasible while continuing to assess options for taking a regulatory approach.

DEFINITIONS

Most of the amendments ~~proposed~~ to definitions ~~are~~ were ~~offered~~ made for purposes of straightforward clarification. Background and explanation are provided here only where some substantive change ~~is~~ was meant to be affected by the ~~proposed~~ amendment.

The importance and operation of the addition of "constructed stormwater facility" to the definition of **"100-year flood elevation"** is discussed above. "100-year flood elevation" also is revised to reference not only the current best-available precipitation data from the National Weather Service (presently the 2013 Atlas 14 Volume 8 release), but also Natural Resources Conservation Service Technical Release 60 (a.k.a. TR-60) – whichever is higher.

~~The map of **"High-Risk Erosion Areas"** will be adopted by the RPBCWD Board of Managers at the public meeting at which the rules are adopted to ensure that the regulated community and other have an opportunity to be heard on the proposed map and science underlying it, and to ensure that the map will not be changed without appropriate public process and opportunity to be heard.~~ [MW1]

The definition of **"linear project"** is intended to clarify that the important element in determining which projects are subject to the specific provisions in the rules (especially the stormwater rule) for linear work is that the land-disturbing activities take place on a property that is 1. public; 2. narrow and largely occupied by existing infrastructure – transportation and otherwise. The fundamental premise behind the specific requirements in the Stormwater Management Rule for linear projects is that they take place on existing, difficult-to-change and narrow parcels. The changes to the definition are intended to underscore and ensure that those qualities are determinative. A road or other physically linear project that ~~takes place~~ in constructed as part of a larger development or redevelopment project on the same or adjacent parcels will not be subject to the provisions of the RPBCWD rules for linear projects.

"**Remodeling**" replaceds "reconstruction" in the definitions to better distinguish work on single-family home properties with existing constructed features from the more generic term for tearing up and replacing impervious surfaces. The purpose is to make clear when the specific elements of the RPBCWD Stormwater Management rule apply for single-family home projects – and when they don't (e.g., when changes are made only within the existing envelope of the house, and no new or fully reconstructed impervious surface results). (See subsections 2.2 of Rule J.)

~~Other definitional changes are nonsubstantive clarifications.~~

Rule A – Procedural Requirements

The addition of subsection 2.5 to Rule A for **emergency work** responds to comments made by TAC members about cities' occasional (but important) need to respond quickly to certain hazardous or threatening land conditions. Rather than trying to create specific exceptions for specific types of work under individual rules to facilitate cities' quick responses, RPBCWD ~~is proposing~~ incorporated a general description of the circumstances in which such work can proceed immediately, with compliance to be determined later. The provision does not constitute or provide a variance from compliance with RPBCWD rule requirements. This necessarily means cities will have to go back to conduct further work in some cases, but RPBCWD figures that where conditions described in the rule exist, re-deployment of resources is a better downside than delay in undertaking work that protects persons and property. The exception is available only to public entities.

~~The~~ A change was made to section 5 of the rule to underscores that RPBCWD may approve a permit for **a term longer** than the default one year.

Rule B – Floodplain Management and Drainage Alterations

Regulation

The changes to the regulation section here (2.2) are tied to expansion of the definition of "100-year flood elevation." The change here recognizes that while RPBCWD wishes to ensure the flood storage lost when a constructed facility (including an underground feature) is filled, of the rule does not apply to mere alteration of or sediment removal from constructed stormwater management features. The policy driver for requiring compensation for filling constructed facilities is described in the ~~H~~highlights section above. Alteration of natural waterbodies continues to be regulated to ensure continued management of flood flows and maintenance of flood storage capacities; removal of accumulated sediment (only) from natural water bodies is regulated under Rule E.

Criteria

The ~~articulation of the~~ low-floor (freeboard) requirement ~~is greatly simplified~~ in subsection 3.1 was greatly simplified ~~of this rule in favor of~~ to create a single comprehensive statement in subsection 3.6 of the Stormwater Management Rule.

The requirement for siting replacement storage in subsection 3.2 is revised to provide appropriate flexibility when a water basin or constructed stormwater facility is filled in whole or part. The drainage and utility easement exhibit requirement in 2.4.8 is expanded to ensure coverage of facilities, as well as floodplains associated with water bodies to round out measures installed for the protection of flood storage. Compensatory storage must be created below an outlet and above groundwater, otherwise it is not providing "fully compensatory storage."

The **creekside impervious restrictions** in section 3.4 ~~have been~~were revised to allow property owners to place or replace impervious surfaces between 50 and 100 feet from the centerline of

an adjacent creek, while the prohibition on structures to 100 feet ~~is~~ was retained. While RPBCWD has a long history of prohibiting such encroachments because of the vulnerability of banks through the three-creek watershed, property owners and TAC members have requested some flexibility and harmonization with similar restrictions in other watersheds. The RPBCWD engineer determined that allowing impervious surfaces a reasonable distance from banks would not significantly accelerate flood flows or put bank stability at risk, providing the basis for the flexibility introduced here.

Rule C – Erosion Prevention and Sediment Control

The addition of "prevention" to the title of Rule C (and general usage of the term "erosion prevention and sediment control" throughout the rules) underscores that the purpose is to prevent – not just control – erosion in the watershed. Otherwise, changes here are very limited: The addition in subsection 3.1b of a specific reference to supplemental practices for areas upstream of waterbodies is consistent [MW2]with the ~~current~~ construction stormwater general permit issued by the Minnesota Pollution Control Agency as part of its National Pollutant Discharge Elimination System program and alerts applicants to the need for additional protection (e.g., double silt fence, 50 feet of vegetated buffer) when work is to occur upgradient from a water resource. The small change from "and" to "or" in this subsection signals that while RPBCWD will allow applicants to use newer, more effective BMPs provided in MPCA guidance materials, RPBCWD will not require applicants to use new techniques in state guidance without first incorporating specifics into the rule.

For the decompaction testing required after a project is completed (subsection 3.2c), RPBCWD owns the analytical equipment needed to produce the required information and will allow applicants to use it. RPBCWD has seen a number of supposedly stabilized sites where decompaction efforts have not been adequate to allow successful establishment of stabilizing vegetation, prompting the addition of the specifications to the provision.

Rule D – Wetland and Creek Buffers

Changes ~~are proposed~~ to Rule D ~~to~~ clarifiedy applicability of the buffer provisions generally and ~~to~~ clarifiedy the scope of the exemption in paragraph 2.2.

With regard to the latter, members of the TAC asked that in-kind replacement of utilities such as stormwater outfalls and culverts be excused from having to provide buffer. Often such projects take place in wetlands, and the municipal entities undertaking them do not have the necessary property rights (ownership) to plant and maintain buffer vegetation anyway. Further, the properties are often physically constrained. Recognizing these realities, RPBCWD ~~proposes to~~ expanded the exemption from the rule in a very limited and specific way. RPBCWD will require that a party obtain an incidental-wetland or no-loss determination to eliminate any possible uncertainty over whether the exemption applies or not. (The exemption is available to any property owner – not just cities or other public entities.)

Members of the TAC argued that the exemption from the buffer provision should be further expanded to other types of maintenance projects. But a broad and vaguely stated exemption

prompts all manner of interpretive uncertainties that consume staff time. And as a base proposition the RPBCWD managers still would like wetlands and creeks protected by buffers whenever and wherever possible. Further, the argument that public entities sometimes need to undertake work to protect against or mitigate immediate threats to public property and welfare is addressed by the new and broadly applicable emergency work provision in subsection 2.5 of Rule A, which serves cities' needs for urgent repairs without sacrificing opportunities to implement RPBCWD's buffer policy.

New subsection 3.1 clarifies the scope and extent of the applied buffer requirement – where on an applicant's property must buffer be established – in response to difficulties of application of the rule to date – especially where a property borders or includes a section of creek.

The admittedly limited buffer-reduction provisions in subsection 3.1b have not proven worth the additional analytical work needed to qualify, and so ~~are proposed to be~~ were eliminated.

The 'designated contact' information required to be included in the recorded buffer-maintenance declaration under existing paragraph 3.4 is removed, given that the declaration is recorded and provides for a perpetual maintenance requirement, the chances of the proper contact person changing are good.

~~All other changes to the buffer rule are clarifications.~~

Rule E – Dredging and Sediment Removal

The few changes in Rule E ~~are~~ were typographical corrections and clarifications.

Rule F – Shoreline and Streambank Stabilization

While the ~~proposed~~ changes to Rule F ~~are~~ were ~~visually~~ extensive, they achieved just two significant goals: better striking the balance between facilitating maintenance and ensuring that unnecessary hard-armoring does not take place, and providing more detail for categorization of shorelines and streambanks to ensure that the appropriate stabilization measures are implemented.

The regulatory scope of the rule in section 2 ~~is~~ was adjusted to better provide flexibility for property owners maintaining existing stabilization practices. The changes move away from exempting **maintenance** projects to making it reasonably quick for property owners to obtain a permit. The exemption language in subsection 2.2 ~~is~~ was removed in favor of a fast-track maintenance permitting process – detailed in new subsection 3.4 – that allows property owners to readily obtain a permit for maintenance of an existing stabilization as long as any of the length, width or depth of the practice is not expanded and underlying soils are not disturbed. The erosion intensity or sheer stress calculations required for new, reconstructed or expanded practices need not be submitted, though plans do need to be signed by a certified engineer or landscape architect. The revised maintenance approach eliminates the recursive loop in the present exemption, which applies only if the work complies with the rule requirements. (I.e., you don't need a permit as long as you comply with all of the permit requirements – an uncertain prospect for property owners and an unworkable shift of emphasis onto RPBCWD staff to 'catch' property owners whose maintenance projects in fact involve new or fully

reconstructed stabilization.) Practices that were installed without a permit after the effective date of the restored RPBCWD rules (February 1, 2015) do not qualify for fast-track permitting.

Subsection 3.4 was the subject of some discussion with the Technical Advisory Committee, which supported its inclusion and helped refine the terms. The availability of a fast-track permit reflects RPBCWD's interest in supporting property owners' efforts to ensure that their shorelines do not erode; RPBCWD does not want property owners to be discouraged from repairing or maintaining shorelines that need such work because they did not want to spend the time or expense of demonstrating compliance with the rule's framework for ensuring that shorelines and streambanks are armored (i.e., riprapped) only to the extent that they need to be to prevent erosion. To have done otherwise would have been counterproductive. Put simply, section 3.4 means that only when new or materially expanded shoreline or streambank stabilization improvements are proposed will property owners have to demonstrate that the design of their work is consistent with the erosive forces at work.

The changes to the **sequencing** terms in 3.2 provide a clearer and more precise framework for determining whether hard-armoring, a mix of hard-armoring and vegetation, or vegetated stabilization practices will be permitted at the particular site. The scoring and calculation required to determine which stabilization practices may be used are technical, but RPBCWD has endeavored to make the process one involving completing forms and performing some mathematical calculations. While an engineer's assistance can be employed to document existing conditions and design practices appropriate to erosive force intensity calculated, RPBCWD provides flexibility for a landscape architect to sign off on plans, too, in subsections 4.2 and 4.3. The forms and guidance needed to calculate erosion intensity or streambank sheer stress will be readily available through the RPBCWD website. The ~~proposed~~ revisions also better organize the criteria a stabilization design must comport with in subsection 3.3: All practices must meet the criteria in 3.3a and the invasive-species prevention requirements in e; riprap must meet subsection b; retaining walls c; and sand blankets d.

The shoreline and streambank stabilization rule is unique in that it pertains to and regulates work, the undertaking of which aligns with and helps accomplish RPBCWD's watershed-management goals. That is, RPBCWD wants shorelines and streambanks to be stabilized – hence the interest in ensuring property owners don't defer maintenance. This raises the conundrum of RPBCWD providing **cost-share support** for work that is actually subject to its regulatory requirements, when cost-share support is otherwise reserved for work that provides protection beyond compliance with RPBCWD rule requirements – e.g., construction of rain gardens that provide treatment that is not required to offset impacts of proposed land-disturbing work and associated redevelopment. Given this, ~~in conjunction with~~ subsequent to the finalization of the ~~proposed~~ amendments to the RPBCWD rules, the managers will consider a policy to allow for RPBCWD cost-share support for bioengineered and vegetative shoreline and streambank stabilizations. [MW3]Beyond comments on the scope and operation of the rules, observers' and interested parties' thoughts and comments on factors to consider in drafting and adopting such policy are welcome.

RULE G – WATERBODY CROSSINGS AND STRUCTURES

Only very limited changes ~~are prop~~were made ~~osed for~~ to Rule G.

The regulatory scope of the rule is revised to remove the incongruity of RPBCWD regulating placement of structures in small waterbodies but not in public waters (i.e., those within the Department of Natural Resources' work in waters jurisdiction). The scope was crafted for adoption in 2014 to keep RPBCWD out of the business of regulating placement of docks in public waters – leaving such approvals to DNR's well-established framework. But this meant RPBCWD did not regulate placement of other structures as well. The revision makes the necessary changes to bring structures in public waters other than docks (which are explicitly excluded) into RPBCWD's scope, making the general permit for most work in public waters that DNR has issued more effective.[7]

The wildlife-passage provisions in 3.2d have proven to be inapplicable in most circumstances in the watershed, many parts of which are fully developed. The revisions ~~proposed~~ removed the requirement that a qualified wildlife biologist approve project plans for wildlife passage along a waterbody crossing. Rather, staff and the RPBCWD engineer will exercise discretion to require an applicant to provide passage – not only for land animals but, newly with the amendments, for fish, too – that provides for the creatures present or potentially present in a particular location. Where necessary, a qualified wildlife biologist will be engaged.

~~Other changes to the Rule G are clarifications.~~

RULE J – STORMWATER MANAGEMENT

RPBCWD ~~proposes the~~ added ~~ition of~~ a new chloride policy (paragraph 1.10), supporting the ~~new~~ substantive requirement in subsection 3.8 that an applicant submit a **chloride-management plan.**

As the present amendments were being developed, RPBCWD was completing *Planning for the Next Ten Years*, an update of RPBCWD's comprehensive watershed management plan. ~~Expected to be approved by the Board of Water and Soil Resources by the time the proposed rule amendments are adopted~~Adopted by the RPBCWD Board of Managers in July 2018, the updated plan notes that Bluff Creek has been identified by the MPCA as a "high-risk stream" for chloride impairment,[8] and includes a specific commitment to assist with the implementation of projects or other management actions to address chloride pollution.[9]

The ~~proposed~~ approach is ~~simple, and~~simple and meant to complement other efforts RPBCWD will undertake to draw private property owners into the mix of parties contributing to reducing salt contributions to the creeks and other water bodies. (Though the requirement also applies to governmental entities in the watershed, RPBCWD's experience is that virtually all of these are already implementing salt-reduction strategies and conducting their operations in compliance with the MPCA salt-management program.) RPBCWD elected to exclude single-family home

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7 Public Waters Work General Permit 2015-1192, issued 9/22/2015, allowing property owners obtaining a permit from RPBCWD to thereby receive DNR approval for the same work.

8 Footnote 1, Table 5-5, *Planning for the Next Ten Years* ~~(draft on file with RPBCWD)~~.

9 *Id.*, sec. 3.2.6.2.

properties in the ~~proposed~~ scope of the chloride requirement since such properties generally are not professionally maintained and usually feature significantly smaller pavement areas.

Mindful that the chloride-management plan requirement is innovative and will be unfamiliar to many applicants, RPBCWD will implement the provision in a manner that facilitates compliance:

- Property owners and permit applicants may have difficulty completing the required training and certification before scheduled groundbreaking on a project, so rather than requiring the chloride-management plan prior to issuance of a permit, RPBCWD will withhold a portion of the permittee's financial assurance until the management plan is submitted and approved.
- RPBCWD will provide guidance on chloride management, continue to work with MPCA to hold trainings in and nearby the watershed, and will develop and make readily available (e.g., on the RPBCWD website) a basic management-plan template.

RPBCWD staff floated the chloride-management plan requirement past the TAC ~~but is eager to hear from potentially regulated private property owners on the proposed requirement during the comment period.~~and several commented during the written comment period. RPBCWD did not receive comment on the chloride plan requirement from private property owners.

Changes to the regulatory scope of the rule are minor: The revision from "reconstruction" to "remodeling" in 2.2a is discussed under Definitions above. Retaining walls are added to the trails exception in 2.2d. And new paragraph 2.2e reflects RPBCWD practice to date; note, though, that while disturbance on a property without construction or reconstruction of impervious surface may not result in stormwater-management requirements, the extent of disturbance from a project will 'count' in aggregating disturbance and imperviousness creation/reconstruction for purposes of a later application that trigger the common scheme of development provision in subsection 2.5.

Changes ~~proposed~~ to section 3.1 better organized and provided needed additional detail in the **baseline stormwater-management criteria**. The additional detail ~~has~~ proven~~d~~ necessary after RPBCWD review of more than 100 stormwater-management plans since the regulatory program was reinstated in late 2014. RPBCWD also has added a requirement that infiltration practices and facilities draw down to 'dry' (i.e., no standing water in the practice) within 48 hours (paragraph 3.1b.iii) and added a cap in 3.1b.iv on the infiltration rate that can be used to comply with the rules at 8.3 inches an hour~~—made with support and at suggestion of TAC and consistent with the MPCA's current NPDES program Construction Stormwater Permit~~.

To fulfill specific direction from the managers to address indirect impacts of development and redevelopment on wetlands, **bounce and inundation and stormwater-treatment requirements** applicable to stormwater flow to wetlands are added in subsection 3.2 and accompanying tables. The provisions mirror those of neighboring watershed organizations.

The **low-floor provisions** in subsection 3.6 ~~are~~ were revised and reorganized for clarity, and RPBCWD ~~proposes to~~ clarifie~~d~~y that siting in accordance with the framework provided in Appendix J1 is an alternative to showing compliance with the 2-foot freeboard standard. (The revisions also clarifie~~d~~y that J1 is incorporated into the rules as a term thereof and is not

guidance.) RPBCWD has processed numerous applications that have demonstrated compliance through the 4a siting framework, which has proven cost-effective and protective.

The new **regional stormwater management** framework discussed above in the "Highlights" section is added as section 4.

RPBCWD also ~~has~~ added specific exhibit requirements applicable to use of **stormwater harvest and reuse** to provide stormwater management (subsections 3.7 and 5.4k), based on experience and the increasing frequency with which such solutions are now being proposed with some regularity. Other changes to the exhibits section are designed to ensure that plans and designs are approved based on accurate and verified site-specific infiltration-rate data and analysis (see, please, paragraphs 3.1b.ii.C and 5.4c.).

Rule M – Financial Assurances

(The only change to Rule M is discussed above, with regard to the incorporation of the chloride-management plan requirement into the rule.)

Rule N – Enforcement

Correcting an oversight from the 2014 rulemaking, RPBCWD ~~proposes to~~ adopted a new **enforcement rule**. The rule provides the regulated community with fair, complete, straightforward notice of the process and procedures RPBCWD will use to enforce its rule requirements and ensure compliance with permits while respecting property rights. The addition reflects the independence of the RPBCWD regulatory program, though RPBCWD will continue to rely on close working relationships with the regulatory and public works departments at each of the cities in the watershed. The rule makes clear (in section 4) that RPBCWD may recover costs of enforcement actions from private property owners.

Table 1 – Technical Advisory Committee participants

Name	Affiliation
Tom Dietrich	City of Minnetonka
Will Manchester	City of Minnetonka
Vanesa Strong	City of Chanhassen
Jennie Skancke	Department of Natural Resources
Matt Lindon	RPBCWD Citizens Advisory Committee
Mike Wanous	Carver County Soil & Water Conservation District
Masha Guzner	Carver County Planning & Water Management
Bob Bean	City of Deephaven
Joe Mulcahy	Metropolitan Council
Alyson Fauske	City of Shorewood
Bill Alms	City of Shorewood
Rod Rue	City of Eden Prairie
Dave Modrow	City of Eden Prairie
Leslie Stovring	City of Eden Prairie
Robert Ellis	City of Eden Prairie
Matt Clark	City of Chaska
Dan Edgerton	City of Chaska
Steve Christopher	Board of Water and Soil Resources
Steve Segar	City of Bloomington
Linda Loomis	Lower Minnesota River Watershed District

RILEY-PURGATORY-BLUFF CREEK WATERSHED DISTRICT

RULES

~~*November 5, 2014*~~

Proposed amendments

Adopted as revised ~~XXXX~~August 8, 2018

RILEY--PURGATORY--BLUFF CREEK WATERSHED DISTRICT
BOARD OF MANAGERS

I, ~~Ken Wencl,~~_____, secretary of the Riley--Purgatory--Bluff Creek Watershed District Board of Managers, certify that the attached are true and correct copies of the rules of the Riley--Purgatory--Bluff Creek Watershed District, which were properly adopted by the Board of Managers ~~November 5, 2014~~.

_____ Date: _____
~~Ken Wencl,~~_____, Secretary

[Notary block]

TABLE OF CONTENTS

Definitions

The following definitions and acronyms apply to the District rules and accompanying guidance materials.

100-year flood elevation: The surface elevation of a waterbody or ~~constructed stormwater management~~stormwater-management facility that has a 1-percent chance of being equaled or exceeded in any given year, as shown on District floodplain maps, where available, or as calculated using a model utilizing the most recent applicable precipitation reference data as published by the National Weather Service ~~reference data~~ (e.g., Atlas 14~~).~~) or Natural Resource Conservation Service Technical Release 60 (TR-60), whichever is higher

Abstraction: Permanent retention of runoff on a site by structures and practices such as infiltration basins, evapotranspiration and capture and reuse.

Back-to-back storm events: Distinct rainfall events occurring within 24 hours of each other.

Best management practices (BMPs): Various structural and nonstructural measures taken to minimize negative effects on water resources and systems, such as ponding, street sweeping, filtration through a rain garden and infiltration, as documented in the Minnesota Pollution Control Agency's Protecting Water Quality in Urban Areas and the Minnesota Stormwater Manual.

Bioengineering: Various shoreline and streambank stabilization techniques using aquatic vegetation and native upland plants, along with techniques such as willow wattling, brush layering and willow-posts.

District: Riley-Purgatory-Bluff Creek Watershed District.

Existing conditions: Site conditions at the time of consideration of a permit application by the District, before any of the work for which a permit is sought has commenced, except that when impervious surfaces have been fully or partially removed from a previously developed parcel but no intervening use has been legally or practically established, "existing conditions" denotes the previously established developed use and condition of the parcel.

Fill: Any rock, soil, gravel, sand, debris, plant cuttings or other material placed onto land or into water.

Groundwater: Water in the interstices of rock and soil that is present at pressures greater than one atmosphere.

High-Risk Erosion Areas are specific locations in the watershed that, because of topography and soil conditions, are particularly susceptible to erosion. High-Risk Erosion Areas are specified in a map adopted by the Board of Managers and published and maintained by the District on its website at www.rpbcwd.org.

Impervious surface: Any ~~exposed~~ground surface that is or has ~~been~~become compacted or covered with a layer of material, or is likely to become compacted from expected use, such that it is or will be highly resistant to infiltration. (A boardwalk is not an impervious surface.)

Landlocked basin: A localized depression that does not have a natural outlet at or below ~~the~~its 100-year flood elevation.

Land-disturbing activity: Any alteration of the ground surface that could result, through the action of wind and/or water, in soil erosion, substantial compaction, or the movement of sediment into waters, wetlands, storm sewers, or adjacent property. Land-disturbing activity

includes but is not limited to soil stripping, clearing, grubbing, grading, excavating, filling and the storage of soil or earth materials. Typical, routine farming operations (e.g., plowing, harvesting) are not land-disturbing activities for purposes of the rules.

Linear project: Construction or reconstruction of a public ~~road or other~~ transportation ~~route, sidewalk or trail~~improvements, or construction, repair or reconstruction of a utility or utilities ~~right-of-way~~in a linear corridor that is not a component of a larger development or redevelopment project.

Low floor: The lowest elevation of ~~any floor of any~~a structure~~, habitable or not~~.

Nested: A hypothetical precipitation distribution where the precipitation depths for various durations within a storm have the same exceedance probabilities. This distribution maximizes the rainfall intensities by incorporating selected short-duration intensities within those needed for longer durations at the same probability level. As a result, the various storm durations are "nested" within a single hypothetical distribution. Nested-storm distribution (or frequency-based hyetograph) development must be completed utilizing the most recent applicable National Weather Service reference data (e.g., Atlas 14), in accordance with:

1. the alternating block methodology as outlined in Chapter 4 of the HEC-HMS Technical Reference Manual, (USACE, 2000);
2. methods in HydroCAD;
3. methods established by the Natural Resources Conservation Service; or
4. otherwise as approved by the District engineer.

(Reference: U.S. Army Corps of Engineers. 2000. Hydrologic Modeling System HEC-HMS Technical Reference Manual.)

Outfall: A constructed point source where a storm sewer system discharges to a receiving water. An outfall does not include diffuse runoff or conveyances that connect segments of the same stream or water systems (e.g., when a conveyance temporarily leaves a storm sewer system at a road crossing).

Parcel: A contiguous area of land under common ownership, designated and described in official public records and separated from other lands by its designation.

Protected wetland: A wetland, the draining, filling or excavation of which is regulated.

~~Reconstruction~~Remodeling: For non-linear projects, ~~changes~~land-disturbing modifications, including addition, expansion or other improvement to a building or buildings on a property, that ~~involves~~involve a change to the footprint of the impervious surface on the parcel.

Redevelopment: Any land-disturbing activity on an already-developed parcel or any substantial change to existing structures on a parcel.

Redoximorphic: Soil features characterized by evidence of the reduction and oxidation of iron and manganese compounds in the soil after saturation with water and desaturation.

Regulated feature: A public watercourse, public waters wetland or other protected wetland in the watershed, or any watercourse within a High-Risk Erosion Area. "Regulated feature" is a collective term, used to describe all water resources regulated under Rule D.

Rehabilitation: A maintenance project that disturbs or replaces only the existing impervious surface, does not disturb underlying soils or result in a change in the direction, peak rate, volume or water quality of runoff flows from the parcel, and does not include the addition of new impervious surface. Full-depth reconstruction that does not disturb underlying soils and

mill and overlay of paved surfaces are rehabilitation.

Retaining wall: Vertical or nearly vertical structures constructed of mortar-rubble masonry, hand-laid rock or stone, vertical timber pilings, horizontal timber planks with piling supports, sheet pilings, poured concrete, concrete blocks, or other durable materials and constructed approximately parallel to the streambank or shoreline.

Right-of-way: Parcels of land on which a linear project is located, including adjacent area necessary for safe operation of the road, sidewalk or trail and dedicated to such use by fee ownership or other recorded or registered title interest.

Shoreline: The lateral measurement along the contour of the ordinary high water mark of waterbodies other than watercourses, and the top of the bank of the channel of watercourses, and the area waterward thereof.

Site: The location of activities that are the subject of a District permit and are under the control of the applicant.

~~**Stormwater Management**~~**Stormwater-Management Facility:** -a device or practice constructed or installed to limit rate of flow, retain volume and/or provide water-quality treatment of stormwater. A device designed and used solely to convey stormwater flows (a conveyance) is not a stormwater-management facility.

Stream Power Index: As defined by the Minnesota Department of Agriculture, Stream Power Index is calculated: LN ((Drainage Area + 0.001) * ((Slope/100) + 0.0001)). SPI is a function of slope and tributary flow accumulation values, which can be thought of as the volume of water flowing to a particular point on the landscape. SPI represent the ability of intermittent overland flow to create erosion, but the SPI values are not differentiated based on soils type or land cover effects on runoff volume or erosion.

Structure: Any impervious building or other object that is constructed or placed on the ground and that is, or is intended to remain in place for longer than a temporary period.

Thalweg: The line connecting the points of lowest elevation in a watercourse, channel, valley, ravine or gully.

Topsoil: The top-most soil horizon which is most favorable for plant growth. It ~~is ordinarily~~ should be rich in organic matter and. . ~~Topsoil shall~~ must ~~meet~~ demonstrate the following ~~standard~~characteristics:.

Requirement	Range	Test Method
Material Passing ¾ sieve (19mm)	100%	ASTM D 422
Material passing No. 4 sieve	≥85%	
Clay	5% - 35%	ASTM D 422
Silt	5% - 40%	ASTM D 422
Sand	30% - 70%	ASTM D 422
Organic Matter	3% - 15%	ASTM D 2974
pH	6.1 – 7.5	ASTM G 51
Compaction	1,400 kilopascals or 200 pounds/square inch in the upper 12 inches of soil	Field test

Waterbody: A watercourse or water basin.

Water basin: An enclosed natural depression with definable banks, capable of retaining water.

Watercourse: A natural channel with definable beds and banks capable of conducting confined runoff from adjacent land.

Beyond the definitions above, words in the Riley--Purgatory--Bluff Creek Watershed District rules will be interpreted consistently with definitions in Minnesota water law (Minnesota Statutes chapters 103A, 103B, 103C, 103D, 103E, 103F and 103G). The specific definitions above will prevail in the event of a contradiction or deviation.

Acronyms

BMP – best management practice
MnRAM – Minnesota Routine Assessment Methodology for Evaluating Wetland Functions (*see* http://www.bwsr.state.mn.us/wetlands/mnram/index.html)
NGVD - national geodetic vertical datum
OHW – ordinary high water level (*see* Minn. Stat. § 103G.005, subd. 14)

Rule A – Procedural Requirements

1 Policy

1.1 Any person undertaking an activity for which a permit is required by these rules must obtain the required permit prior to commencing the activity that is regulated by the District.

1.2 The District rules will be interpreted and permit decisions will be made consistently with watershed district purposes articulated in the Minnesota Statutes section 103B.201 and 103D.201.

2 Application

2.1 An application bearing the original signature of the property owner(s) must be submitted to the District to obtain a permit under these rules. Applicants are encouraged to contact the District and/or submit preliminary plans early in the project development process for nonbinding informal review for conformity with District policies and rules.

2.2 Each substantive District rule includes application and exhibit specifications that, along with this rule, apply to the submission of applications to the District and will be utilized to make determinations of completeness under this rule.

2.3 The District will not act on an incomplete permit application. A complete permit application includes all required information, exhibits and fees and must be signed by all property owners. The District will notify an applicant if his or her application is incomplete within fifteen (15) business days of receipt of the application. Required information includes, but is not limited to:

a the name, address, and telephone number(s) of all property owners;

b the name, address and telephone number(s) for all contractors, if known, undertaking land-disturbing activities as part of the proposed project; and

c a statement granting the District and its authorized representatives access to the site for inspection purposes.

2.4 Application forms and guidance materials may be obtained from the District office or downloaded from the District web site at www.rpbcwd.org.

2.5 Emergency activity undertaken by a public entity immediately necessary to protect life or prevent substantial physical harm to persons or property may be the subject of an application submitted within 30 days of commencement of such work. Emergency activity must be timely brought into conformance with all applicable District standards and criteria.

3 Conditional approval

The District may conditionally approve an application, but the permit will not be issued until all conditions to the approval are satisfied. All conditions must be satisfied within 12 months of the date of conditional approval, and approval will expire if conditions are not timely satisfied.

4 Reconsideration

An applicant aggrieved by a condition or conditions on approval of an application or the specific grounds for denial of an application may suspend the District's decision on the application by filing a notice of reconsideration with the District.

4.1 Notice of reconsideration must be filed with the District within 10 business days of the decision and at least one day before the date by which a decision on the application must be issued to comply with Minnesota Statutes section 15.99. The notice must be submitted on a form provided by the District that includes the applicant's concurrence in an extension of the time for District permit action under section 15.99 and must include a statement of the specific conditions and findings to be reconsidered.

4.2 The District will schedule reconsideration of the matter by the Board of Managers and provide notice of the date of reconsideration to the applicant at least 30 days in advance.

4.3 No later than 15 days prior to the date of reconsideration, the applicant may supplement the established permit review record with any additional exhibits, documentation or legal arguments the applicant wishes to submit.

4.4 In accordance with Minnesota Statutes section 103D.345, subdivision 2, an applicant will be responsible for the analytical costs incurred by the District for purposes of the reconsideration, except no costs will be recovered for reconsideration of a decision made on an application made by a local, state or federal governmental body.

4.5 Upon the applicant's filing of a notice of reconsideration, the underlying permit decision will be suspended until the District renders a determination on the reconsideration and the activities that are the subject of the application may not be undertaken before the District renders a final decision on reconsideration.

4.6 Absent the timely filing of a notice of reconsideration of a condition or the grounds for denial, the District's decision on the application is final at issuance. A decision on reconsideration will constitute the District's final decision on the application.

5 Permit assignment and renewal

A permit is valid for one year from the date the permit is approved, with or without conditions, unless specified otherwise by the District on approval or the permit is suspended or revoked. To renew or transfer a permit or conditional approval of a permit, the permittee must notify the District in writing prior to the permit expiration date and provide an explanation for the renewal or transfer request. The District may impose different or additional conditions on a renewal or deny the renewal in the event of a material change in circumstances, except that on the first renewal, a permit will not be subject to additional or different requirements solely because of a change in District rules. New or revised rule requirements will not be imposed on renewal of a permit where the permittee has made substantial progress toward completion of the permitted

work. If the activities subject to the permit have not substantially commenced, no more than one renewal may be granted. An applicant wishing to continue to pursue a project for which permit approval has expired must reapply for a permit from the District and pay applicable fees.

A permittee may assign a permit to another party only upon approval of the District, which will be granted if:

5.1 the proposed assignee agrees in writing to assume responsibility for compliance with all terms, conditions and obligations of the permit as issued;

5.2 there are no pending violations of the permit or conditions of approval; and

5.3 the proposed assignee has provided any required financial assurance necessary to secure performance of the permit.

The District may impose different or additional conditions on the transfer of a permit or deny the transfer if it finds that the proposed transferee has not demonstrated the ability to perform the work under the terms of the permit as issued. Permit transfer does not extend the permit term.

6 Suspension or revocation

The District may suspend or revoke a permit issued under these rules wherever the permit is issued on the basis of incorrect or erroneous information supplied to the District by the applicant, or if the preliminary and final subdivision approval received from a municipality or county is not consistent with the conditions of the permit.

Rule B – Floodplain Management and Drainage Alterations

1 Policy

It is the policy of the Riley--Purgatory--Bluff Creek Watershed District Board of Managers to regulate to control floodwaters, ensure the preservation of the natural function of floodplains as floodwater storage areas, maintain no net loss of floodplain storage to accommodate 100-year flood storage volumes and maximize upstream storage and infiltration of floodwaters.

2 Regulation

A permit is required for:

2.1 Any land-disturbing activities or filling of land below the 100-year flood elevation of a waterbody or any filling of land below the 100-year flood elevation of a ~~constructed stormwater management~~stormwater-management facility in the watershed, except that no permit is required for removing accumulated sediment from a water basin.

2.2 Any alteration of surface water flows below the 100-year flood elevation of a waterbody by changing land contours, diverting or obstructing surface or channel flow, or creating a basin outlet.

3 Criteria for floodplain and drainage alterations

3.1 The low floor elevation of all new and reconstructed structures ~~will be constructed at a minimum of two feet above any applicable 100-year flood elevation. Within landlocked basins, the low floor elevation of all new and reconstructed structures will be constructed at an elevation one foot above the surface overflow elevation or the calculated high water level from back-to-back 100-year, 24-hour storm events or the 100-year, 10-day snowmelt, whichever is higher.~~must be constructed in accordance with Rule J, subsection 3.6. .

3.2 Placement of fill below the 100-year flood elevation is prohibited unless fully compensatory flood storage is provided within the same floodplain and:

a at the same elevation ~~(+/-~~+/- 1 foot~~) and within~~ for fill in the floodplain of ~~the same waterbody is provided.~~ a watercourse;

b at or below the same elevation for fill in the floodplain of a ~~constructed stormwater facility or~~ water basin.

Creation of floodplain storage capacity to offset fill must occur within the original permit term. If offsetting storage capacity will be provided off site, it ~~will~~must be created before any floodplain filling for the project will be allowed.

3.3 The District will issue a permit to alter surface flows only if it finds that the alteration will not have an adverse offsite impact and will not adversely affect flood risk, basin or channel stability, groundwater hydrology, stream base flow, water quality or aquatic or riparian habitat.

3.4 **Creekside restrictions.** No enclosed structure may be placed, constructed or

reconstructed ~~and no surface may be paved~~ within 100 feet of the centerline of ~~any~~a watercourse~~, except that this provision does~~; and no impervious surface may be created or re-created within 50 feet of the centerline of ~~water~~ a watercourse. These restrictions do not apply to:

a Bridges, culverts and other structures and associated impervious surface regulated under Rule G – Waterbody Crossings and Structures;

b Trails 10 feet wide or less, designed primarily for nonmotorized use.

~~3.5~~3.5 Permit approval requires submission of an erosion prevention and sediment control plan that meets the applicable standards of Rule C, section 3.

3.6 Activities subject to this rule must be conducted so as to minimize the potential transfer of aquatic invasive species (e.g., zebra mussels, Eurasian watermilfoil, etc.) to the maximum extent possible.

4 Required information and exhibits

The following exhibits must accompany the permit application~~, including but not limited to one full-size plan set (22 inches by 34 inches), one plan set reduced to a maximum size of 11 inches by 17 inches, and electronic files in a format acceptable to the District~~:

~~4.1~~4.1 One 11 inch-by-17 inch plan set , and electronic files in a format acceptable to the District, as well as a plan set 22 inches by 34 inches if requested by the District.

4.2 Site plan showing property lines, delineation of the work area, existing elevation contours of the work area, ordinary high water level or normal water elevation and 100-year flood elevation. All elevations must be reduced to national geodetic vertical datum (NGVD; 1929 datum).

4.~~2~~3 Grading plan showing any proposed elevation changes.

4.~~3~~4 Preliminary plat of any proposed land development.

4.~~4~~5 Determination by a licensed civil engineer or registered qualified hydrologist of the 100-year flood elevation for the parcel before and after the project.

4.~~5~~6 Computation by a professional engineer of cut, fill and change in water storage capacity resulting from proposed grading.

4.~~6~~7 Erosion-control plan.

4.~~7~~8 Soil boring results, if requested by the District ~~engineer~~.

4.~~8~~9 Documentation that drainage and flowage easements over all land below the 100-year flood elevation have been conveyed to the municipality with jurisdiction, where required~~.~~.

5 Exceptions

No floodplain and drainage permit from the District is required:

5.1 If all of the following conditions exist:

a The 100-year flood elevation of a water basin is entirely within a municipality;

b the water basin is landlocked;

c the municipality has adopted an ordinance regulating floodplain

encroachment; and

d the proposed project is entirely within the drainage area of the water basin.

Rule C – Erosion Prevention and Sediment Control

1 Policy

It is the policy of the District to ensure management of land disturbances to:

1.1 Improve water quality to fully support swimming in designated lakes and to fully support designated uses for waterbodies.

1.2 Preserve vegetation and habitat important to fish, waterfowl and other wildlife while also minimizing negative impacts of erosion.

1.3 Alleviate identified erosion problems.

1.4 Minimize the duration and intensity of soil and cover disturbances.

1.5 Require local governments and developers to manage runoff effectively to minimize water quality impacts from new development, redevelopment and other land-disturbing activities.

1.6 Encourage low-impact development techniques and approaches.

1.7 Minimize compaction of soil from land-disturbing activities and encourage decompaction of soil compacted by land-disturbing activities.

2 Regulation

2.1 An erosion prevention and sediment control permit must be obtained for any land-disturbing activity that will involve:

a Placement, alteration or removal of 50 cubic yards or more of earth; or

b Alteration or removal of 5,000 square feet or more of land-surface area or vegetation.

2.2 A permit from the District is not required to create, restore or improve a wetland and/or buffer pursuant to a District-approved natural resources creation, restoration or management plan.

3 Criteria

3.1 Permit approval requires preparation of an erosion prevention and sediment control plan that provides:

a protection of natural topography and soil conditions, including retention onsite of native topsoil to the greatest extent possible;

b temporary erosion prevention and sediment control practices such as silt fencing, fiber logs, inlet protection, rock construction entrances, temporary seeding, vegetative buffer strips, erosion~~-~~control blanketing, mulching, floatation silt curtains, supplemental erosion prevention sediment control upgradient of waterbodies ~~and~~or other practices as specified by the District and consistent with the Minnesota Pollution Control Agency's "Protecting Water Quality in Urban Areas," as amended or updated, and the "Minnesota Stormwater Manual," as amended or updated;

c minimization of the disturbance intensity and duration, including phasing of disturbance to minimize quantity of disturbed area at any one time:

d additional measures, such as hydraulic mulching and other practices as specified by the District, on slopes of 3:1 (H:V) or steeper to provide adequate stabilization;

e protection of stormwater--management facilities during construction;

f final site stabilization measures, including permanent stabilization of all areas subject to disturbance, specifying that at least six inches of topsoil or organic matter be spread and incorporated into the underlying soil during final site treatment wherever topsoil has been removed;

g proper management of all construction site waste, such as discarded building materials, concrete truck washout, chemicals, litter and sanitary waste at the construction site.

3.2 Site stabilization

a All temporary erosion prevention and sediment control BMPs must be maintained until completion of construction and vegetation is established sufficiently to ensure stability of the site, as determined by the District.

b All temporary erosion prevention and sediment control BMPs must be removed upon final stabilization.

c Soil surfaces compacted during construction and remaining pervious upon completion of construction must be decompacted ~~through~~to achieve a soil ~~amendment and/or ripping to a depth~~compaction testing pressure of ~~18~~less than 1,400 kilopascals or 200 pounds per square inch in the upper 12 inches ~~(8 inches for single-family home properties) while taking care to avoid~~of soil. In addition, utilities, tree roots and other existing vegetation ~~prior to~~must be protected until final revegetation or other stabilization of the site.

d Stabilization of disturbed areas must begin immediately whenever land-disturbing activity has permanently or temporarily ceased on any portion of the site and will not resume. ~~All disturbed areas must be stabilized within immediately, but no later than within~~ ~~7~~seven calendar days ~~after land-disturbing work has temporarily or permanently ceased~~ on a property that drains to an impaired water~~,~~ within 14 days elsewhere.

3.3 **Inspection and maintenance.** The permit holder will be responsible for the inspection, maintenance and effectiveness of all erosion prevention and sediment control facilities, features and techniques until final site stabilization. The permittee must, at a minimum, inspect, maintain and repair all disturbed surfaces and all erosion prevention and sediment control facilities and soil stabilization measures every day work is performed on the site and at least weekly until land-disturbing activity has ceased. Thereafter, the permittee must perform these responsibilities at least weekly until vegetative cover is established. The permittee will maintain a log of activities under this section for inspection by the District on request. Between November 15 and snowmelt, and if site work ceases before completion for more than 14 consecutive days, the weekly inspection requirement may be reduced to monthly if the site is managed such that:

a Exposed soils are stabilized with established vegetation, straw or mulch, matting, rock, rolled erosion control product or other approved material. Seeding is encouraged, but is not alone sufficient.

b Temporary and permanent ponds and sediment traps are graded to capacity before spring snowmelt. This does not include infiltration/filtration facilities, which must be kept free of sediment until final site stabilization.

c Sediment barriers are properly installed at necessary perimeter and sensitive locations.

d Slopes and grades are properly stabilized with approved methods. Rolled erosion control products must be used on slopes of 3:1 (H:V) or greater and where erosion conditions dictate.

e Stockpiled soils and other materials subject to erosion are protected by established vegetation, anchored straw or mulch, rolled erosion control materials or other durable covering preventing movement of eroded materials.

f All construction entrances are properly stabilized.

g Snow management protects erosion prevention and sediment control measures.

4 Required information and exhibits

The following exhibits must accompany the permit application~~, including but not limited to one full size plan set (22 inches by 34 inches), one plan set reduced to a maximum size of 11 inches by 17 inches) and electronic files in a format acceptable to the District~~:

~~4.1~~4.1 One 11 inch-by-17 inch plan set , and electronic files in a format acceptable to the District, as well as a plan set 22 inches by 34 inches if requested by the District.

4.2 A narrative statement describing the proposed site work.

~~4.2~~3 An erosion and sediment-control plan including:

a name, address and phone number of the individual who will remain liable to the District for performance under this rule and maintenance of erosion and sediment-control measures from the time the permitted activities commence until vegetative cover is established

b topographic maps of existing and proposed conditions that clearly indicate all hydrologic features and areas where grading will expose soils to erosive conditions, site property boundaries, as well as the flow direction of all runoff and run-on;

i single-family home construction or reconstruction projects may comply with this provision by providing aerial imagery or an oblique map acceptable to the District;

c for all projects except construction or reconstruction of a single-family home, tabulation of the construction implementation schedule;

d clear identification of all temporary erosion prevention and sediment control measures that will remain in place until vegetation is

established;

e clear identification of all permanent erosion control and soil stabilization measures, including their locations;

f clear identification of staging areas, as applicable;

g delineation of proposed changes to any floodplain, wetland or wetland buffer;

h documentation as to the status of the project's National Pollutant Discharge Elimination System construction stormwater permit and a copy of the project's Stormwater Pollution Prevention Plan, if applicable.

i clear identification of locations where compaction is to be prevented and/or mitigated.

Rule D – Wetland and Creek Buffers

1 Policy

It is the policy of the Board of Managers to ensure the preservation of the natural resources, recreational, habitat, water treatment and water storage functions of water resources. This rule is intended to:

1.1 Support municipal enforcement of the Wetland Conservation Act and the policy of no net loss in the extent, quality and ecological diversity of existing wetlands in the watershed.

1.2 Preserve vegetation and habitat important to fish, waterfowl and other wildlife while also minimizing negative impacts of erosion.

1.3 Require buffers around wetlands, water basins and watercourses affected by land-disturbing activities.

1.4 Ensure the preservation of the natural resources, habitat, water treatment and water storage functions of wetlands, water basins and watercourses.

1.5 Maintain wetland integrity and prevent fragmentation of wetlands.

1.6 Prevent erosion of shorelines and streambanks, and foster the use of natural materials for the protection, maintenance and restoration of shorelines and streambanks.

2 Regulation

2.1 Compliance with the criteria in section 3 of this rule is required for any activity that requires a permit under ~~the~~ Rule B – Floodplain Management and Drainage Alterations, Rule E – Dredging and Sediment Removal, Rule F – Shoreline and Streambank Stabilization, except sand blanketing, Rule G – Waterbody Crossings and Structures or Rule J – Stormwater Management ~~rules~~. The requirements of the rule apply to property:

a encompassing or adjacent to a public watercourse, public waters wetland or other protected wetland in the watershed; or

b encompassing or adjacent to any other watercourse within a High-Risk Erosion Area, unless the applicant submits data demonstrating a Stream Power Index rating of 3 or less and an absence of any significant existing erosion.

2.2 The requirements of this rule do not apply to incidental wetlands or to wetlands that are disturbed solely by utility improvements or repairs that are the subject of a no-loss determination from the relevant Wetland Conservation Act Local Government Unit or to projects approved under the fast-track maintenance provisions of Rule F, paragraph 3.4.

3 Criteria

3.1- **Buffer** ~~**width.**~~ area. Buffer must be created or maintained ~~on any regulated feature~~:

a Around a wetland disturbed by land-disturbing activity regulated by the District;

b on the edge of a wetland that is downgradient from land-disturbing activity regulated by the District;

c On streambank downgradient from the land-disturbing activity regulated by the District and ~~on any regulated feature downgradient from the activity,~~50 feet from each of the upstream and downstream extent of the disturbance.

3.2 **Buffer width.** Buffer must be created or maintained upgradient of regulated features in accordance with the following criteria:

a Subject to paragraphs 3.~~1b~~2b through ~~e~~f, buffers must extend:

i An average of 80 feet from the delineated edge of an exceptional value wetland,[1] minimum 40 feet;

ii An average of 60 feet from the delineated edge of a high value wetland, minimum 30 feet;

iii an average 40 feet from the delineated edge of a medium value wetland,[1] minimum 20 feet;

iv an average 20 feet from the delineated edge of a low value wetland,[1] minimum 10 feet;

v an average of 50 feet from the centerline of a public waters watercourse, minimum 30 feet;

vi an average of 50 feet from the thalweg of any watercourse within a High-Risk Erosion Area, minimum 30 feet.

~~b The actual width of buffer required for a particular project may be reduced from the applicable width in paragraph a as follows:~~

~~i For every 3 percent decrease in average buffer slope from 18 percent, the average buffer width may be reduced 1 foot.~~

~~ii For every grade of Hydrologic Soil Group above Type D for the predominant buffer soil condition, the average buffer width may be reduced 1 foot.~~

~~c **Steep slopes.** Paragraph b notwithstanding, where~~b **Steep slopes.** Where a buffer encompasses all or part of a slope averaging 18 percent or greater over a distance of 50 feet or more upgradient of the regulated feature, calculated using a reasonably precise topographic surface model, the buffer will extend to the width specified under section 3.~~1a~~2a or to the top of the slope, whichever is greater. An existing contour alteration or artificial structure on a slope constitutes a break in slope only if it will indefinitely dissipate upgradient runoff velocity and trap upgradient pollutant loadings.

~~d~~c **Existing single-family residential properties:** Paragraphs a ~~through c~~and b do not apply. When required on an existing single-family home property, buffer must extend an average of 20 feet from the delineated edge of a

[1] Wetland values will be determined in accordance with Appendix D1.

wetland or OHW of a watercourse, minimum 10 feet.

~~e~~d **Buffer averaging.** Buffer width may vary, provided that the minimum buffer width is maintained at all points, there is no reduction in total buffer area, and the buffer provides wetland and habitat protection at least equivalent to a buffer of uniform width. Buffer wider than 200 percent of the applicable width calculated in accordance with above provisions will be excluded from the buffer-averaging calculation. Buffer width may not be averaged on a steep slope.

~~f~~e Buffer is only required on the property owned by the applicant that is the subject of the District permit, and is required where the regulated feature is either on or within the applicable buffer width of the subject property.

~~g~~f Buffer required for linear projects will be limited in width to the extent of available right-of-way.

3.~~2~~3 Buffer areas must be planted with native vegetation and maintained to retain natural resources and ecological value. Existing buffer areas preserved in compliance with this rule must be managed in a naturalized condition to encourage growth of native vegetation and eliminate invasive species. Buffer vegetation must not be cultivated, cropped, pastured, mowed, fertilized, subject to the placement of mulch or yard waste, or otherwise disturbed, except for periodic cutting or burning that promotes the health of the buffer, actions to address disease or invasive species, mowing for purposes of public safety, temporary disturbance for placement or repair of buried utilities, or other actions to maintain or improve buffer quality and performance, each as approved by the District in advance in writing or when implemented pursuant to a written maintenance plan approved by the District.

a Diseased, noxious, invasive or otherwise hazardous trees or vegetation may be selectively removed from buffer areas and trees may be selectively pruned to maintain health.

b Pesticides and herbicides may be used in accordance with Minnesota Department of Agriculture rules and guidelines.

c No fill, debris or other material will be placed within a buffer.

d No structure or impervious cover (hard surface) may be created within a buffer area, except that boardwalks, sidewalks and trails designed for nonmotorized use, and stormwater--management facilities may be located within a buffer area as long as the minimum buffer width is maintained from the regulated feature and average buffer width is maintained, except as allowed under paragraph 3.~~1~~e3e of this rule. Plans and specifications must be approved by the District prior to construction.

i Hydrants, utility manholes, piers, docks, canoe racks, information kiosks, signage, retaining walls and benches may be located within a buffer in a public park.

e A pervious path or boardwalk, not more than 12 feet wide, may be created or maintained to provide access to a regulated feature or within the required

buffer area outside the minimum buffer width. Access paths or boardwalks ~~will~~ may not be located where or constructed such that concentrated runoff will flow to the regulated feature.

3.~~3~~4 Buffer will be indicated by permanent, free-standing markers at the buffer's upland edge~~,~~ installed in accordance with a plan and specifications providing:

a Installation date, which must be set to ensure protection of buffer area during and after land-disturbing activities;

b text in material conformity with a design and text provided by the District. ~~A marker will be placed~~;

c location(s) for markers, at a minimum along each lot line, with additional markers at an interval of no more than 200 feet. ~~If a District permit is sought for a subdivision, the monumentation requirement will apply to~~ and, for subdivisions, on each lot of record to be created.

On public land or right-of-way, the monumentation requirement may be satisfied by the use of a marker flush to the ground or breakaway markers of durable material.

3.~~4~~5 Before any work subject to District permit requirements commences, buffer areas and maintenance requirements must be documented in a declaration or other document approved by the District and recorded in the office of the county recorder or registrar. On public land or right-of-way, buffer areas and maintenance requirements may be documented in a written agreement with the District in lieu of a recorded document.

3.~~5~~6 In establishing buffer pursuant to this rule, the potential transfer of aquatic invasive species (e.g., zebra mussels, Eurasian watermilfoil, etc.) must be minimized to the maximum extent possible.

~~4~~5 Temporary ~~Alterations~~alterations

Temporary alteration of buffer areas permitted under this rule or in writing by the District must comport with the requirements of this section.

~~4~~5.1 Compliance with District Rule C – Erosion Prevention and Sediment Control is required, irrespective of the area or volume of earth to be disturbed.

~~4~~5.2 Buffer zones and the location and extent of vegetation disturbance will be delineated on the erosion control plan.

~~4~~5.3 Alterations must be designed and conducted to ensure only the smallest amount of disturbed ground is exposed for the shortest time possible. Mulches or similar materials must be used for temporary soil coverage and permanent native vegetation established as soon as possible.

~~4~~5.4 Fill or excavated material may not be placed to create an unstable slope.

~~5~~6 Roads and ~~Utilities~~utilities

A structure, impervious cover or right-of-way maintained permanently in conjunction with a crossing of a waterbody or wetland may be constructed and maintained in buffer area that would otherwise be required under this rule. The structure, impervious cover

or right-of-way must be designed to minimize the area of permanent vegetative disturbance. Minimization includes, but is not limited to, approach roads and rights-of-way that are perpendicular to the crossing and of a minimum width consistent with use and maintenance access needs.

~~5~~6.1 All work will be conducted in accordance with section 4 of this rule.

~~6~~7 Shoreline or ~~Streambank Improvements~~streambank improvements

A shoreline or streambank improvement subject to District Rule F, including a sand blanket, is excepted from the prohibitions of subsection 3.2, provided the improvement complies with District Rule F – Shoreline and Streambank Stabilization. The applicable buffer width may overlap shoreline or streambank improvements other than a sand blanket.

~~7~~8 Required information and exhibits

The following exhibits ~~will~~must accompany the permit application~~, including but not limited to one full-size~~:

8.1 One 11 inch-by-17 inch plan set ~~(22 inches by 34 inches), one plan set reduced to a maximum size of 11 inches by 17 inches)~~, and electronic files in a format acceptable to the District~~,~~ as well as a plan set 22 inches by 34 inches if requested by the District.

~~7.1~~8.2 For work on any property subject to this rule:

a A scaled site plan showing existing conditions, including the following elements:
   i Topographic contours at two-foot intervals;
   ii Existing streets, roads and trails;
   iii Existing structures and facilities;
   iv Extent of regulated feature as delineated in the field;
   v Location of existing trees and tree masses;
   vi Soil types and locations.

b A scaled proposed site plan showing proposed development that include the following elements:
   i Topographic contours showing finished grade at two-foot intervals;
   ii Proposed streets, parking, trails and sidewalks;
   iii Location of proposed structures and facilities;
   iv Extent of regulated feature and associated buffers as delineated in the field;
   v Location of major landscaping including those existing trees and tree masses to be retained.
   vi Property lines and corners and delineation of lands under ownership of the applicant
   vii Street rights-of-way;
   viii Utility easements;

~~7~~8.2 For projects on properties on which wetlands are located, exhibits must be submitted as follows:

a For existing single-family home properties encompassing all or part of a wetland: A wetland delineation.

b For all other properties encompassing all or part of a wetland: A wetland delineation, type determination, and function and values assessment of any regulated wetland using the Minnesota Routine Assessment Method (MnRAM) or another wetlands-assessment method approved by the District. The delineation and function and values assessment must be conducted by a certified wetland delineator and supported by the following documentation:

i Identification of the methods used;

ii Identification of presence or absence of normal circumstances or problem conditions;

iii Wetland data sheets, or a report, for each sample site, referenced to the location shown on the delineation map. In each data sheet/report 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;

iv 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;

v The location of all sample sites and stakes/flags must be accurately shown on the delineation map.

~~7~~8.3 For properties adjacent to but not encompassing any portion of a wetland, the District will determine the need for wetland buffer and applicable buffer width using best available data, including any wetland functions and values data submitted by the applicant.

Appendix D1 – Wetlands Definitions

"Exceptional value wetlands" are those meeting one or more of the following rating levels, as determined by application of the current edition of the Minnesota Routine Assessment Method (MnRAM) or another wetlands-assessment method approved by the District.

Function or Value	Rating
Vegetative Diversity	Exceptional
Wildlife Habitat	Exceptional
Amphibian Habitat AND Vegetative Diversity	High High
Fish Habitat	Exceptional
Shoreline Habitat	High
Aesthetics/education/recreation/cultural AND Wildlife Habitat	Exceptional High
Stormwater Sensitivity AND Vegetative Diversity	Exceptional Medium or greater
Vegetative Diversity AND Maintenance of Hydrologic Regime	High High

"High value wetlands" are those meeting one or more of the following rating levels, as determined by application of the current edition of MnRAM or another wetlands-assessment method approved by the District.

Function or Value	Rating
Vegetative Diversity	High
Wildlife Habitat	High
Amphibian Habitat	High
Fish Habitat	High
Shoreline Protection	Medium
Aesthetics/education/recreation/cultural AND Wildlife Habitat	High Medium
Stormwater Sensitivity AND Vegetative Diversity	High Medium or greater
Vegetative Diversity AND Maintenance of Hydrologic Regime	Medium High or greater

"Medium value wetlands" are those that do not qualify as high value wetlands but that meet one or more of the following rating levels, as determined by application of the current edition of MnRAM or another wetlands-assessment method approved by the District.

Function or Value	Rating
Vegetative Diversity	Medium
Wildlife Habitat	Medium
Amphibian Habitat AND Vegetative Diversity	Medium Medium
Fish Habitat	Medium
Shoreline Habitat	Low
Aesthetics/education/recreation/cultural AND Wildlife Habitat	Medium Low
Stormwater Sensitivity	Medium

"Low value wetlands" are those that do not qualify as "exceptional," "high," or "medium" wetlands.

Rule E – Dredging and Sediment Removal

1 Policy

It is the policy of the Board of Managers to regulate the removal of sediment from public waters to mitigate the impacts of stormwater sediment transport and deposition.

2 Regulation

No person will dredge or otherwise remove 1 cubic yard or more of sediment from the beds, banks or shores of any public water by any means without first securing a permit from the District.

2.1 Dredging or sediment removal will be permitted only:

- a To maintain, or remove sediment from, an existing channel, subject to such further limitations on method or extent of dredging as this rule may provide;
- b To implement or maintain an existing legal right of navigational access;
- c To remove sediment to eliminate a source of nutrients, pollutants or contaminants;
- d To improve the public recreational, wildlife or fisheries resources of surface waters; or
- e For other actions by public entities for public purposes.

2.2 No District permit under this rule is required for activities conducted pursuant to a project-specific permit from the state Department of Natural Resources, but the District buffer requirements apply to activity that would otherwise require a District permit.

3 Criteria

3.1 Dredging or sediment removal will be permitted upon submission of exhibits demonstrating that the dredging or sediment removal:

- a Is the minimal-impact solution to achieve reasonable navigational access, when proposed for navigation purposes;
- b Will not alter the original alignment, slope or cross-section of the beds, banks or shores of any public water;
- c Will not occur above the ordinary high water level or into the upland adjacent to the lake or watercourse;
- d Will not enlarge a natural watercourse or basin landward or create a channel to connect adjacent backwater areas for navigational purposes;
- e Will not cause increased seepage or result in subsurface drainage;
- f Is not proposed for a location where any portion of the area to be dredged contains any slope steeper than 3:1 (H:V) in a marina or channel, or steeper than 10:1 (H:V) for an area adjoining residential lakeshore; and
- g Is not proposed for a location where adverse ecological impact to a high-quality wetland or other ecologically sensitive area cannot be minimized or mitigated.

3.2 Dredged or excavated sediment must be placed at a location:

a above the ordinary high water level of a public water, public water wetland or wetland subject to the Wetland Conservation Act;
b Not in a floodplain; or
c Not subject to erosion or likely to cause ~~redeposition~~re-deposition of the sediment to an adjacent waterbody, stormwater--management facility or storm sewer.

3.3 Degradation or erosion of the banks or bed of the subject waterbody by entry of equipment must be avoided, and the banks or bed of the subject waterbody must be restored and stabilized at the conclusion of the permitted work and prior to the removal of floatation silt curtain, if required.

3.4 Where determined necessary by the District to protect water quality, a floatation silt curtain will be placed around the sediment-removal site and maintained for the duration of the project.

3.5 No activity affecting the bed of a public water may be conducted between March 15 and June 15 on watercourses, or between April 1 and June 30 on all other public water waterbodies, to minimize impacts on fish spawning and migration.

3.6 Dredging must be conducted so as to minimize the potential transfer of aquatic invasive species (e.g., zebra mussels, Eurasian watermilfoil, etc.) to the maximum extent possible.

4 Required information and exhibits

The following exhibits will accompany the permit application~~, including but not limited to one full-size plan set (22 inches by 34 inches), one plan set reduced to a maximum size of 11 inches by 17 inches, and electronic files in a format acceptable to the District~~:

~~4.1~~4.1 One 11 inch-by-17 inch plan set, and electronic files in a format acceptable to the District, as well as a plan set 22 inches by 34 inches if requested by the District.

4.2 A site plan, showing:
a Delineation of the work area;
b Property lines;
c Ordinary high water elevation; and
d 100-year flood elevation.

4.3 Profile, cross sections and/or topographic contours (at intervals of no more than 1 foot) showing existing and proposed elevations and proposed side slopes in the work area.

4.4 In the case of projects using hydraulic means of sediment removal and onsite spoil containment, the applicant will provide:
a Cross-section of the proposed dike;
b Stage/storage volume relationship for the proposed spoil containment area;
c Detail of any proposed outlet structure, showing size, description and invert elevation;
d Stage/discharge relationship for any proposed outlet structure from the spoil containment area; and
e Site plan showing the locations of any proposed outlet structure and

emergency overflow from the spoil containment area.

4.45 A site plan showing the proposed location of floating silt curtain(s).

4.5-6 Supporting data:

a Description and volume computation of material to be removed;

b Description of equipment to be used;

c Construction schedule;

d Location map of spoil containment area;

e Erosion control plan for containment area;

f Restoration plan for any proposed permanent on-site spoil containment site showing final grades, removal of control structure, and a description of how and when the site will be restored, covered or revegetated after construction.

g Detail of any proposed floating silt curtain including specifications.

5 Fast-~~Track Public Project Permit~~track public project permit

A public entity may obtain a permit for removal of between 1 and 20 cubic yards of sediment from a public waterbody at a stormwater system outlet or similar structure on notice to the District at least 48 hours in advance, including location of the removal. The removal must comply with all criteria in section 3 of this rule.

Rule F – Shoreline and Streambank Stabilization

1 Policy

It is the policy of the Board of Managers to prevent erosion of shorelines and streambanks, and to foster the use of natural materials and bioengineering for the maintenance and restoration of shorelines.

2 Regulation

A permit from the District is required to install or maintain an improvement to stabilize a shoreline or streambank, including but not limited to riprap, a bioengineered installation, a sand blanket or a retaining wall, on any watercourse or a public water. Maintenance of an existing stabilization improvement may be approved under the fast-track application provisions in ~~subsection~~paragraph 3.~~4~~7 below.

2.1 No District permit under this rule is required for activities conducted pursuant to a project-specific permit from the state Department of Natural Resources, but the District buffer requirements apply to activity that would otherwise require a District permit.

~~2.2 No permit under this rule is required for maintenance of an existing shoreline or streambank improvement that involves in-kind replacement or restoration of the improvement in compliance with the criteria in this rule without addition of new material or structural change to the improvement.~~

3 Criteria

3.1 An applicant for a permit under this rule must demonstrate a need to prevent erosion or restore an eroded shoreline,[2] unless the proposed improvement is ~~part of a public project~~ designed to restore natural shoreline.

3.2 **Sequencing.** Stabilization practices must be consistent with the erosion intensity ~~and~~/or ~~sheer~~shear stress rating calculated for the property proposed to be stabilized. The District will approve proposed stabilization practices in accordance with the ~~following~~applicable sequencing priority:

a ~~An applicant must first assess whether maintenance or restoration of shoreline can be accomplished using bioengineering.~~

b ~~If the~~Shoreline **erosion intensity** ~~or shear stress~~ **calculation** ~~demonstrates that bioengineering cannot provide~~. Applications for shoreline stabilization must include a ~~stable~~completed RPBCWD Erosion Intensity Scoresheet[3] to

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[2] All references to "shoreline" in these rules should be read to refer to both shoreline and streambank, except where context clearly requires distinction between the two.

[3] The Erosion Intensity Scoresheet is incorporated into and a part of these rules. It may be obtained from the District office or the permitting section of the District website: www.RPBCWD.org. The website

determine the erosive energy ranking for the site (low, medium, high). The proposed shoreline~~, a combination of riprap and bioengineering may be used to restore or maintain~~ stabilization practice must be consistent with the shoreline erosion energy rating calculated.

i ~~e~~ ~~If~~Low-energy site means a site where the erosion intensity ~~or~~score is 47 or less. Low energy shorelines may be stabilized using bioengineering stabilization practices.

ii Medium-energy site means a site where the erosion intensity score is 48 to 67. Medium energy shorelines may be stabilized using a combination bioengineering and vegetated riprap stabilization practices.

iii High -energy site means a site where the erosion intensity score is greater than 67. High energy sites may be stabilized with riprap and vegetated riprap practices.

b **Streambank shear stress calculation.** Applications for streambank stabilization must include a shear stress calculation ~~demonstrates that~~for the site.[4] The proposed streambank stabilization practice must be consistent with the shear stress calculated.

i Low -energy streambanks are those where the shear stress calculated is less than or equal to 2.5 pounds per square foot and may be stabilized using bioengineering practices.

~~ii~~ Medium energy streambanks are those where the shear stress calculated is between 2.5 and 5 pounds per square foot and may be stabilized using a combination of riprap and bioengineering~~ cannot provide a stable shoreline, riprap may be used to restore or maintain shoreline~~.

iii High energy streambanks are those where the shear stress calculated is greater than 5 pounds per square foot and may be stabilized using riprap and vegetated riprap.

c **Design flexibility.** The District may approve alternative stabilization techniques if the applicant provides sufficient evidence from an engineer registered in Minnesota to demonstrate that the proposed stabilization practice represents the minimal-impact solution with respect to all other reasonable alternatives. A detailed alternatives analysis must be provided .

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also provides guidance on how to complete the scoresheet. The scoresheet may be periodically updated, on approval of the RPBCWD Board of Managers, to account for improved understanding of shoreline-erosion factors . ()

[4] Shear stress must be calculated in a manner consistent with the Natural Resources Conservation Service's National Engineering Handbook (including Technical Supplement 14I: Streambank Soil Bioengineering); Stability Thresholds for Stream Restoration Materials published by the U.S. Army Corps of Engineers; NRCS Engineering Field Handbook Streambank and Shoreline Protection (Chapter 16); or Wisconsin Supplement Engineering Field Handbook Chapter 16 Streambank and Shoreline Protection. The RPBCWD website – www.rpbcwd.org – provides guidance on how to calculate shear stress.

3.3 **Design criteria.**

~~a~~a **Vegetative, bioengineered and hard-armored stabilization.**

i Live plantings ~~incorporated in shoreline bioengineering~~ must be native aquatic vegetation and/or native upland plants.

ii The finished, stabilized slope of any shoreline will not be steeper than 3:1 (horizontal to vertical) waterward of the OHW except where necessary:

(a) to match existing slopes and certified by registered professional engineer for continued slope stability, or;

(b) for bridges, culverts and other structures regulated under Rule G – Waterbody Crossings and Structures.

iii Horizontal encroachment from a shoreline will be the minimal amount necessary to permanently stabilize the shoreline and will not unduly interfere with water flow or navigation. No riprap or filter material may be placed more than 6 feet waterward of the OHW. Streambank riprap may not reduce the cross-sectional area of the channel or result in a stage increase at or upstream of the installation.

iv The design of any shoreline erosion protection will reflect the engineering properties of the underlying soils and any soil corrections or reinforcements necessary. The design will conform to engineering principles for dispersion of wave energy and resistance to deformation from ice pressures and movement, considering prevailing winds, fetch and other factors that induce wave energy.

b **Riprap.**

i Riprap to be used in shoreline erosion protection must be sized appropriately in relation to the erosion potential of the wave or current action of the particular waterbody, but in no case will the riprap rock average less than six inches in diameter or more than 30 inches in diameter. Riprap will be durable, natural stone and of a gradation that will result in a stable shoreline embankment. Stone, granular filter and geotextile material will conform to standard Minnesota Department of Transportation specifications, except that neither limestone nor dolomite will be used for shoreline riprap, but may be used at stormwater outfalls. All materials used must be free from organic material, soil, clay, debris, trash or any other material that may cause siltation or pollution.

~~e~~ii Riprap will be placed to conform to the natural alignment of the shoreline.

~~d~~iii A transitional layer consisting of graded gravel, at least six inches deep, and an appropriate geotextile filter fabric will be placed between the existing shoreline and any riprap. The thickness of riprap layers should be at least 1.25 times the maximum stone diameter. Toe boulders, if used, must be at least 50 percent buried.

~~e~~iv Riprap must not cover emergent vegetation, unless authorized by a Department of Natural Resources permit.

~~f~~v Riprap will extend no higher than the top of bank or two feet above the 100-year high water elevation, whichever is lower.

vi Placement of riprap for cosmetic purposes alone is prohibited.

~~g The finished, stabilized slope of any shoreline will not be steeper than 3:1 (horizontal to vertical).~~

~~h Horizontal encroachment from a shoreline will be the minimal amount necessary to permanently stabilize the shoreline and will not unduly interfere with water flow or navigation. No riprap or filter material will be placed more than 6 feet waterward of the OHW. Streambank riprap will not reduce the cross-sectional area of the channel or result in a stage increase at or upstream of the installation.~~

~~i The design of any shoreline erosion protection will reflect the engineering properties of the underlying soils and any soil corrections or reinforcements necessary. The design will conform to engineering principles for dispersion of wave energy and resistance to deformation from ice pressures and movement, considering prevailing winds, fetch and other factors that induce wave energy.~~

~~j Placement of riprap for cosmetic purposes alone is prohibited.~~

~~3.4~~c **Retaining ~~Walls~~walls.** Retaining walls extending below the OHW of a waterbody are prohibited, except where:

i ~~a~~——there is a demonstrable need for a retaining wall in a public improvement project, and

ii ~~b~~——the design of the retaining wall has been certified by a registered engineer.

~~3.5 Criteria~~ ~~–~~d **Sand ~~Blankets.~~ blankets.** The following standards apply to sand blanketing:

i ~~a~~——The sand or gravel used must be clean prior to being spread. The sand must contain no toxins or heavy metals and must contain no weed infestations such as, but not limited to, water hyacinth, alligator weed, and Eurasian watermilfoil, or animal infestations such as, but not limited to, zebra mussels or their larva.

ii ~~b~~——The sand layer must not exceed six inches in thickness, 50 feet in width along the shoreline, or one-half the width of the lot, whichever is less, and may not extend more than 10 feet waterward of the ordinary high water level.

iii ~~c~~——Only one installation of sand or gravel to the same location may be made during a four-year period. After the four years have passed since the last blanketing, the location may receive another sand blanket. No more than two applications may be made at an individual project site.

1) ~~i~~—Exception. Beaches operated by public entities and available to the public ~~shall~~must be maintained in a manner that represents the minimal impact to the environment, relative to other reasonable alternatives, but otherwise are exempt from the criteria in paragraphs

(b) and (c) of this section.

~~3.6~~e In ~~constructing~~installing or maintaining ~~a~~any shoreline stabilization, the potential transfer of aquatic invasive species (e.g., zebra mussels, Eurasian watermilfoil, etc.) must be minimized to the maximum extent possible.

3.4 **Fast-track maintenance.** Notwithstanding the requirements and criteria in subsections 3.1 to 3.~~3~~6, where an applicant can establish that a shoreline stabilization practice was constructed before February 1, 2015, or after that date in compliance with a duly issued District permit, the District will issue a permit for maintenance of the practice as long as the applicant submits plans documenting that maintenance work will not increase the length, width or depth of the practice, and will not disturb underlying soils.

4 Required information and exhibits.

The following exhibits will accompany the permit application~~, including but not limited to one full-size~~:

4.1 One 11 inch-by-17 inch plan set ~~(22 inches by 34 inches), one plan set reduced to a maximum size of 11 inches by 17 inches~~, and electronic files in a format acceptable to the District~~:~~, as well as a plan set 22 inches by 34 inches if requested by the District.

4.~~1~~2 A site plan, including:

a Documentation, including at a minimum photographs, of existing erosion or the potential for erosion;

b a survey locating the existing OHW contour, existing shoreline, floodplain elevation and location of property lines;

c elevation contours of the upland within 15 feet of the OHW and referenced to accepted datum; and

d plan view of locations and lineal footage of the proposed riprap.

The plan must show the location of an upland baseline parallel to the shoreline with stationing. The baseline will be staked in the field by the applicant and maintained in place until project completion. Baseline origin and terminus each must be referenced to three fixed features, with measurements shown and described on the plan. Perpendicular offsets from the baseline to the OHW must be measured and distances shown on the plan at 20-foot stations. The plan will be certified by a registered engineer or ~~surveyor~~landscape architect.

4.~~2~~3 A construction plan and specifications certified by a registered engineer or landscape architect, showing:

a A sequencing analysis in compliance with section 3.2;

b materials to be used, including the size(s) of any riprap to be used;

c cross section detailing the proposed riprap, if any, drawn to scale, with the horizontal and vertical scales noted on the drawing. The detail should show the finished riprap slope, transitional layer design and placement, distance waterward of the riprap placement and OWH.

d Description of the underlying soil materials.

e Material specifications for stone, filter material and geotextile fabric.

4.~~3~~4 For sites involving aquatic plantings, a separate Aquatic Plant Management permit will be obtained from the Department of Natural Resources.

a This provision does not apply to slope protection projects using woody species such as willow and dogwood.

4.~~5~~4 An erosion control and site restoration plan.

4.6 For an application for a sand blanket, the following exhibits are required:

a Site plan showing property lines, delineation of the work area, existing elevation contours of the adjacent upland area, ordinary high water elevation, and 100-year high water elevation (if available). All elevations must be reduced to NGVD (1929 datum).

b Profile, cross sections and/or topographic contours showing existing and proposed elevations in the work area. (Topographic contours should be at intervals not greater than 1.0 foot).

c A completed Sand Blanket Permit Application form.

Rule G – Waterbody Crossings and Structures

1 Policy

It is the policy of the Board of Managers to discourage the use of beds and banks of waterbodies for the placement of bridges, utilities or other structures, and to protect the hydraulic capacity and floodplain of streams and drainage systems.

2 Regulation

No person ~~will~~may construct, improve, replace or remove a crossing in contact with or under the bed or bank of any waterbody within the District, place or replace a structure other than a dock in the bed or banks of waters of the state ~~that are not public waters~~, remove a structure from the bed or bank of any waterbody, or conduct horizontal drilling under a waterbody that is not a public water without first securing a permit from the District.

2.1 No District permit under this rule is required for activities conducted pursuant to a project-specific permit from the state Department of Natural Resources, but the District buffer requirements apply to activity that would otherwise require a District permit.

3 Criteria

3.1 Use of the bed or banks of a waterbody must meet:

a a demonstrated public benefit for projects affecting public waters or

b a demonstrated specific need for all other waterbodies.

3.2 Construction, replacement or improvement of a waterbody crossing in contact with the bed or bank of a waterbody:

a Will retain adequate hydraulic capacity and assure no net increase in the flood stage of the pertinent waterbody;

b Will retain adequate navigational capacity pursuant to the waterbody's recreational classification;

c Will not adversely affect water quality, change the existing flowline/gradient, or cause increased scour, erosion or sedimentation;

d Will ~~preserve existing~~provide wildlife passage along each bank and riparian area and fish passage in the waterbody by means that~~:~~

~~1~~ account for wildlife that are native to the area or may be present~~; and~~

~~2 are approved by a qualified wildlife biologist.~~.

e Will represent the 'minimal impact' solution to a specific need with respect to ~~all~~ other reasonable alternatives~~.~~, based on analysis of at least two reasonable alternatives, one of which may be not undertaking the proposed work..

3.3 Construction or improvement of an outfall structure in contact with the bed or bank of a waterbody must:

a incorporate a stilling-basin, surge-basin, energy dissipator, or other device or devices when necessary to minimize disturbance and erosion of natural shoreline and bed resulting from peak flows;
b when feasible, utilize discharge to stormwater treatment ponds, artificial stilling or sedimentation basins, or other devices for entrapment of floating trash and litter, sand, silt, debris, and organic matter prior to discharge to public waters; and
c use natural or artificial ponding areas to provide water retention and storage for the reduction of peak flows into waterbodies to the greatest extent possible.

3.4 Projects involving directional boring or horizontal drilling will provide for minimum clearance of 3 feet below the bed of a waterbody and a minimum setback of 50 feet from any stream bank for pilot, entrance and exit holes.

3.5 Placement or replacement of a structure must:
a Represent the minimal impact solution to a specific need with respect to all other reasonable alternatives;
b Represent the minimum encroachment, change or damage to the environment, particularly the ecology of the waters, necessary to achieve the intended purpose;
c Comply with the District floodplain rule; and
d Not cause adverse effects to water quality and the physical or biological character of the waterbody.

3.6 Removal of structures or other waterway obstructions:
a Will maintain or restore the original cross-section and bed conditions to the greatest extent practicable;
b Will achieve complete removal of the structure, including any footings or pilings that impede navigation; and
c Will not involve the removal of a water-level control device.

3.7 For all projects:
a No activity affecting the bed or banks of a protected water may be conducted between March 15 and June 15 on watercourses, or between April 1 and June 30 on all other public water waterbodies, to minimize impacts on fish spawning and migration.
b Banks must be stabilized immediately after completion of permitted work and revegetated as soon as growing conditions allow.
c The potential transfer of aquatic invasive species (e.g., zebra mussels, Eurasian watermilfoil, etc.) must be minimized to the maximum extent possible.
d Compliance with applicable criteria in ~~subsections~~subsection 3.~~2 to 3.~~4 of Rule F – Shoreline and Streambank Stabilization is required.

4 Required information and exhibits.

The following exhibits will accompany the permit application~~, including but not limited~~

~~to one full-size plan set (22 inches by 34 inches), one plan set reduced to a maximum size of 11 inches by 17 inches, and electronic files in a format acceptable to the District~~:

~~4.1~~4.1 One 11 inch-by-17 inch plan set , and electronic files in a format acceptable to the District.

4.2 Construction plans and specifications, certified by registered professional engineer.

4.~~2~~3 An analysis prepared by a professional engineer ~~or qualified hydrologist~~ showing the effect of the project on hydraulic capacity and water quality.

4.~~3~~4 An erosion control and site restoration plan.

5 Maintenance

Crossings and structures in contact with the bed or bank of a waterbody will be repaired and maintained to ensure continuing compliance with applicable criteria in section 3 or this rule, including but not limited to ensuring adequate hydraulic and navigational capacity; assuring no net increase in the flood stage; preventing adverse effects to water quality, changes to the existing flowline/gradient and increased scour, erosion or sedimentation; and minimizing the potential for obstruction of the waterbody. A declaration or other recordable document stating terms for maintenance and approved by the District will be recorded before activity under a permit issued under this rule commences. In lieu of recordation, a public permittee or a permittee without a property interest sufficient for recordation may assume the maintenance obligation by means of a written agreement with the District. The agreement will state that if the ownership of the structure is transferred, the public body will require the transferee to comply with this subsection.

Rule H – Appropriation of Public Surface Waters

1 Policy

It is the policy of the Board of Managers to regulate the appropriation of public surface waters pursuant to the mandate in Minnesota Statutes section 103B.211, subdivision 4.

2 Regulation

A permit from the District is required to appropriate less than 10,000 gallons per day and up to 1,000,000 gallons per year of water for a nonessential use from:

2.1 A public water basin or wetland within the ~~District~~District's jurisdiction; or

2.2 A public watercourse within the ~~District.~~District's jurisdiction.

3 Criteria

An appropriation of public water permitted under this rule must not materially alter the hydrologic regime in a basin or watercourse.

3.1 In addition, the appropriation must:

- a Be reasonable and practical with regard to alternative sources of water or methods available, including use of water appropriated during high flows and levels and stored for later use, to attain the stated objective;
- b Include the utilization of water storage and reuse and conservation practices to the greatest extent feasible;
- c Be subject to restriction, at any time, to meet in-stream flow needs or protect basin water levels.

3.2 A permittee must provide by March 1 each year a report including:

- a A written summary of how appropriated water was used and conservation utilized; and
- b the method of appropriation, if changed from original application.

3.3 Permits issued under this rule will continue until revoked or relinquished. Failure to comply with the criteria and requirements of this rule will be grounds for revocation.

4 Exhibits

An applicant for a permit under this rule must provide:

4.1 Written evidence of ownership, control of or a license to use the land abutting the surface water source from which water will be appropriated.

4.2 A completed application showing:

- a Applicant address;
- b Applicant email address;
- c Purpose of the requested appropriation;
- d Source of water;
- e Amount of water to be appropriated on a maximum daily, monthly and annual basis, if known;

f Means, methods and techniques of appropriation;
g Alternative sources of water considered and reasons why the particular alternative proposed was selected;
h Information on any water storage facilities and capabilities and any proposed reuse and conservation practices; and
j A contingency plan or agreement with the District to discontinue the permitted appropriation in the event of restrictions.

An appropriation application form may be obtained from the District offices or website.

Rule I – Appropriation of Groundwater

1 Policy

It is the policy of the Board of Managers to regulate appropriations to ensure the health and availability of groundwater in the watershed.

2 Regulation

A permit from the District, incorporating an approved groundwater-appropriation plan, is required for an appropriation of groundwater of less than 10,000 gallons per day and up to 1,000,000 gallons per year or of any amount for domestic use by less than 25 persons, except that no District permit is required for temporary construction dewatering.

3 Criteria

3.1 An applicant for a permit under this rule must demonstrate that the implementation of its groundwater appropriation plan will:

- a Be reasonable and practical with regard to alternative sources of water or methods available;
- b Include the utilization of water storage and reuse and conservation practices to the greatest extent feasible;
- c Be subject to restriction to meet in-stream flow needs or protect basin water levels.

3.2 A permittee must provide by March 1 each year a report including:

- a A written summary of how appropriated water was used and conservation utilized; and
- b the method of appropriation, if changed from original application.

3.3 Permits issued under this rule will continue until revoked or relinquished. Failure to comply with the criteria and requirements of this rule will be grounds for revocation.

4 Exhibits

An applicant for a permit under this rule must provide a completed application and groundwater appropriation plan including:

4.1 Applicant address;

4.2 Applicant email address;

4.3 Purpose of the requested appropriation;

4.4 Alternative sources of water considered and reasons why the groundwater appropriation proposed was selected;

4.5 Depth of well, and number and capacity in gallons per minute of pump(s) to be installed;

4.6 Information on any water storage facilities and capabilities and any proposed reuse and conservation practices; and

4.~~8~~7 A contingency plan or draft agreement with the District to discontinue the appropriation in the event of restriction.

An appropriation application form may be obtained from the District offices or website.

Rule J – Stormwater Management

1 Policy

It is the policy of the District to regulate the management of stormwater runoff to:

1.1 Limit the impact of runoff quality and rate on receiving waterbodies.

1.2 Improve water quality to fully support swimming in designated lakes.

1.3 Improve water quality to fully support designated uses for waterbodies, and remove waterbodies from the Minnesota Pollution Control Agency list of impaired waters.

1.4 Alter stormwater hydrographs (stream flow) through infiltrative strategies that reduce peak discharge rates and overall flow volume.

1.5 Require that onsite retention and regional water quality treatment systems operate together to provide complete and effective runoff management.

1.6 Provide for nondegradation of surface waterbodies in the watershed.

1.7 Encourage the use of Better Site Design, Low Impact Development and other techniques that minimize impervious surfaces or incorporate volume-control practices, such as infiltration, to limit runoff volumes.

1.8 Maximize opportunities to improve stormwater and snowmelt management presented by redevelopment of land.

1.9 Require governmental entities and developers to manage runoff effectively to minimize water quality impacts from new development, redevelopment and other land-disturbing activities.

1.10 Minimize the movement of chloride compounds into water resources.

2 Regulation

A permit from the District, incorporating an approved stormwater~~-~~management plan, is required under this rule prior to the commencement of any activities to which this rule applies. The District may review a ~~stormwater management~~stormwater-management plan at any point in the development of a regulated project and encourages project proposers to seek early review of plans by the District.

2.1 The requirements of this rule apply to any land-disturbing activity that will involve:

:

a Placement, alteration or removal of 50 cubic yards or more of earth;

b Alteration or removal of 5,000 square feet or more of land-surface area or vegetation; or

c Subdivision of a ~~parcel~~property or properties into three or more residential lots.

2.2 **Exemptions.** The requirements of this rule do not apply to:

a Construction or ~~reconstruction~~remodeling on an existing single-family home site, unless any portion of the parcel is:

1 Within 300 feet of the centerline of and draining to Riley Creek, Purgatory

Creek or Bluff Creek,

2 Within 500 feet of the ordinary high water level of and draining to any other public water or protected wetland, or

3 Below ~~a~~the 100-year flood elevation ~~adopted by the District.~~of a water body.

b Construction or ~~reconstruction~~remodeling on a single-family home site consistent with a subdivision, development or redevelopment plan ~~that is subject to an unexpired~~implemented in accordance with a District permit issued after February 1, 2015, and an approved erosion prevention and sediment control plan.

c Rehabilitation of paved surfaces.

d Trails ~~and~~, sidewalks and retaining walls that do not exceed 10 feet in width and are bordered downgradient by a pervious ~~buffer of~~ area extending at least half the trail width.

e Land-disturbing activities that do not involve creation of new impervious surface, reconstruction of existing impervious surface or grading that materially alters stormwater flow at a site boundary.

2.3 **Redevelopment.** If a proposed activity will disturb more than 50 percent of the existing impervious surface on the parcel or will increase the imperviousness of the entire parcel by more than 50 percent, the criteria of section 3 will apply to the entire project parcel. Otherwise, the criteria of section 3 will apply only to the disturbed areas and additional impervious surface on the project parcel. For purposes of this paragraph, disturbed areas are those where underlying soils are exposed in the course of redevelopment.

2.4 **Linear projects.** Notwithstanding subsection 2.3, a permit under this rule is not required for a linear project if the project entails construction or reconstruction creating less than 5,000 square feet of new and/or fully reconstructed impervious surface. For linear projects creating 5,000 square feet or more of new and/or fully reconstructed impervious surface, stormwater management in accordance with the criteria of subsection 3.2 must be provided.

2.5 **Common scheme of development.** Activity subject to this rule on a parcel or adjacent parcels under common or related ownership will be considered in the aggregate, and the requirements applicable to the activity under this rule will be determined with respect to all development and redevelopment that has occurred on the site or on adjacent sites under common or related ownership since the date this rule took effect (January 1, 2015).

a For development or redevelopment under common or related ownership, compliance with the criteria of section 3 may be achieved through a shared ~~stormwater management~~stormwater-management facility or facilities as long as the criteria in subsection 3.1 are met for each contributing drainage area within the common or related ownership.

2.6 **Performance monitoring.** A permit granted by the District on a finding that ~~stormwater management~~stormwater-management facilities, as they are to be

constructed and maintained under the permit, will meet applicable performance standards under this rule, does not require additional steps if the permit is complied with but standards are not met. Notwithstanding, as a specific condition to a permit, the District may impose monitoring, performance evaluation, additional compliance measures or other requirements for the purposes of demonstrating that performance standards are being met.

3 Criteria

3.1 An applicant for a permit under this rule must demonstrate, using a model utilizing the most recent applicable National Weather Service reference data (e.g., Atlas 14), that the implementation of its ~~stormwater management~~stormwater-management plan will:

a **Rate.**

i Limit peak runoff flow rates to that from existing conditions for the two-, 10- and 100-year frequency storm events using a nested 24-hour rainfall distribution, and a 100-year frequency, 10-day snowmelt event, for all points where stormwater discharge leaves the site;

b **Volume.** Provide for the abstraction onsite of 1.1 inches of runoff from impervious surface of the parcel;

i Where infiltration or filtration facilities, practices or systems are proposed, pretreatment of runoff must be provided.

ii ~~The bottom of~~ Where infiltration facilities, practices or systems are proposed, data must be ~~at least three~~submitted showing:

A. no evidence of groundwater or redoximorphic soil conditions within 3 feet ~~above~~of the ~~seasonal high~~bottom of the facility, practice or system;

B. soil conditions within 5 feet of the bottom of any stormwater treatment facility, practice or system;

C. ~~site-specific~~the measured infiltration capacity of soils at the bottom of the facility, practice or system. (For purposes of calculating volume-control capacity, measured infiltration rates must be divided by 2 to provide a margin of safety.)

iii Drawdown of water ~~table~~levels in infiltration facilities must be within 48 hours.

iv Infiltration rates utilized to meet the 3.1b criterion may not exceed 8.3 inches per hour.

v ~~Measured infiltration rates must be divided by 2 to provide a margin of safety.~~

c **Quality.** Provide for at least ~~sixty percent (~~60 percent~~)~~ annual removal efficiency for total phosphorus~~,~~ (TP) and at least ~~ninety percent (90%)~~ percent annual removal efficiency for total suspended solids (TSS) from site runoff.~~,~~ and no net increase in TSS or TP loading leaving the site from existing conditions.

i The onsite abstraction of runoff may be included in demonstrating compliance with the total suspended solids and total phosphorus removal requirements.

3.2 **Criteria for Linear Projects.** An applicant for a permit for a linear project under this rule must demonstrate, using a model utilizing the most recent applicable National Weather Service reference data (e.g., Atlas 14), that the implementation of its ~~stormwater management~~stormwater-management plan will:

a Achieve the rate control standard in paragraph 3.1a and the water quality standard in paragraph 3.1c; and

b For projects creating between 5,000 square feet and 1 acre of new and/or fully reconstructed impervious surface, provide for the abstraction onsite of 1.1 inches of runoff from the net increase in impervious surface area; or

c For projects creating more than 1 acre of new and/or fully reconstructed impervious surface, provide for the abstraction onsite of the larger of the following:

i 0.55 inches of runoff from the new and fully reconstructed impervious surfaces; or

ii 1.1 inches of runoff from the net increase in impervious area.

3.3 **Criteria for restricted sites.** Where the District ~~engineer~~ concurs that an applicant has demonstrated that the abstraction standard in subsection 3.1 or 3.2, as applicable, cannot practicably be met through a combination of onsite best management practices and relocation of project elements to address varying soil conditions and other site constraints or infiltration will cause or exacerbate migration of underground contaminants, the applicant must provide rate control in accordance with the standard in paragraph 3.1a, and abstraction and water-quality protection in accordance with the following priority sequence:

a Abstraction of at least 0.55 inches of runoff from site impervious surface determined in accordance with paragraphs 2.3, 3.1 or 3.2, as applicable, and treatment of all runoff to the standard in paragraph 3.1c; or

b Abstraction of runoff onsite to the maximum extent practicable and treatment of all runoff to the standard in paragraph 3.1c; or

c Off-site abstraction and treatment in the watershed to the standards in paragraph 3.1b and 3.1c.

3.4 **Criteria for projects on existing single-family home property.** The criteria in sections 3.1 to 3.3 and exhibit requirements in section 4 do not apply. An applicant for a permit for construction or reconstruction on an existing single-family home property must submit site plans and designs providing for construction, installation or implementation of a stormwater-management BMP consistent with guidance promulgated by the State of Minnesota, including but not limited to the Minnesota Stormwater Manual, Protecting Water Quality in Urban Areas Manual and Minimal Impact Design standards.

3.5 **Buffer credit.** ~~Stormwater management~~Stormwater-management capacity of

buffer area created in compliance with Rule D or otherwise will be credited toward compliance with the criteria in this rule.

3.6 **Low-floor elevation.** All new and reconstructed buildings must be constructed such that the lowest floor is:

~~No structure may be constructed or reconstructed such that its lowest floor elevation is less than 2~~a At least two feet above the 100-year ~~event flood~~high water elevation or one foot above the natural overflow of a waterbody;

b At least two feet above the 100-year high water elevation ~~and no~~of any open stormwater conveyance; and

c At least two feet above the 100-year high water elevation or one foot above the emergency overflow of a ~~constructed~~ stormwater-management facility.

In addition, a ~~stormwater management~~stormwater-management ~~system may~~facility must be constructed ~~or reconstructed in a manner~~at an elevation that ensures that ~~brings the low floor elevation of an~~ no adjacent ~~structure~~habitable building will be brought into noncompliance with ~~this standard~~a standard in this subsection 3.6. Alternatively, a ~~stormwater management~~stormwater-management facility may be constructed at a location and elevation set according to Appendix J1 – "Low Floor Elevation Assessment," which is incorporated into and made a part of these rules. If Appendix J1 is used, the low opening where surface water can enter the structure must be a minimum of two feet above the 100-year high water elevation.

~~a All structures riparian to inundation areas or constructed or natural stormwater management facilities must be located and elevations must be set according to Appendix J1 "Low Floor Elevation Guidance."~~

b **Landlocked basins.** Any new or reconstructed structure wholly or partially within a landlocked basin must be constructed such that its lowest floor elevation is:

i 1 foot above the surface overflow of the basin, or

ii 2 feet above the elevation resulting from two concurrent 100-year single rainfall events in a 24-hour period or a 100-year, 10-day snowmelt, whichever is higher.

iii The starting elevation of the basin prior to the runoff event will be established by the highest of one of the following:

A Existing ordinary high water elevation established by the Minnesota Department of Natural Resources;

B Mottled soil.

c- Landlocked water basins may be provided with outlets if an outcome-based analysis and resource oriented management review regarding downstream impacts is completed and demonstrates that:

i A hydrologic regime is maintained that complies with all other rules;

ii Dead storage is provided to retain the fully developed future conditions back to back 100-year critical event water volume, above the highest

anticipated groundwater elevation to the extent possible while preventing damage to property adjacent to the basin;

iii The outlet does not create adverse downstream flooding or water quality conditions, or materially affect stability of downstream watercourses

iv Proposed development draining to the landlocked basin has incorporated runoff volume and rate control practices to the extent practical

v There is a demonstrated need for an outlet to protect existing structures and infrastructure; and

vi The outlet design is part of an approved comprehensive local water management plan.

3.7 Maintenance

All ~~stormwater management~~stormwater-management structures and facilities must be designed for maintenance access and properly maintained in perpetuity to assure that they continue to function as designed. Permit applicants must provide a maintenance, inspection and, if required, monitoring plan that identifies and protects the design, capacity and functionality of onsite and offsite ~~stormwater management~~stormwater-management facilities; specifies the methods, schedule and responsible parties for inspection, maintenance and monitoring; provides for the inspection and maintenance in perpetuity of the facility, with documentation retained onsite and available to the District upon reasonable notice; and contains at a minimum the requirements in the District's standard maintenance declaration. For applications managing runoff through stormwater reuse, the maintenance plan must provide for the protection of greenspace to be irrigated or other land-use restrictions, as necessary, and metering of the volume of water reused to ensure continuing treatment capacity. The plan will be recorded on the deed in a form acceptable to the District. A public entity assuming the maintenance obligation may do so by entering an agreement with the District in lieu of a recorded document.

~~4 Required exhibits~~

3.8 **Chloride management.**

An applicant for a permit under this rule for land-disturbing activity on property other than a single-family home site must provide a plan for post-project management of chloride use on the site that includes, at a minimum:

a Designation of an individual authorized to implement the chloride plan; and

b Designation of a Minnesota Pollution Control Agency-certified salt applicator engaged in the implementation of the chloride plan for the site.

3.9 **Rights to Utilize Offsite Facility.** An applicant relying on regional ~~stormwater management~~stormwater-management treatment for compliance with the standard in paragraph 3.1c or under an approved regional plan under section 4 must demonstrate that it holds the legal rights necessary to discharge to the relevant offsite ~~stormwater management~~stormwater-management facility or

facilities, and that the facility or facilities are subject to a maintenance document satisfying the requirements of paragraph 3.7.

3.10 **Wetland protection.**

a Bounce and inundation. No activity subject to this rule may alter a site in a manner that increases the bounce in water level, duration of inundation, or change the runout elevation in the subwatershed in which the site is located, for any wetland receiving discharge directly from the site beyond the limits specified Table J.1.

b Treatment of runoff to wetlands. Use of an existing or created wetland for stormwater treatment as part of a proposed development, redevelopment or other land-disturbing project regulated under District rules must comply with the following criteria:

i Stormwater must be treated to meet the 3.1b criterion by before discharge to a wetland.

ii Exceptional and high value wetlands may not be used for stormwater management unless no other alternative is feasible. When permitted, any discharge to a high-value wetland must be treated to at least 75 percent annual removal efficiency for phosphorus and at least 90 percent annual removal efficiency for total suspended solids prior to discharge to the wetland.

4 **Regional Stormwater Management.** An applicant may comply with the criteria in subsection 3.1 for all parcels within a catchment area or areas through a regional or subwatershed plan approved by the District. A regional plan must provide stormwater management that meets or exceeds the criteria in subsection 3.1. The regional plan must provide for an annual accounting to the District of treatment capacity created and utilized by projects or land-disturbing activities within the drainage and treatment area to which the plan pertains.

4.1 District approval of a regional plan will be based on a determination that:

a The use of a regional facility in place of onsite stormwater management is not likely to result in adverse impacts to local groundwater or natural resources located upstream of the regional facility or facilities, including, for example, reduced water quality, altered wetland hydrology, changes to stream velocities or base flow, erosion or reduced groundwater recharge; and

b The plan incorporates onsite BMPs where necessary to mitigate impacts and provide local benefits not provided by the regional facility.

5 **Required exhibits**

The following exhibits must accompany the permit application~~, including but not limited to one full-size~~:

5.1 One 11 inch-by-17 inch plan set ~~(22 inches by 34 inches); one plan set reduced to maximum size of 11 inches by 17 inches~~, and electronic files in a format acceptable

to the District~~:~~, as well as a plan set 22 inches by 34 inches if requested by the District.

~~4.1~~5.2 ~~Stormwater management~~Stormwater-management system modeling in a form acceptable to the District engineer. For example, HydroCAD, SWMM, MIDS calculator, P8 or alternative method as approved by the District engineer in advance of submission.

~~4.2~~5.3 A site plan showing:

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

b Existing and proposed elevation contours.

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

5.~~4.3~~ A ~~stormwater management~~stormwater-management plan certified by a registered engineer including, at a minimum:

a Proposed and existing ~~stormwater management~~stormwater-management facilities' location, alignment and elevation.

b Delineation of existing wetlands, marshes, shoreland and/or floodplain areas onsite or to which any portion of the project parcel drains, except that where a project will not change the hydrology of a wetland, the wetland need only be identified on the plan.

c Geotechnical analysis including soil borings and, where applicable, data developed in accordance with the Minnesota Stormwater Manual supporting existing and designed infiltration rates, at all proposed ~~stormwater management~~stormwater-management facility locations.

d Construction plans and specifications for all proposed ~~stormwater management~~stormwater-management facilities, including design details for outlet control structures.

e Stormwater runoff volume and rate analyses for the 24-hour, 2-, 10- and 100-year critical events, existing and proposed conditions.

f All hydrologic, water quality, and hydraulic computations completed to design the proposed ~~stormwater management~~stormwater-management facilities, including calculation of stormwater-management capacity of buffer, as applicable.

g Narrative addressing incorporation of retention BMPs.

h Platting or easement documents showing ~~sufficient~~ drainage and ponding/flowage easements over hydrologic features such as floodplains, storm sewers, ponds, ditches, swales, wetlands and waterways, where required by the relevant city.

i Documentation as to the status of the project's National Pollutant Discharge Elimination System stormwater permit, if applicable.

j If infiltration of runoff is proposed, the District may require submission of a phase I environmental site assessment and/or other documentation to facilitate analysis by the District of the suitability of soils for infiltration.

~~4.4~~k If a stormwater harvest and reuse practice is proposed to meet applicable

requirements, submission of:

i An analysis using a stormwater reuse calculator or equivalent methodology approved by the District engineer documenting how the annual volume of reuse water translates to the abstraction criterion in subsection 3.1b;

ii documentation of the adequacy of soils, storage capacity and delivery systems;

iii delineation of greenspace area to be irrigated, if applicable; and

iv an irrigation or usage plan.

5.5 An erosion control plan complying with District Rule C.

~~4.~~5.6 Upon completion of site work, a permittee must submit as-built drawings demonstrating that at the time of final stabilization, ~~stormwater management~~stormwater-management facilities conform to design specifications as approved by the District.

Table J.1: Impacts on onsite wetland[5]

Wetland Value/ Waterbody	**Permitted Bounce for, 10-Year Event**	**Inundation Period for 1- and 2-Year Event**	**Inundation Period for 10-Year Event**	**Runout Control Elevation**
Exceptional	Existing	Existing	Existing	No change
High	Existing plus 0.5 feet	Existing plus 1 day	Existing plus 7 days	No change
Medium	Existing plus 1.0 feet	Existing plus 2 days	Existing plus 14 days	0 to 1.0 ft above existing runout
Low	No limit	Existing plus 7 days	Existing plus 21 days	0 to 4.0 ft above existing runout

[5] Adopted from *Wetland Management Classification System* http://bwsr.state.mn.us/wetlands/mnram/MnRAM_Wetland_Mgmt_Classification_Guidance.pdf

Appendix J1 – Low-Floor Elevation ~~Guidance~~Assessment

Overview of Lowest Floor Issue

There seems to be two reasons for establishing a minimum lowest floor elevation in the vicinity of a pond – to prevent flooding of the structure by surface water and to prevent seepage or damage from uplift pressures that could result from a rise in the water table elevation. The first reason (direct flooding) can easily be established with knowledge of the maximum flood elevation of a pond (or the 100-year elevation, if this is used) and ground surface topography. The second reason (a rise in the water table due to increased pond elevations) is not so straight forward. This second area is the subject of this memo.

When a formerly dry pond becomes wet (or when a wet pond's water elevation increases) due to a storm event, downward seepage of the ponded water begins. The rate of seepage through the bottom of the pond is dependent upon:

1) The elevation of the water surface above the pond bottom

2) The soil type at the bottom of the pond (i.e. the pond bottom's thickness and permeability)

3) The type of soil underneath the pond (e.g., clay, silt, sand, gravel)

4) The degree of saturation of the soils beneath the pond

5) The depth to the water table

In general, higher seepage through the bottom of the pond will occur when the water surface elevation is high, the pond's bottom sediments are thin and/or sandy, the soils underneath the pond are permeable (such as sand or gravel), the soils underneath the pond have a high moisture content (i.e., they are at field capacity or higher), and the water table is well below the bottom of the pond (i.e. the soils are freely draining).

Higher seepage rates through the bottom of the pond will cause the water table elevation to rise by creating a "mounding condition" below the pond. How high and how widespread the water table mound becomes are contributing factors to whether or not basements will be affected. *However, the single most important factor that will determine if seepage from a pond will cause wet basement problems is the depth to the water table, below the basement.*

The magnitude and extent of the groundwater mounding conditions is also contingent upon the aquifer's transmissivity (aquifer permeability multiplied by aquifer thickness), the specific yield of the aquifer materials, and the duration of the high water levels in the pond. In general, thicker aquifers with higher permeability will experience less mounding than thinner aquifers of lower permeability. Perched aquifers (i.e. groundwater zones less than about 10 feet that overlie extensive clay layers) typically experience the greatest amount of mounding.

Overview of ~~Variance~~ Evaluation Method

All of the combinations of settings, pond configurations, aquifer parameters, and distances from ponds cannot be anticipated beforehand in coming up with a method to quickly evaluate whether or not a variance to the minimum floor elevation ordinance should be considered. However, by making some generalities, the most commonly encountered situations can be evaluated. This is the approach taken here.

A groundwater flow model of a "typical" pond and aquifer setting was developed. Aquifer parameters and pond elevations were varied and the resulting water table mounding conditions were simulated. The following conditions were evaluated:

1. Pond elevation increases of 2 feet, 4 feet, and 6 feet above normal or dry conditions

2. Depth to the water table (before flooding) of 3 feet (to represent conditions of 3 feet or less) and 10 feet (to represent conditions where the depth to the water table is greater than 3 feet). The purpose of simulating these two conditions is that with shallow water tables, the rate of infiltration is substantially reduced as the groundwater mound rises into the pond. For deeper aquifer conditions, the pond bottom is always above the water table and the depth to the water table has no bearing on the seepage rate.

3. Three aquifer conditions: clay or perched aquifers (transmissivities of 7 ft^2/day and specific yield values of 0.1); silt aquifers (transmissivity of 70 ft^2/day and specific yield values of 0.2) and sand and gravel aquifers (transmissivities of 2000 ft^2/day and specific yield values of 0.2).

4. Pond bottom sediment thickness of 1 feet and bottom sediment hydraulic conductivity of 1 ft/day.

5. Instantaneous occurrence of a flood condition in the pond, which lasts for 25 days, followed by instantaneous reduction to normal conditions. The purpose of using this condition is that the effects of aquifer storage (specific yield) are taken into account. A duration of 25 days was selected as being a reasonable time period of flood conditions.
6. Increases in the water table elevation were recorded at several distances between 5 feet and 200 feet from the pond. The maximum rise during the modeled period was selected for plotting.

The U.S. Geological Survey's groundwater modeling code, MODFLOW, was used for this analysis.

How to Determine if a Variance is Warranted

In order to determine if a proposed lowest floor elevation is acceptable, the following need to be known:

1. Depth to the water table and an estimation of the water table's seasonally high elevation.

2. Type of aquifer materials – e.g., clay, silt, sand, gravel

3. Information as to whether or not the water table is perched or is part of a deeper, thicker aquifer system.

4. An estimate of the flood elevation of the pond.

5. The distance of the proposed floor to the pond.

Depth to the water table and the type of aquifer material needs to be determined through the installation of soil borings. The other information should be estimated from other sources.

Once this information is obtained, the minimum depth to the water table from the bottom of the proposed floor slab can be determined from one of six plots, attached to this memorandum. Which of the six plots to use depends on the depth of the water table with respect to the pond's bottom and the type of aquifer material (e.g., clay, silt, sand, gravel). The following steps should be used:

1. Determine the closest distance of the proposed floor to the pond (if the pond size increases during flooding, the distance should be from the flooded perimeter of the pond to the proposed floor).

2. Using Plot 1, determine the minimum permissible depth to the water table for the specified distance from the pond. If the actual depth to the water table (see discussion below for determining this) is greater than the value on Plot 1, no further evaluation is necessary – the floor is sufficiently high with respect to the water table that the water table will not reach the bottom of the slab, regardless of the soil type or transmissivity. If the depth to the water table is less than the value from Plot 1, further evaluation is necessary.

3. If the soil type of the aquifer, below the water table, is mostly clay OR if the aquifer is perched (a continuous clay layer is less than 5 feet below the water table), Plot 2 must be used. The appropriate pond level increase (2, 4, or 6 feet) for flood conditions must be used in Plot 2 to find the minimum permissible depth to the water table. If the depth to the water table from Plot 2 is less than the actual depth to the water table, the proposed floor elevation is too low and must be raised to equal the value from Plot 2.

4. If the soil type of the aquifer is mostly silt AND the pond bottom is 3 feet or less above the water table, Plot 3 should be used.

5. If the soil type of the aquifer is mostly sand or gravel AND the pond bottom is 3 feet or less above the water table, Plot 4 should be used.

6. If the soil type of the aquifer is mostly silt AND the pond bottom is 3 feet or more above the water table, Plot 5 should be used.

7. If the soil type of the aquifer is mostly sand or gravel AND the pond bottom is 3 feet or more above the water table, Plot 5 should be used.

The values from the plots are guidelines, based on typical conditions. If the plots indicate the proposed floor elevation is too low, additional analyses and data collection could be pursued by the applicant. These additional analyses could include additional soil borings, long-term monitoring of piezometers, or more sophisticated modeling.

Determining Depth to the Water Table

If a variance to a lowest floor elevation ordinance is to be considered, the depth to the water table at the location in question must be known. Without this knowledge, there cannot be a technical basis for approving a variance. Furthermore, the applicant should demonstrate that the measured water-table elevation is both representative of conditions over the entire floor area and is representative of values typical for seasonally high conditions (e.g. spring conditions). A suggested requirement for collecting this information is the following:

1. A minimum of two soil borings ~~shall~~must be installed at or near the perimeter of the lowest floor. At least one of these borings ~~shall~~must be where the floor is closest to the nearest pond.

2. Soil borings ~~shall~~must extend to a depth of at least 7 feet below the water table. The borings ~~shall~~must be left open for a time sufficient to determine the stabilized water level in the borehole. The water level ~~shall~~must be measured with reference to a known bench mark that can relate the water table elevation to the proposed floor elevation. Soils at or immediately below the water table ~~shall~~must be sampled and texturally classified using an approved classification method.

Water levels measured during dry summer months or during the winter may be lower than water levels during the spring. The applicant should be required to make an effort to determine the likely amount of seasonal fluctuation in the water table in the area. Water level records from wells completed in the area could be used. If information is unavailable, the applicant should be required to add a value to the measured water table elevation. One suggestion would be to assume 25% of the total annual precipitation (29 inches), divided by the average effective porosity for non-cohesive soils (0.3), which is:

$$(29 \text{ inches}/4) \times (1 \text{ foot}/12 \text{ inches})/0.3 = 2 \text{ feet}$$

If the seasonally adjusted maximum water-table elevation is eight (8) feet or below the bottom of the slab of the lowest floor, it is unlikely that temporary flood conditions in the pond will cause the water table to rise to the level of the floor.[6]

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6 This assumes that the pond level begins to return to normal within about 30 days and the pond level's increase is not greater than 6 feet.

Determining Soil Type at the Water Table

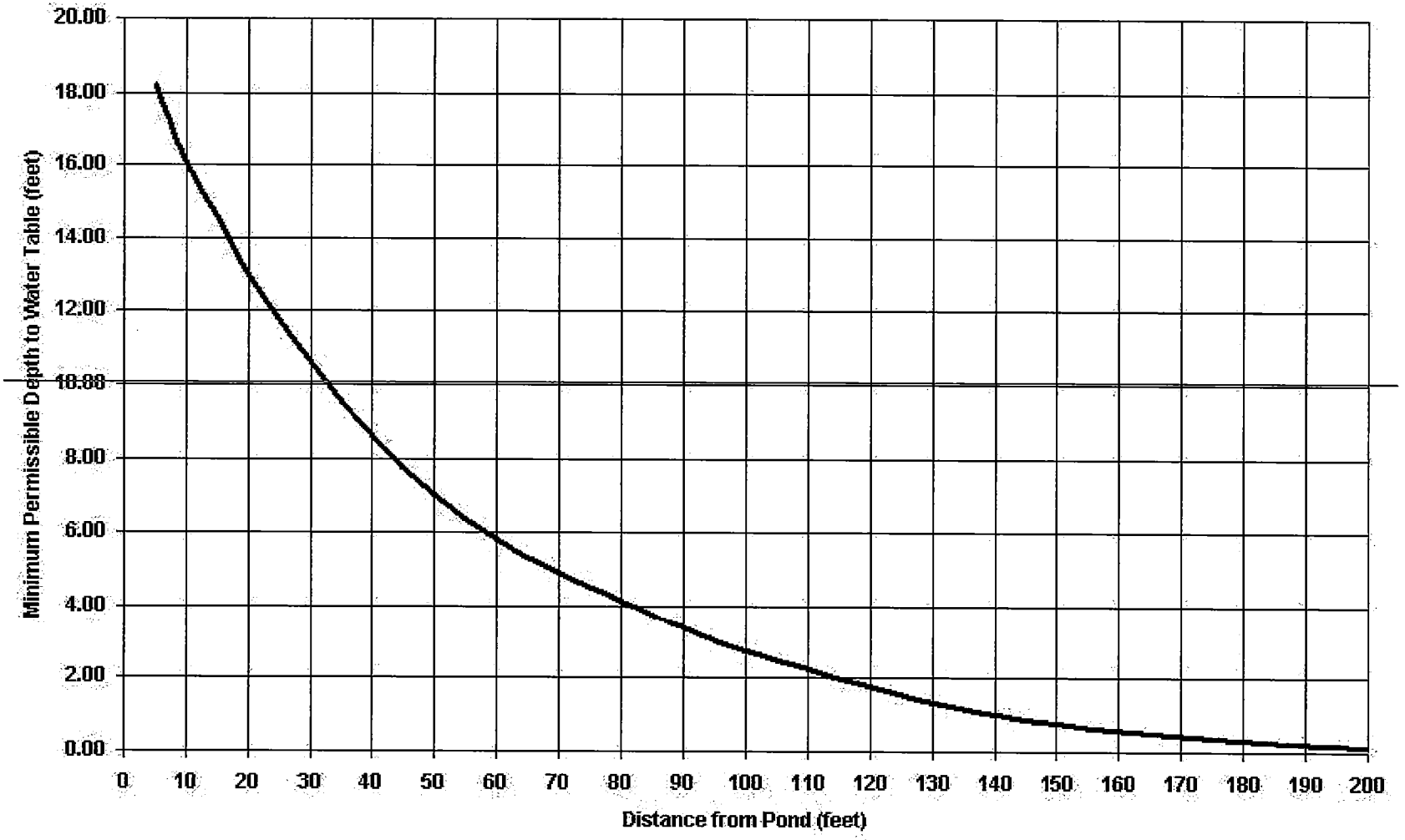
The textural classification from the soil borings will be necessary for determining the expected rise in the water table caused by an increase in pond elevation. At a minimum, the soil should be classified as one of the following:

1. Sandy or gravely soils – consisting of predominantly sand or gravel, with minor amounts of silt and clay

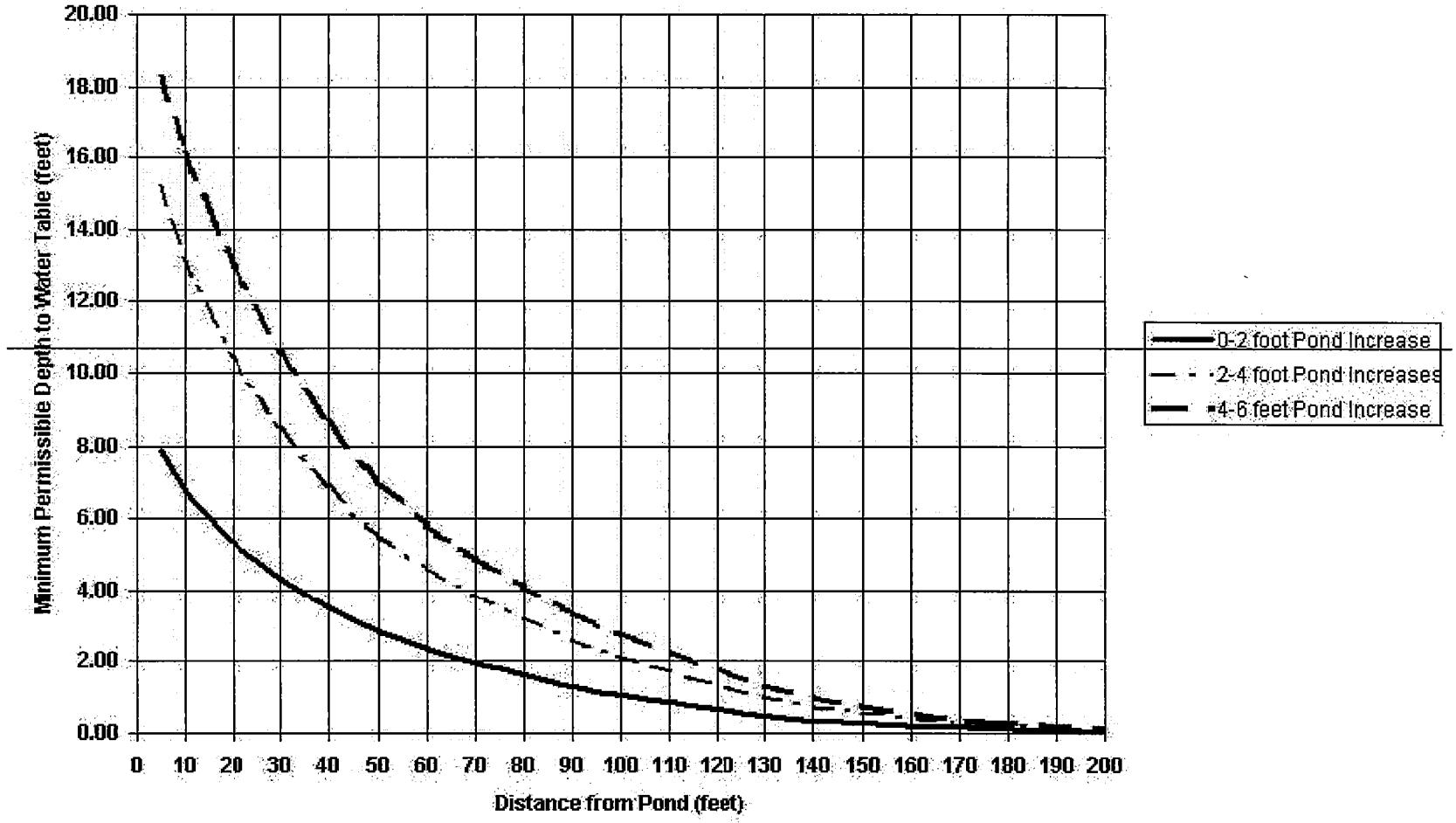
2. Silty soils – consisting predominantly of silt

3. Clayey soils – consisting predominantly of clay.

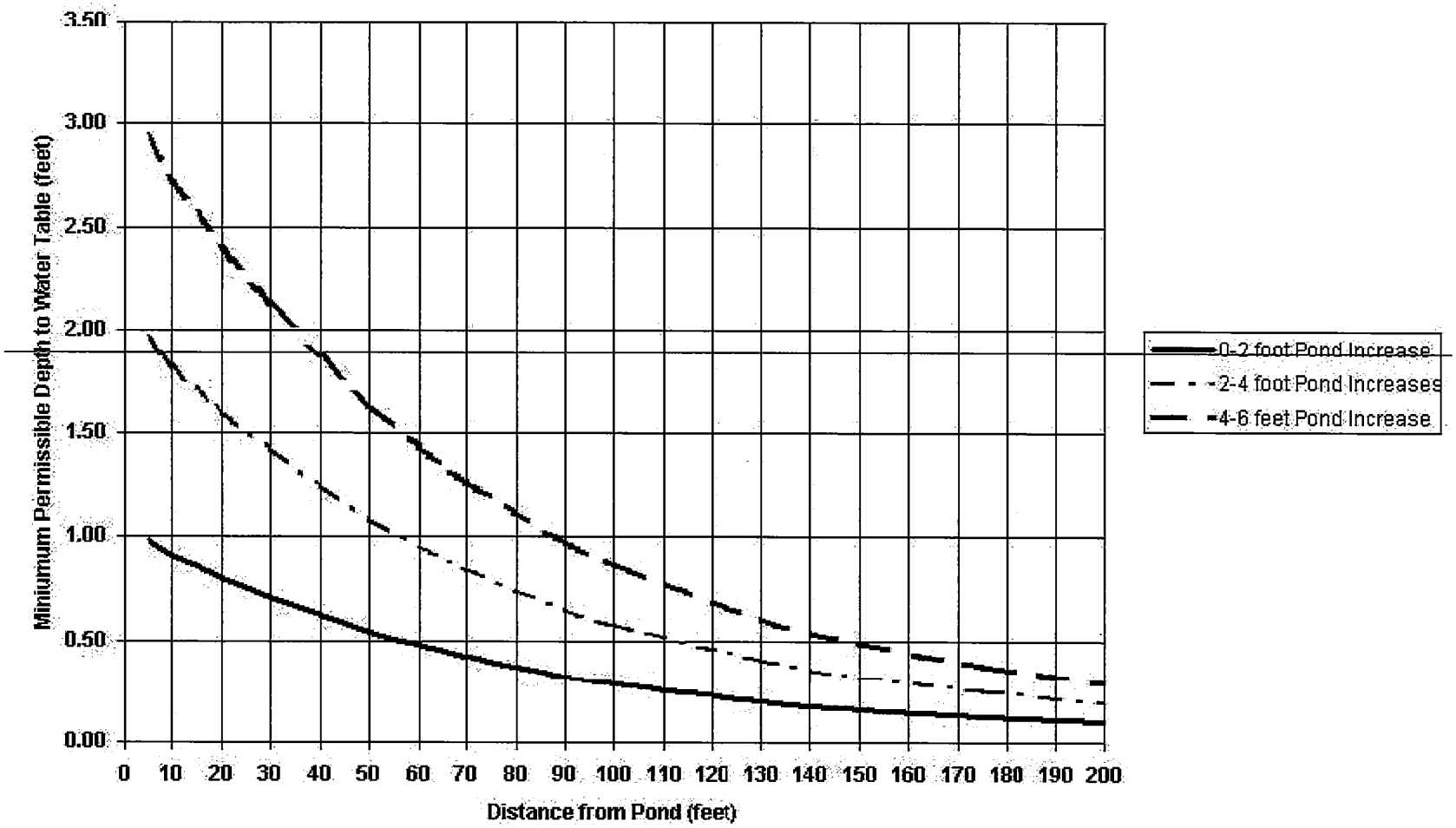
PLOT 1: Minimum Depth to Water Table for No Further Evaluation



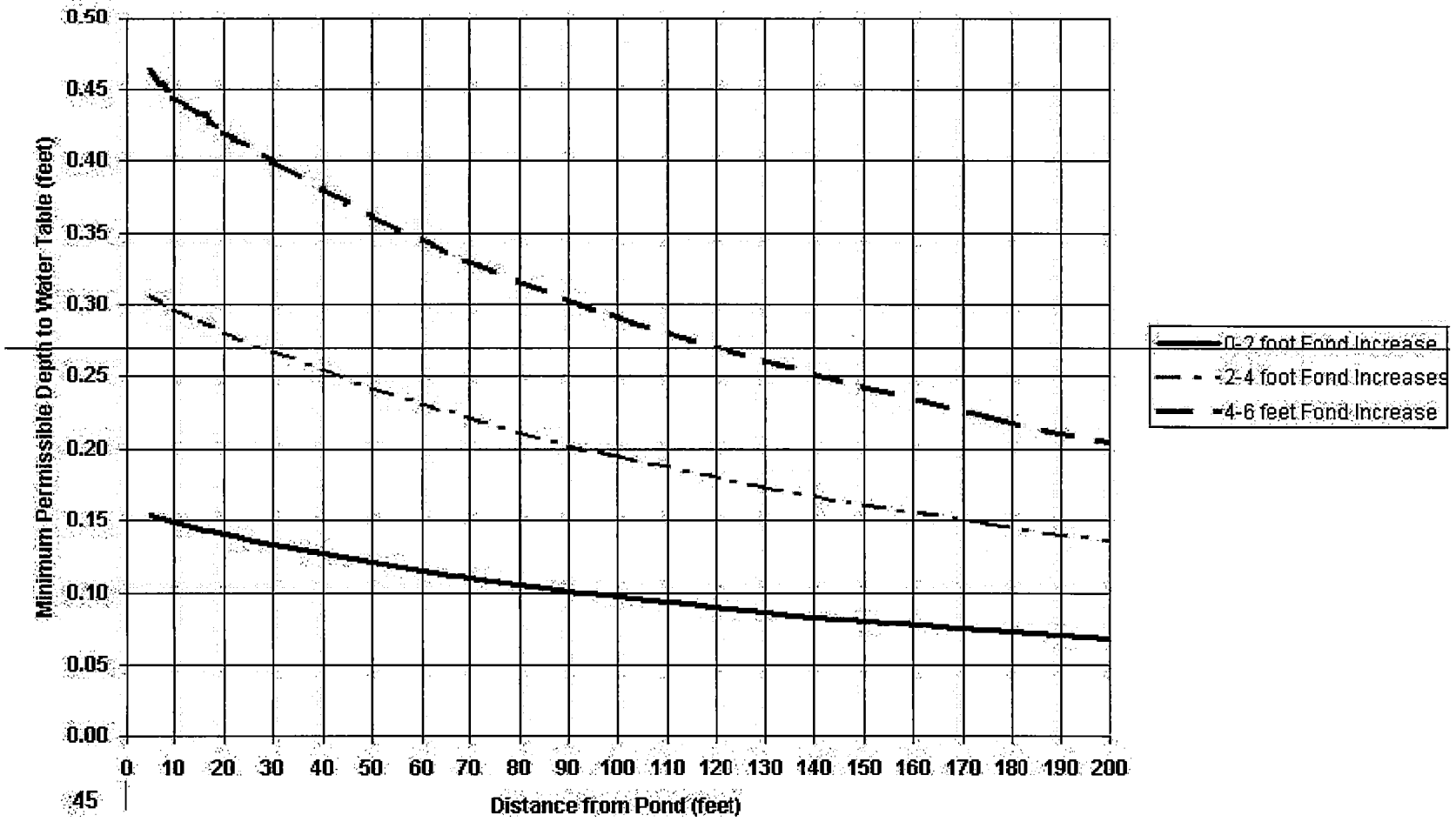
PLOT 2: Minimum Permissible Depth to Water Table - Clay or Perched Conditons
(Perched Conditions = Water Table <5 feet above a continuous clay layer)



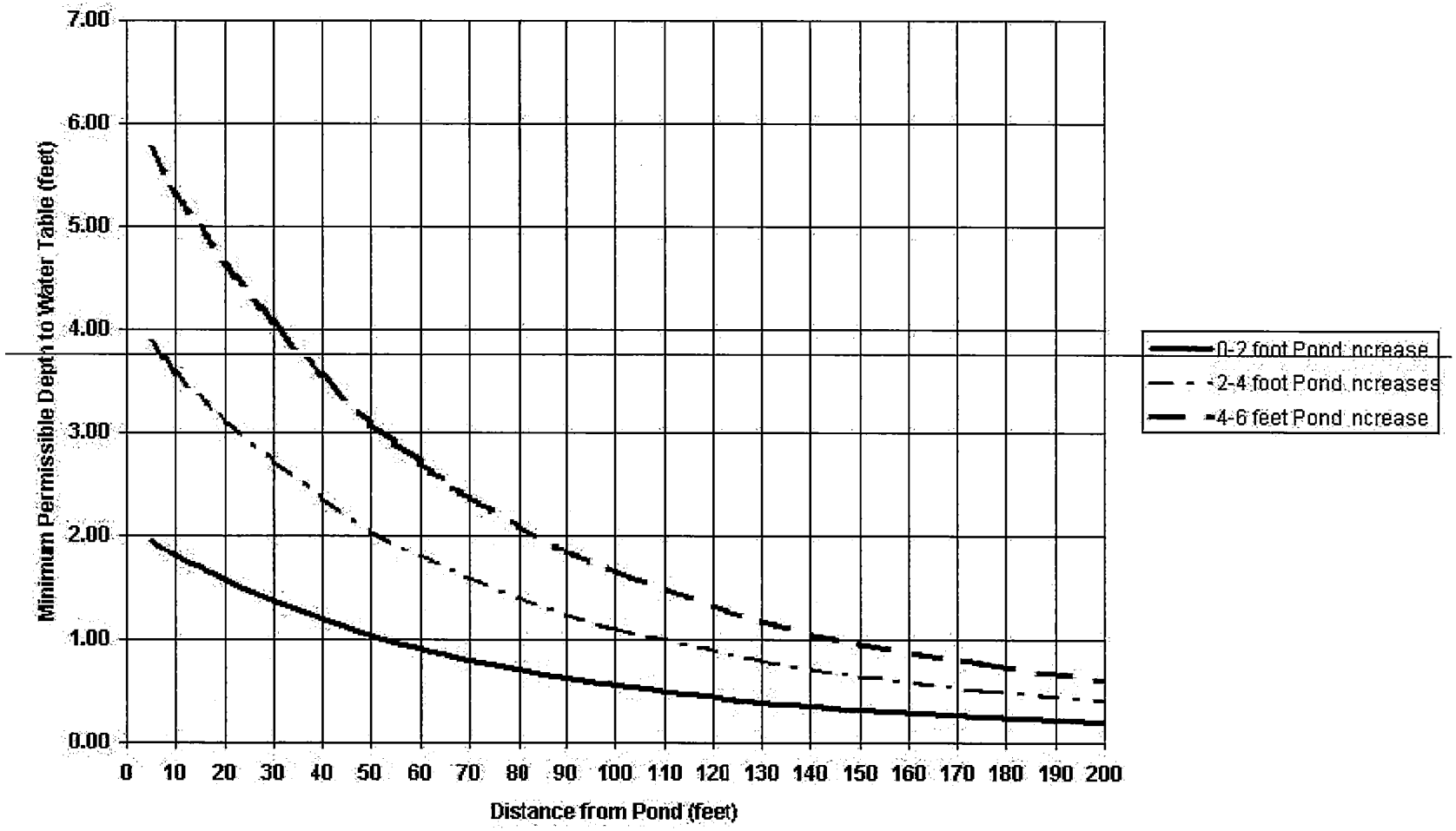
PLOT 3: Minimum Permissible Depth to Water Table - Silt - Pond Bottom <3 feet above Ambient Water Table



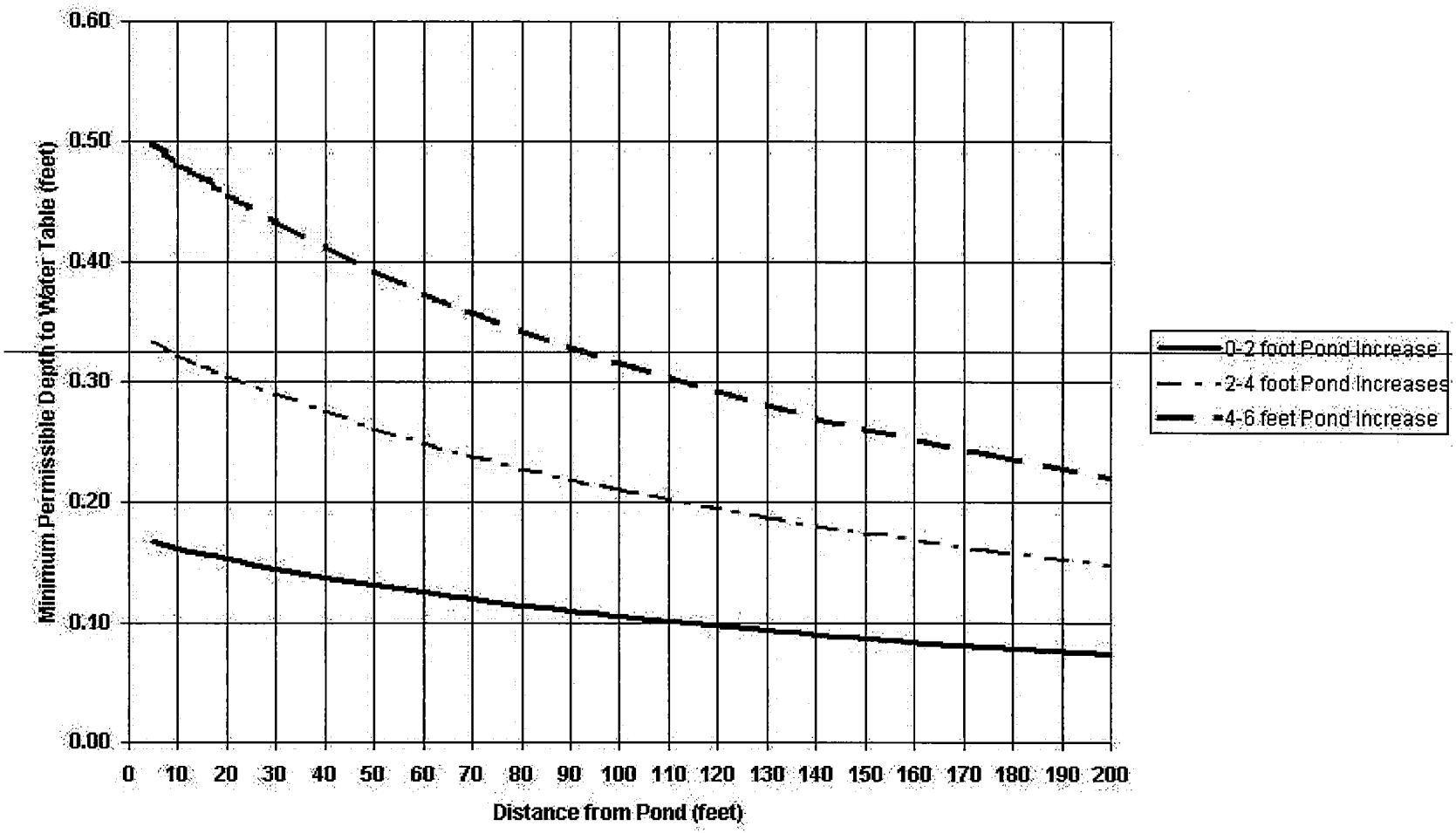
PLOT 4: Minimum Permissible Depth to Water Table - Sand & Gravel - Pond Bottom <3 feet above Ambient Water Table



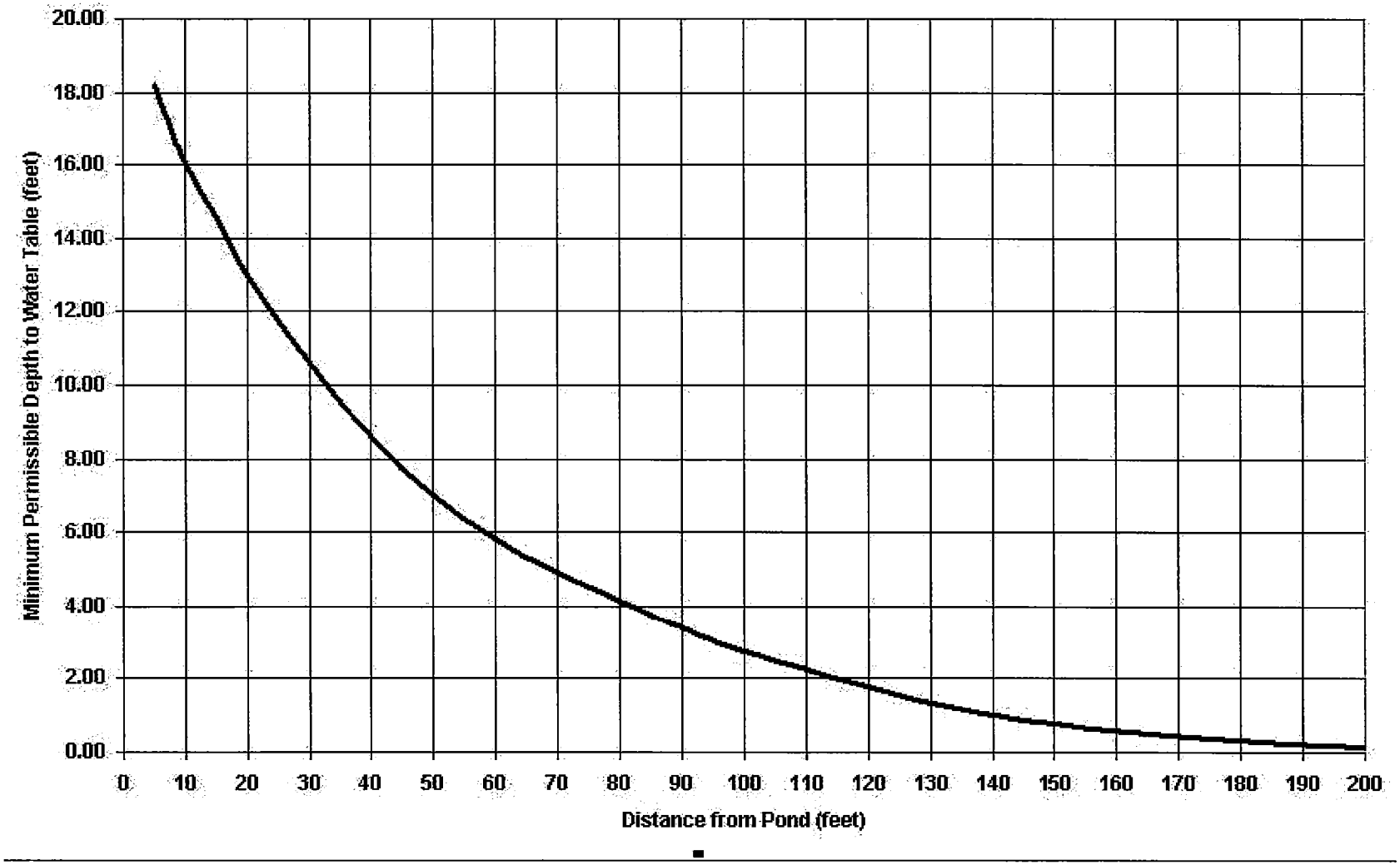
PLOT 5: Minimum Permissible Depth to Water Table - Silt - Pond Bottom >3 feet above Ambient Water Table



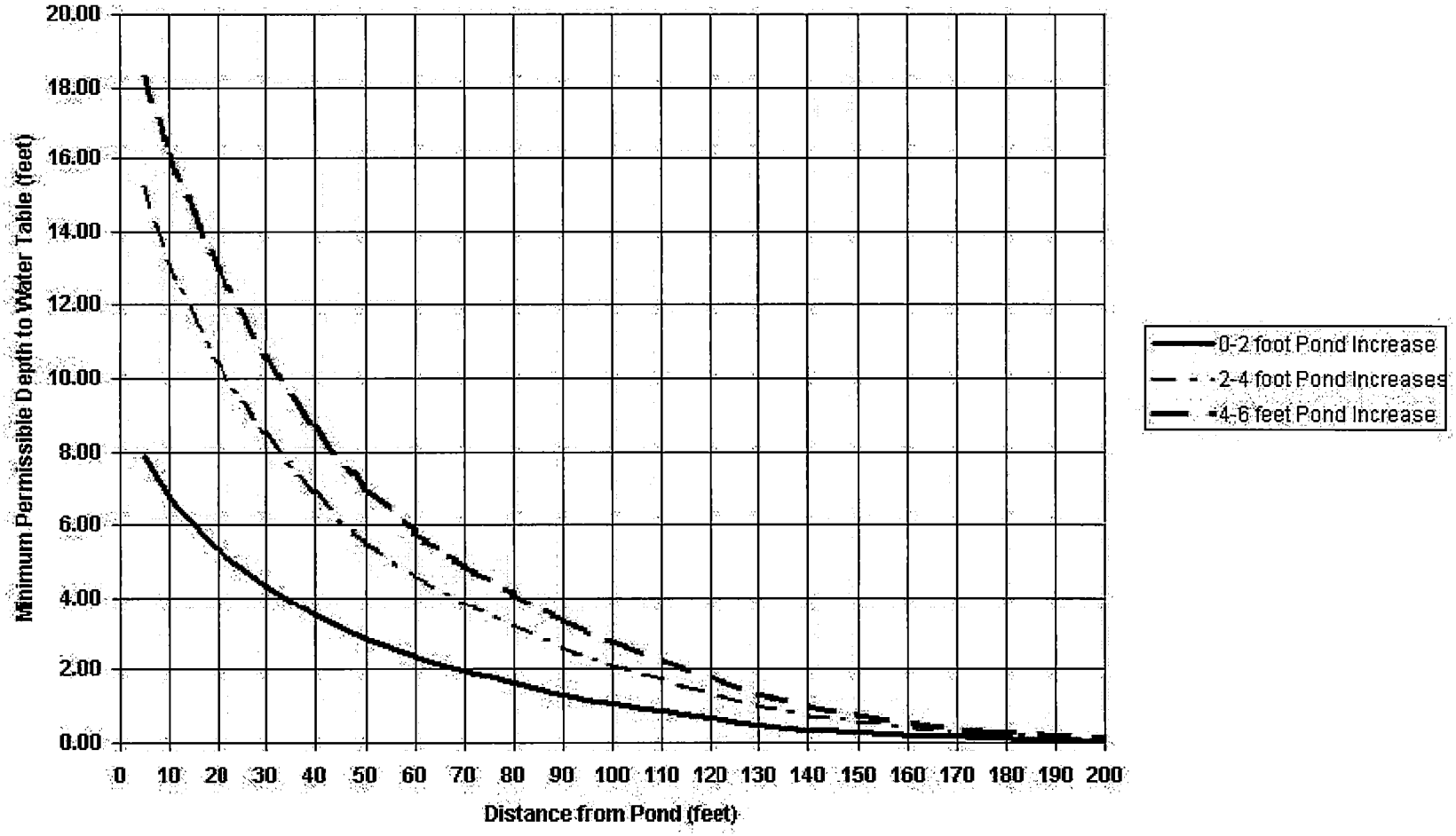
PLOT 6: Minimum Permissible Depth to Water Table - Sand & Gravel - Pond Bottom >3 feet above Ambient Water Table



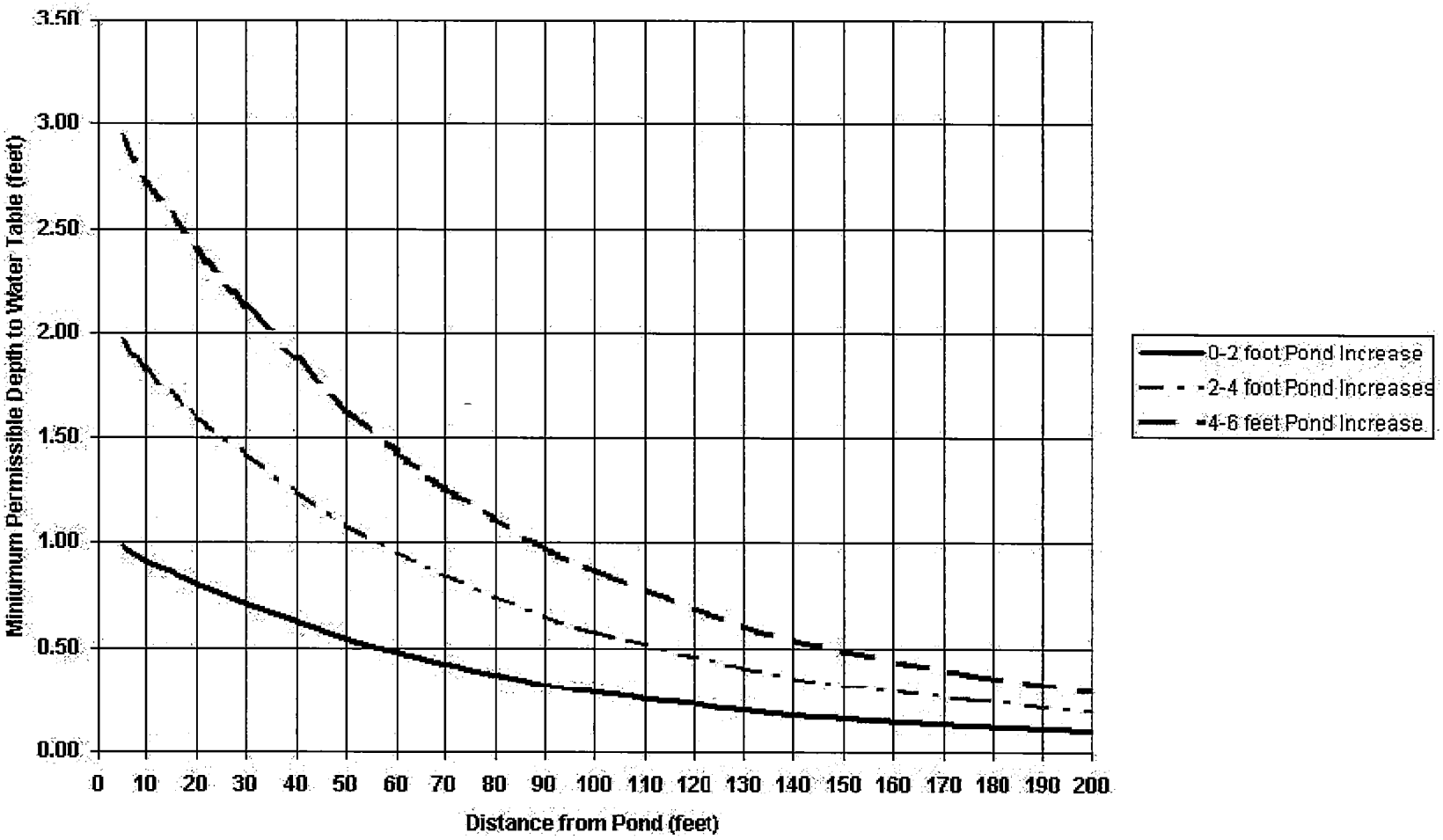
PLOT 1: Minimum Depth to Water Table for No Further Evaluation



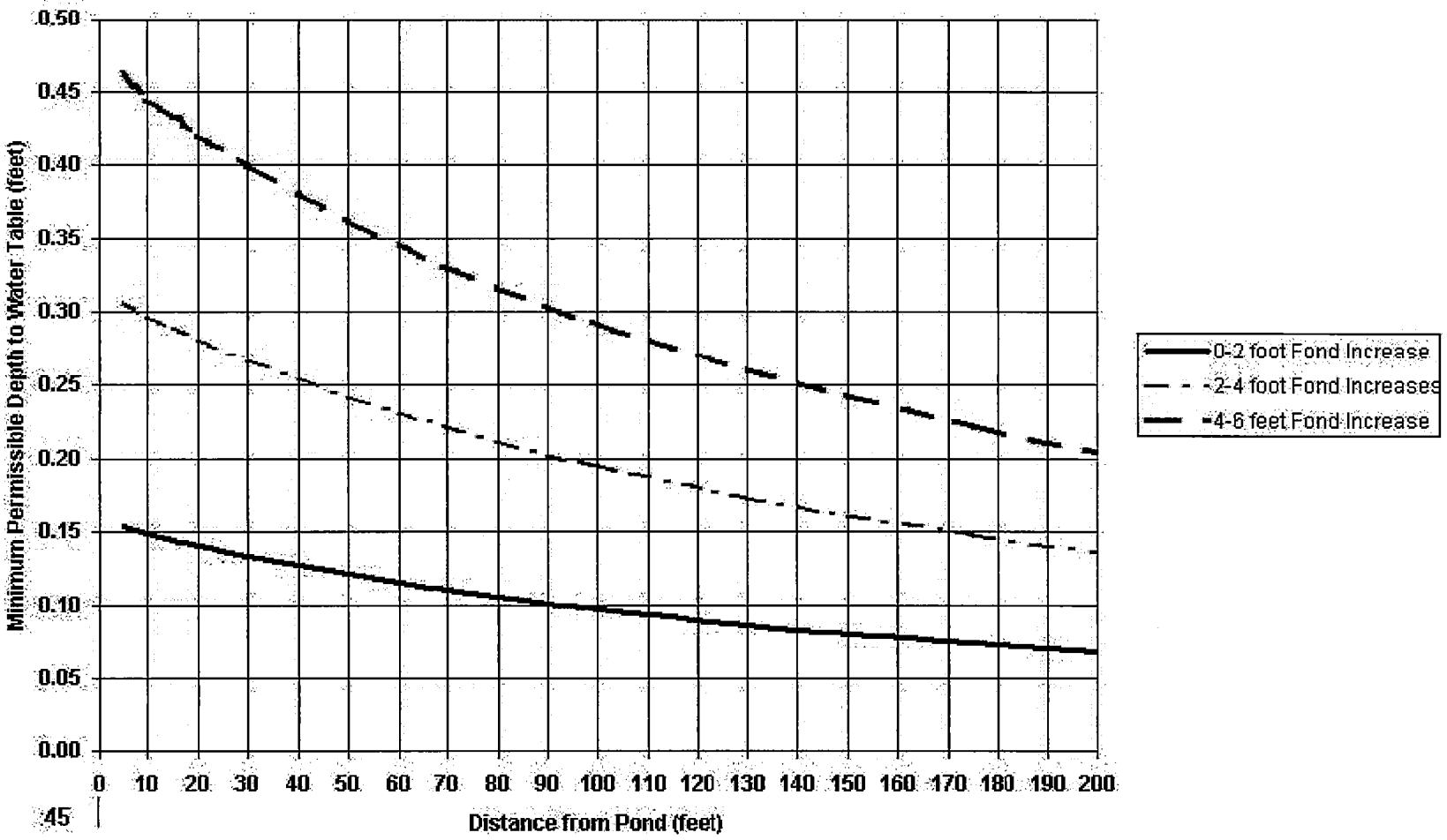
PLOT 2: Minimum Permissible Depth to Water Table - Clay or Perched Conditons
(Perched Conditions = Water Table <5 feet above a continuous clay layer)



PLOT 3: Minimum Permissible Depth to Water Table - Silt - Pond Bottom <3 feet above Ambient Water Table



PLOT 4: Minimum Permissible Depth to Water Table - Sand & Gravel - Pond Bottom <3 feet above Ambient Water Table



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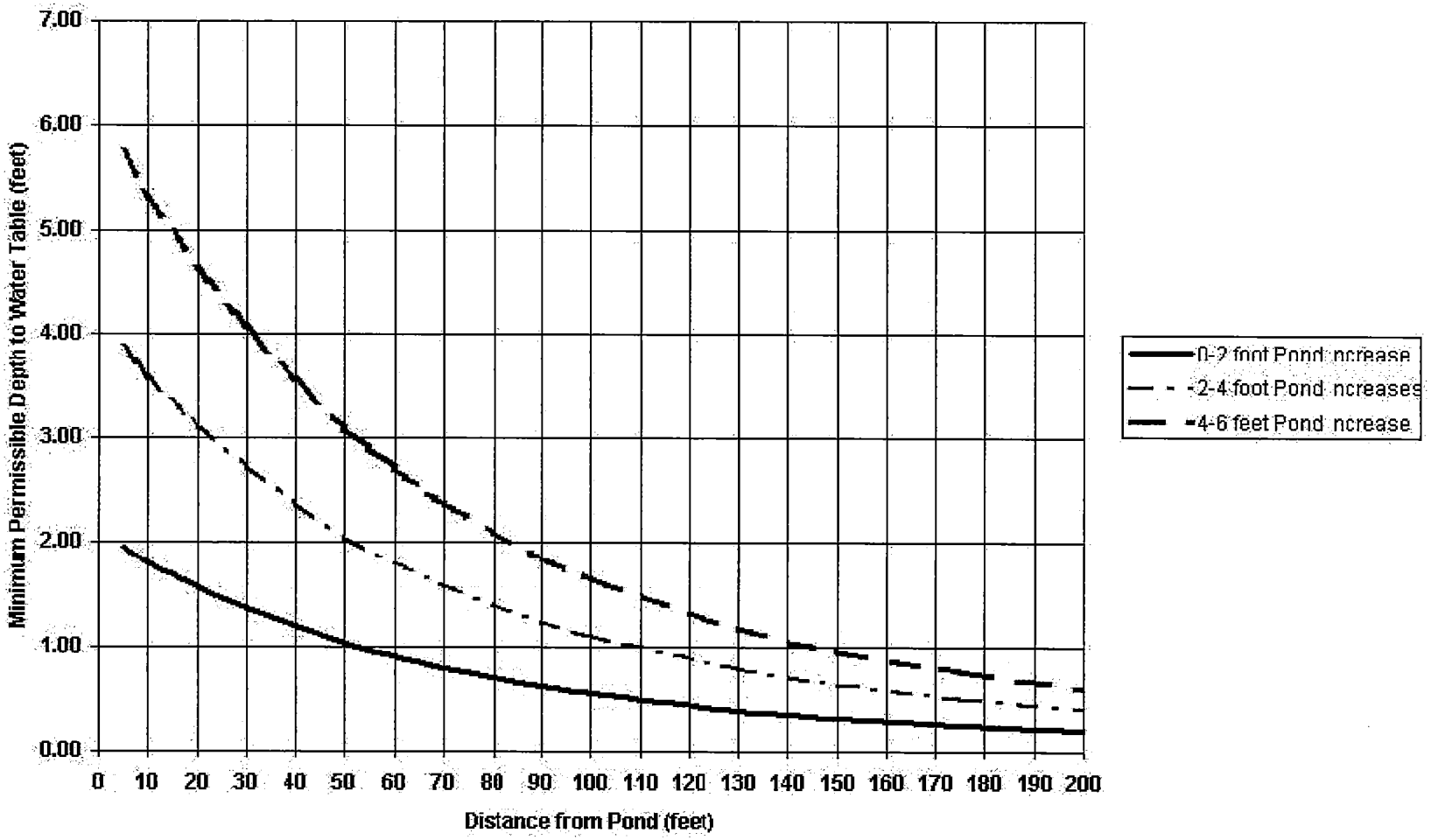
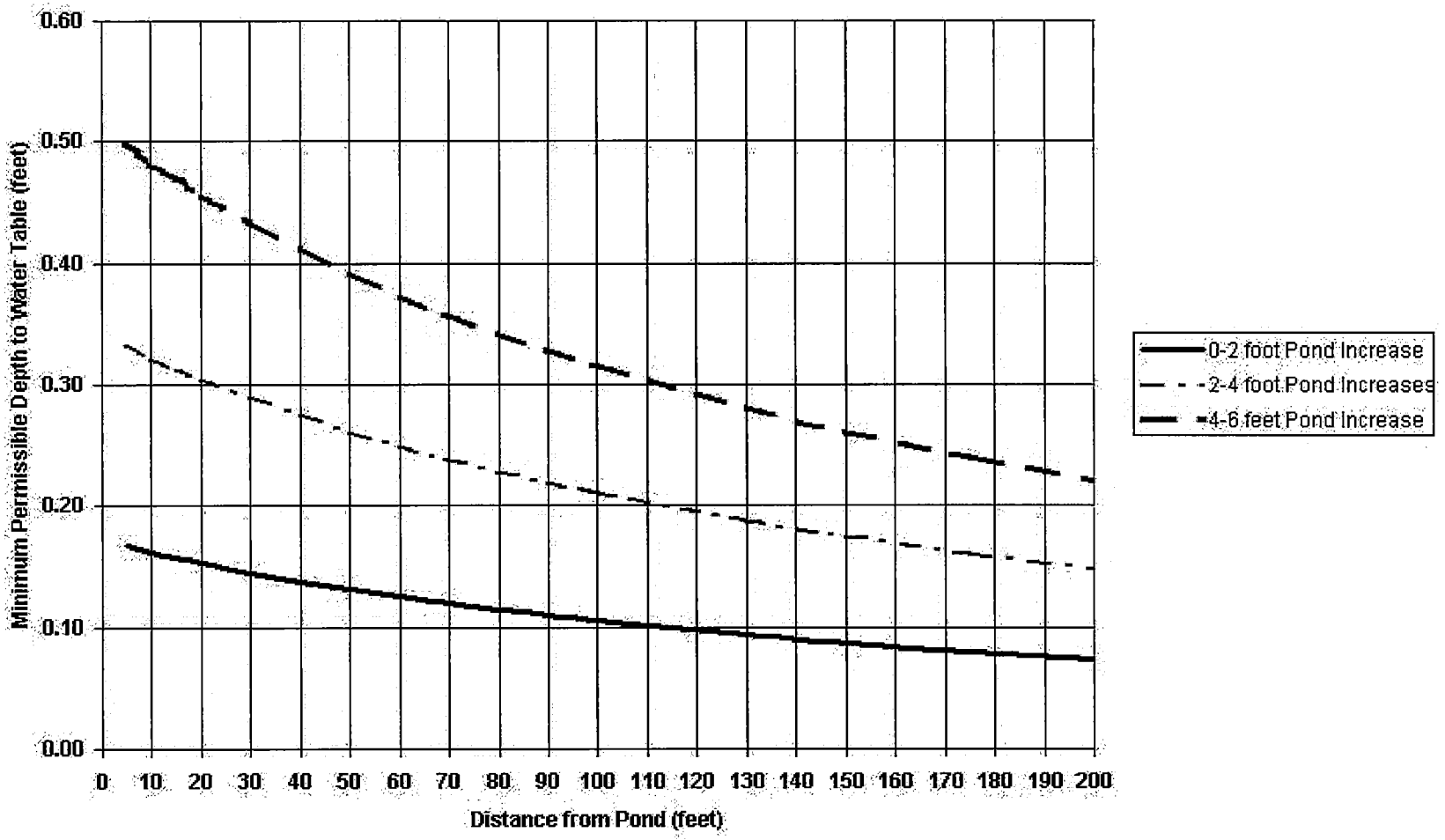
PLOT 5: Minimum Permissible Depth to Water Table - Silt - Pond Bottom >3 feet above Ambient Water Table



PLOT 6: Minimum Permissible Depth to Water Table - Sand & Gravel - Pond Bottom >3 feet above Ambient Water Table



Rule K – Variances and Exceptions

1 Variances

The Board of Managers will consider a request for a variance from strict compliance with the requirements of a District rule on submission of a request by a permit applicant. To grant a variance, the Board of Managers must find, based on demonstration by the applicant, that because of unique conditions inherent to the subject property, which do not apply generally to other land or structures in the Riley--Purgatory--Bluff Creek watershed, strict application of a rule provision will impose a practical difficulty on the applicant, not a mere inconvenience.

For purposes of the Board of Managers' determination of whether a practical difficulty exists, the following factors will be considered:

1.1 how substantial the variation is from the rule provision;

1.2 the effect of the variance on government services;

1.3 whether the variance will substantially change the character of or cause material adverse effect to water resources, flood levels, drainage or the general welfare in the District, or be a substantial detriment to neighboring properties;

1.4 whether the practical difficulty can be alleviated by a technically and economically feasible method other than a variance. Economic hardship alone may not serve as grounds for issuing a variance if any reasonable use of the property exists under the terms of the District rules;

1.5 how the practical difficulty occurred, including whether the landowner, the landowner's agent or representative, or a contractor, created the need for the variance; and

1.6 in light of all of the above factors, whether allowing the variance will serve the interests of justice.

2 Exceptions

The Board of Managers may approve an exception from a provision of the rules requiring a particular treatment or management strategy, or setting forth a design specification, if an applicant demonstrates that better natural resource protection or enhancement can be achieved by the project as proposed, with such further conditions as the Board of Managers may impose, than would strict compliance with the provision.

3 Term

A variance or exception granted by the District is valid only as long as the underlying permit remains valid.

4 Violation

A violation of any condition of a permit approved with a variance constitutes grounds for termination of the variance.

Rule L – Permit Fees

1 Policy

It is the determination of the Board of Managers that:

1.1 Charging a minimal permit application fee will increase public awareness of and compliance with District permitting requirements, and will reduce enforcement and inspection costs;

1.2 The public interest will benefit from inspection by District staff of certain large-scale projects in locations presenting particular risk to water resources to provide the Board of Managers with sufficient information to evaluate compliance with District rules and applicable law, and the District's annual tax levy should not be used to pay such costs; and

1.3 From time to time persons perform work requiring a permit from the District without a permit, and persons perform work in violation of an issued District permit. The Board of Managers determines that its costs of inspection and analysis in such cases will exceed the costs incurred where an applicant has complied with District requirements. The Board of Managers further concludes that its annual tax levy should not be used to pay costs incurred because of a failure to meet District requirements but rather such costs should be recovered from the responsible parties.

2 Requirement

The District will charge applicants permit fees in accordance with a schedule that will be maintained and revised from time to time by resolution of the Board of Managers to ensure that permit fees cover the District's actual costs of administrating and enforcing permits and the actual costs related to field inspections of permitted projects, such as investigation of the area affected by the proposed activity, analysis of the proposed activity, services of a consultant and any required subsequent monitoring of the proposed activity. Costs of monitoring an activity authorized by permit may be charged and collected as necessary after issuance of the permit. The fee schedule may be obtained from the District office or the District's web site at http://www.rpbcwd.org. A permit applicant must submit the required permit fee to the District at the time it submits the relevant permit application. The fee provided for in this rule will not be charged to any agency of the United States or of any governmental unit or political subdivision of the State of Minnesota.

Rule M – Financial Assurances

1 Policy

It is the policy of the District to protect and conserve the water resources of the District by requiring a bond or other financial performance assurance with a permit application to ensure adequate performance of the authorized activities and compliance with the District rules.

2 Requirement

The District may require a permit bond, letter of credit or other financial assurance in a form approved by the District for an activity regulated under these rules. A financial assurance will not be required of any agency of the United States or of any governmental unit or political subdivision of the State of Minnesota.

3 Criteria

Financial assurances required pursuant to this rule must be issued in compliance with the following criteria:

3.1 The financial assurance will be a permit bond, letter of credit, cash deposit or other form acceptable to the District, and a commercial financial assurance will be from an issuer licensed and doing business in Minnesota. Financial assurance templates may be obtained from the District web site (http://www.rpbcwd.org) and also are available from the District office.

3.2 The financial assurance will be issued in favor of the District and conditioned upon the applicant's performance of the activities authorized in the permit in compliance with the terms and conditions of the permit and all applicable laws, including the District's rules, and payment when due of any fees or other charges authorized by law, including the District's rules. The financial assurance will state that in the event the conditions of the financial assurance are not met, the District may make a claim against it. In the event that the District makes a claim against a financial assurance, the full amount of the financial assurance required must be restored within 45 days.

3.3 The financial assurance must be effective for one year from the date of issuance unless a longer period is specified by the District and will contain a provision that it may not be canceled without at least thirty (30) days prior written notice to the District.

3.4 The financial assurance will be submitted by the permit applicant, but the financial assurance principal may be either the landowner or the individual or entity undertaking the proposed activity.

3.5 No financial assurance will be released except pursuant to the terms of section 4.

3.6 No interest will be paid on financial assurances held by the District.

3.7 The amounts of financial assurances required by the District will be set by the

Board of Managers by resolution. The schedule of financial assurance amounts will be maintained on the District website (http://www.rpbcwd.org) and also will be available from the District office. Financial assurance amounts will be set as necessary to cover the following potential liabilities to the District:

a field inspection, monitoring and related fees authorized under Minnesota Statutes section 103D.345;

b the cost of maintaining and implementing erosion prevention and sediment control and other protective measures required by the permit;

c the cost of remedying damage resulting from noncompliance with the permit or for which the permittee is otherwise responsible.

3.8 When a cash escrow is to be provided to fulfill a District financial assurance requirement, the permittee/escrow provider will be required as a condition of permit issuance, transfer or renewal to enter into a cash escrow agreement with the District. Permit approval may be revoked for failure to comply with this requirement. A cash escrow agreement template will be maintained on the District website (http://www.rpbcwd.org) and also will be available from the District office.

4 Financial Assurance Release

On written notification of completion of a project and submission of the chloride-management plan pursuant to section 3.8 of Rule J, if applicable, the District will inspect the project to determine if the project has been constructed in accordance with the terms of the permit and District rules. If the project is completed in accordance with the terms of the permit and District rules, any documentation or other records necessary to demonstrate and confirm that required facilities, features or systems have been constructed or installed and are functioning as designed and permitted, and there is no outstanding balance for unpaid permit fees, the District will release the financial assurance.

4.1 Final inspection compliance constituting grounds for financial assurance release includes, but is not limited to:

a demonstration by the permittee and confirmation by the District that the site has been vegetated and stabilized to prevent erosion and sedimentation per Rule C, subsection 3.4, and that erosion and sedimentation controls have been removed;

b demonstration and confirmation that stormwater management ~~features~~ facilities have been constructed or installed and are functioning as designed and permitted; and

c payment of all outstanding fees to the District.

The District may return a portion of the financial assurance if it finds that the entire amount is no longer required to ensure compliance with the permit conditions and District rules. If the District has not inspected the project and made a determination

about the project's compliance with the above criteria within 45 days of District receipt of written notification of project completion, the financial assurance is deemed released unless the District notifies the permittee that final inspection compliance matters remain outstanding. In the event that a financial assurance is released through expiration of the time for confirmation of final inspection compliance, the District will provide a writing releasing the financial assurance if needed to meet the issuer's requirements.

Rule N – Enforcement

1 **Investigation of noncompliance.** District staff and agents may enter and inspect a property in the watershed to determine whether a violation of one or more District rules, a permit or an order exists or whether land-disturbing activities have been undertaken in violation of District regulatory requirements.

2 **Board hearing; administrative compliance order.** A property owner or permittee will be provided with reasonable notice of a compliance hearing and an opportunity to be heard by the Board of Managers on a finding of probable violation and failure of the property owner to apply for a permit or a permittee to take necessary corrective steps. At the conclusion of a hearing, the District may issue a compliance order. A District compliance order may require a property owner to apply for an after-the-fact permit and/or effect corrective or restorative actions. A District compliance order may require that land-disturbing activities on the property cease until corrective or restorative actions take place.

3 **District court enforcement.** The Board of Managers may seek judicial enforcement of an order and recovery of associated legal costs and fees, as provided by Minnesota Statutes chapter 103D, through a civil or criminal action pursuant to Minnesota Statutes sections 103D.545 and 103D.551.

4 **Liability for enforcement costs.** The permittee or owner of a property that is the subject of District enforcement action will be liable for associated costs incurred by the District, including but not limited to the costs of inspection and monitoring of compliance, engineering and other technical analysis, legal fees and costs, and administrative expenses.

HIGH-RISK EROSION AREAS MAP

FIGURE 1

- Streams/Creeks
- Lake/Pond
- Wetlands (NWI)
- High-Risk Erosion Area
- Park/Playground
- Preserve/Recreation Area
- District Legal Boundary
- District Municipalities
- County Boundary

N

0 1 2
Miles

RILEY PURGATORY BLUFF CREEK
WATERSHED DISTRICT

BARR

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

18681 Lake Drive East
Chanhassen, MN 55317
952-607-6512
www.rpbcwd.org

Riley Purgatory Bluff Creek Watershed District Permit Application Review

Permit No: 2018-039

Received complete: July 13, 2018

Board Meeting: August 8, 2018

Applicant: Rosemount, Inc

Consultant: Hamel, Green and Abrahamson, Inc, ATTN: Erik Hansen

Project: Emerson Park Improvement and Garage Replacement – The Southwest Light Rail Corridor will require the removal of storage, recreation, and trail facilities on the property currently owned by Rosemount, Inc. at their Eden Prairie Emerson facility. The applicant will be replacing some of these lost facilities with a new garage, trails, and patio areas. To provide for compliance with Rule J, they will be constructing a rain garden to treat currently untreated parking area discharging to Lake Idlewild. In addition, they will record a maintenance declaration over the requisite buffer area. This area is already dominated by native vegetation.

Location: 12001 Technology Drive, Eden Prairie MN

Reviewer: Terry Jeffery, Permit Coordinator

Rules: Applicable rules checked

	Rule B: Floodplain Management		Rule H: Appropriation of Public Waters
X	Rule C: Erosion and Sediment Control		Rule I: Appropriation of Groundwater
X	Rule D: Wetland and Creek Buffers	X	Rule J: Stormwater Management
	Rule E: Dredging and Sediment Removal		Rule K: Variances and Exceptions
	Rule F: Shoreline/Streambank Stabilization	X	Rule L: Permit Fees
	Rule G: Waterbody Crossings	X	Rule M: Financial Assurances

Rule Conformance Summary

Rule	Issue		Conforms to RBPCWD Rules?	Comments
C	**Erosion Control Plan**		See comment	See Rule Specific Permit Condition C1.
J	**Stormwater Management**	Rate	Yes	
		Volume	Yes	
		Water Quality	Yes	
		Low Floor Elev.	Yes	
		Maintenance	See Comment	See Rule Specific Permit Condition J1.
L	**Permit Fee**		Yes	$1500
M	**Financial Assurance**		See comment	$26,314

Project Description

With the construction of the new Southwest LRT line, a storage facility, trails, and outdoor recreation features will be removed from the Emerson facility property in Eden Prairie. To replace the benefits lost from the removal of these amenities, the applicant is proposing to construct a garage, new trails, and some patio surfaces adjacent to an existing picnic shelter. The applicant is proposing to treat a portion of the existing parking lot with a rain garden to meet the requirements of Rule J.

The total area of disturbance for the proposed project is approximately 0.84 acre. The proposed improvements will result in 0.13 acre (5,662 square feet) of new impervious surface being constructed.

The project site information is summarized below:

1. Total Site Area: 32.88 acres (1,432,453 square feet)
2. Existing Site Impervious Area: 8.87 acre (386,377 square feet)
3. Post Construction Site Impervious: 9.09 acres (395,960 square feet)
4. New (Increase) in Site Impervious Area: 0.22 acre (9,583 square feet) (2.4% increase in site impervious area)
5. Disturbed impervious surface: 0.05 acre (2,323 square feet)
6. Total Disturbed Area: 0.84 acre (36,590 square feet)

Exhibits:

1. Permit Application from Rosemount, Inc dated May 31, 2018
2. Drainage Plan sheets C1 – C3 dated July 12, 2018
3. Stormwater Drainage Analysis dated July 13, 2018
4. Site Design Plan Sheets C100, 200, 300, 400 & 401 dated July 12, 2018
5. MIDS Calculator dated June 5, 2018
6. Volume Calculations date July 13, 2018
7. Existing and Proposed Conditions HydroCAD Model dated July 12, 2018
8. Soil Boring Map and Logs by Braun Intertec Corporation dated June 28, 2018
9. Conservation Easement/Wetland Buffer Exhibit undated, received July 13, 2018.
10. Draft maintenance declaration, undated.

Rule Specific Permit Conditions

Rule C: Erosion and Sediment Control

Because the project will result in 0.84 acre of land disturbance, the project must conform to the requirements in the RPBCWD Erosion and Sediment Control rule (Rule C, Subsection 2.1).

The erosion control plan prepared by Hamel, Green and Abrahamson, Inc. (HGA) includes installation of perimeter control where applicable, inlet protection for storm sewer catch basins, a rock construction entrance, placement of a minimum of 6 inches of topsoil, delineation of areas to be protected from compaction, decompaction of areas compacted during construction, retention of native topsoil onsite, and a plan for final stabilization including a planting plan. The contractor to be responsible for erosion control at the site needs to be determined. To conform to the RPBCWD Rule C requirements the following revisions are needed:

C1. The Applicant must provide the name and contact information of the individual responsible for erosion and sediment control at the site. RPBCWD must be notified if the responsible party changes during the permit term.

Rule J: Stormwater Management

Because the project will result in 0.84 acre of land disturbance, it must conform to section 3 of Rule J. As the project will construct or reconstruct 0.27 acre (11,906 square feet) of impervious area on the site, the project must meet the criteria of RPBCWD's Stormwater Management rule (Rule J, Subsection 2.3). As this constitutes less than 50% of the existing 9.09 acres of the site impervious surfaces, the criteria in section 3 apply only to the new and fully reconstructed impervious surfaces.

The applicant is proposing trails ranging in width from eight to ten feet. These trails total 6,452 square feet in new impervious surface and will be bordered down gradient by vegetation totaling more than half the width of the trail, qualifying for the exemption in Rule J section 2.2.d. The total impervious area to be treated is 5,454 square feet (11,906 – 6,452).

The developer is proposing bioretention feature (rain garden). Pretreatment will be provided through thirty (30) feet of laminar sheet flow through turf grass and stone riprap. This practice will be used to provide the required rate control, volume abstraction, and water quality management on the site.

Rate Control

To meet the rate control criteria listed in Subsection 3.1.a, the 2-, 10-, and 100-year post development peak runoff rates must be equal to or less than the existing discharge rates at all locations where stormwater leaves the site.

The Applicant used a HydroCAD hydrologic model to simulate runoff rates for pre- and post-development conditions for the 2-, 10-, and 100-year frequency storm events using a nested rainfall distribution, and a 100-year frequency, 10-day snowmelt event. The existing and proposed 2-, 10-, and 100-year frequency discharges from the site, as well as the 10-day snowmelt event are summarized in the following table.

Modeled Discharge Location	2-Year Discharge (cfs)		10-Year Discharge (cfs)		100-Year Discharge (cfs)		10-Day Snowmelt (cfs)	
	Ex	Prop	Ex	Prop	Ex	Prop	Ex	Prop
To East	1.89	1.83	3.75	3.69	8.29	8.23	1.37	1.37
To Idlewild	15.41	13.23	26.99	24.84	54.76	52.43	10.46	10.46

The proposed project conforms to RPBCWD Rule J, Subsection 3.1.a

Volume Abstraction

Subsection 3.1.b of Rule J requires the abstraction onsite of 1.1 inches of runoff from all new and disturbed impervious surface on the parcel. An abstraction volume of 500 cubic feet is required from the 5,454 square feet of reconstructed and new impervious area on the project subject to rule J for volume retention. The developer is proposing a bio-infiltration basin (rain garden). The table below summarizes the volume abstraction on the site.

Required Abstraction Depth (inches)	Required Abstraction Volume (cubic feet)	Provided Abstraction Volume (cubic feet)
1.1	500	917

Soil borings performed by Braun Intertec show that soils in the location of the proposed BMP consist primarily of lean clay (CL) over silt (ML). This soil profile is in the hydrologic group "D" and have an infiltration rate of 0.06" per hour. The design was based upon this infiltration rate of 0.06 inch/hour. No groundwater was observed to the bottom of the boring at an elevation of 853.5 feet. The bottom of the infiltration feature is set at 864.76. As such, there is no less than 11.26 feet of separation to ground water at the site of the proposed rain garden. This exceeds the 3 feet minimum separation required by Rule J, Subsection 3.1.b.ii. Based on information reviewed, the proposed project conforms to Rule J, Subsection 3.1.b.

Water Quality Management

Subsection 3.1.c of Rule J requires the Applicant provide for at least 60 percent annual removal efficiency for total phosphorus (TP), and at least 90 percent annual removal efficiency for total suspended solids (TSS) from site runoff. The developer is proposing a combination of two underground stormwater best management practices and a rain water garden. The table below summarized the water quality treatment provided for the site. Based on information reviewed, the proposed project conforms to Rule J, Subsection 3.1.c.

Pollutant of Interest	Regulated Site Loading (lbs/yr)	Required Load Removal (lbs/yr)[1]	Provided Load Reduction (lbs/yr)
Total Suspended Solids (TSS)	101.7	91.5 (90%)	97.8 (96%)
Total Phosphorus (TP)	0.56	0.34 (60%)	0.5 (89%)

[1]Required load reduction is calculated based on the removal criteria in Rule J, Subsection 3.1c and the new and reconstructed impervious area site load.

Low floor Elevation

No structure may be constructed or reconstructed such that its lowest floor elevation is less than 2 feet above the 100-year event flood elevation and no stormwater management system may be constructed or reconstructed in a manner that brings the low floor elevation of an adjacent structure into noncompliance according to Rule J, Subsection 3.6.

The low floor elevations of the structure and the adjacent stormwater management feature are summarized below.

Location Riparian to Stormwater Facility	Low Floor Elevation of Building (feet)	100-year Event Flood Elevation of Adjacent Stormwater Facility (feet)	Freeboard (feet)	Provided Distance Between Building and Adjacent Stormwater Feature (feet)	Required Separation to Ground water based on Appndx J, Plot 1 (feet)	Provided Separation to Ground water based on Appndx J, Plot 1 (feet)
Emerson Facility	875.8	868.18	7.62	NA	NA	NA

The proposed freeboard separation is compliant with Rule J, subsection 3.6.

Maintenance

Subsection 3.7 of Rule J requires the submission of maintenance plan. All stormwater management structures and facilities must be designed for maintenance access and properly maintained in perpetuity to assure that they continue to function as designed.

J1. Permit applicant has provided a draft maintenance declaration. Once approved by RPBCWD, the Applicant must record the maintenance declaration against the property and provide proof of recordation to the District.

Rule L: Permit Fee:

The required $1,500 fee was paid. There are no additional costs to be recovered.

Rule M: Financial Assurance:

Rules C: Silt fence: 1,340 L.F. x $2.50/L.F. =.....$3,350

Restoration: 0.84 acres x $2,500/acre =.....$2,100

Rules J: Infiltration Basin 2794 S.F. x $6.00/ S.F.= $16,764

Contingency (10%).....$2,220

Administration (30%).....$7,330

Total Financial Assurance.....$26,314

Applicable General Requirements:

1. The RPBCWD Administrator shall be notified at least three days prior to commencement of work.
2. Construction shall be consistent with the plans and specifications approved by the District as a part of the permitting process. The date of the approved plans and specifications is listed on the permit.

Findings

1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
2. The proposed project will conform to Rule C and Rule J if the rule specific permit conditions listed above are met.

Recommendation:

Approval, contingent upon:

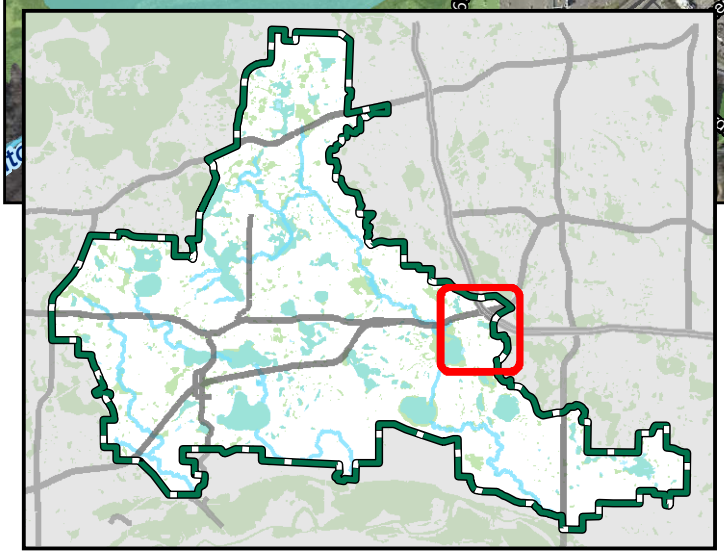
1. Continued compliance with General Requirements.
2. The Applicant must provide the name and contact information of the individual responsible for erosion and sediment control at the site. RPBCWD must be notified if the responsible party changes during the permit term.
3. The Applicant must provide an inspection and maintenance plan for the stormwater facility. A maintenance declaration covering stormwater management facilities and wetland buffer will be required. The Applicant must provide these to the District for review and approval and then, upon approval record with the County and provide proof of recordation to the District.

By accepting the permit, when issued, the applicant agrees to the following stipulations:

1. Per Rule J Subsection 4.5, upon completion of the site work, the permittee must submit as-built drawings demonstrating that at the time of final stabilization, stormwater facilities conform to design specifications as approved by the District.

Board Action

It was moved by Manager _____, seconded by Manager _____ to approve permit application No. 2018-039 with the conditions recommended by staff.



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Feet

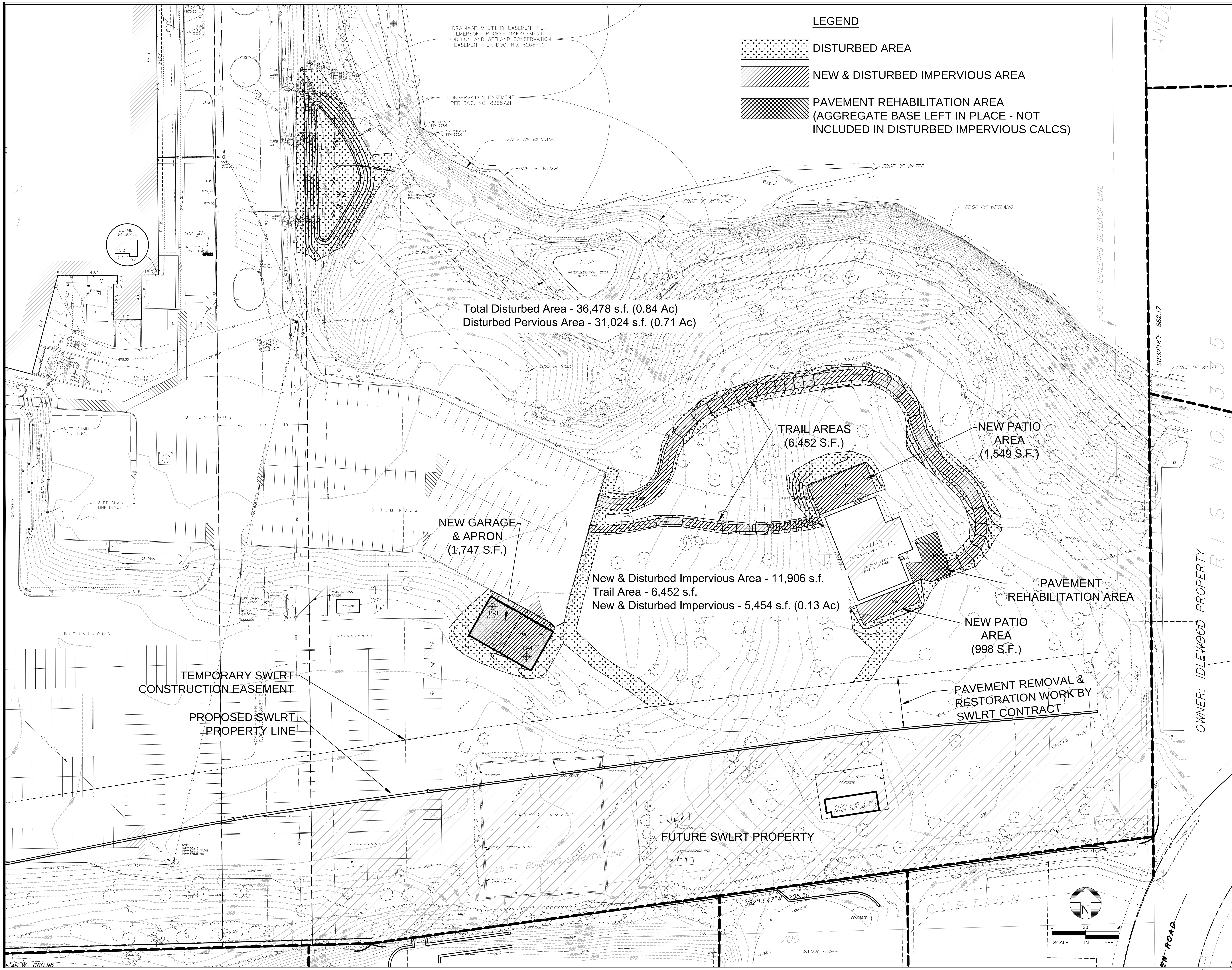
0 1,000

Permit Location Map

EMERSON SITE IMPROVEMENTS

Permit 2018-039

Riley Purgatory Bluff Creek Watershed District



HGA

420 North 5th Street, Suite 100
Minneapolis, Minnesota 55401
Telephone 612.758.4000

EMERSON

Park Improvement &
Garage Replacement
12001 Technology Drive
Eden Prairie, MN 55344

NOT FOR CONSTRUCTION

NO	DESCRIPTION	DATE

ISSUANCE HISTORY - THIS SHEET

HGA NO: 1192-077-01

DISTURBED
AREA
PLAN

DATE: JULY 12, 2018

RPBCWD SUBMITTAL

C3

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

18681 Lake Drive East
Chanhassen, MN 55317
952-607-6512
www.rpbcwd.org

Riley Purgatory Bluff Creek Watershed District Permit Application Review

Permit No: 2018-043

Application Received complete: July 13, 2018

Applicant: Zion investment LLC

Consultant: Trevor Gruys, Loucks

Project: Control Concepts – This project includes the construction of an approximately 50,000 SF Office and Warehouse facility, parking, drive aisle, trail and the installation of an underground detention/infiltration system with pretreatment to provide runoff volume abstraction, water quality treatment, and rate control.

Location: 8077 Century Boulevard, Chanhassen, Minnesota 55317

Reviewer: Scott Sobiech, PE, Barr Engineering

Rules: Applicable rules checked

	Rule B: Floodplain Management		Rule H: Appropriation of Public Waters
X	Rule C: Erosion and Sediment Control		Rule I: Appropriation of Groundwater
X	Rule D: Wetland and Creek Buffers	X	Rule J: Stormwater Management
	Rule E: Dredging and Sediment Removal		Rule K: Variances and Exceptions
	Rule F: Shoreline/Streambank Stabilization	X	Rule L: Permit Fees
	Rule G: Waterbody Crossings	X	Rule M: Financial Assurances

Rule Conformance Summary

Rule	Issue		Conforms to RBPCWD Rules?	Comments
C	**Erosion Control Plan**		See Comment	See Rule Specific Permit Condition C1.
D	**Wetland and Creek Buffer**		See Comment	See Rule Specific Permit Condition D1.
J	**Stormwater Management**	Rate	Yes	
		Volume	Yes	
		Water Quality	Yes	
		Low Floor Elev.	Yes	
		Maintenance	See Comment	See Rule Specific Permit Condition J1.
L	**Permit Fee**		Yes	$5,500 was received on 6/19/18.
M	**Financial Assurance**		See Comment	The financial assurance has been calculated at $791,100.

Project Description

This project includes the construction of an approximately 50,000 square foot office and warehouse facility, parking, drive aisle, trail, and the installation of an underground detention/infiltration system with pretreatment to provide runoff volume abstraction, water quality treatment, and rate control. Pretreatment of runoff prior to entering a detention/infiltration system is provided by sump manholes. The project site information is summarized below:

1. Total Site Area: 5.23 acres
2. Existing Site Impervious Area: 0.007 acres (305 square feet)
3. Post Construction Site Impervious: 3.237 acres (141,004 square feet)
4. New (Increase) in Site Impervious Area: 3.23 acres (140,699 square feet) (>100% increase in site impervious area)
5. Disturbed impervious surface: 0.007 acres (305 square feet) (100% of existing site impervious area)
6. Exempt Impervious Trail: 0.074 ac (3,240 square feet)
7. Total Disturbed Area: 4.07 acres

Exhibits:

1. Permit Application dated June 15, 2018 (revised July 5, 2018)
2. Control Concepts Hydrology Report: dated June 15, 2018 (revised July 12, 2018 and July 27, 2018)
3. Project Plan Set (14 sheet) dated June 19, 2018 (revised July 12, 2018 and July 27, 2018)
4. Geotechnical Evaluation Report dated March 13, 2018 (Bruan Intertec).
5. HydroCAD Models received July 13, 2018 (revised July 27, 2018)
6. P8 Model Received July 18, 2018 (revised July 27, 2018)
7. Draft Maintenance declaration and exhibit dated June 19, 2018
8. Operations and Maintenance Plan received July 13, 2018 (revised July 27, 2018)
9. Wetland Delineation Report and MnRAM dated May 17, 2018
10. Minnesota Wetland Conservation Act Notice of Decision dated July 2, 2018
11. Response to comments received July 12, 2018 and July 27, 2018

Rule Specific Permit Conditions

Rule C: Erosion and Sediment Control

Because the project will alter 4.07 acres of land-surface area the project must conform to the requirements in the RPBCWD Erosion and Sediment Control rule (Rule C, Subsection 2.1).

The erosion control plan prepared by Loucks, includes installation of silt fence, inlet protection for storm sewer catch basins, daily inspection, placement of a minimum of 6 inches of topsoil, decompaction of areas compacted during construction, and retention of native topsoil onsite. To conform to the RPBCWD Rule C requirements the following revisions are needed:

C1. The Applicant must provide the name and contact information of the individual responsible for erosion control at the site. RPBCWD must be notified if the responsible individual changes during the permit term.

Rule D: Wetland and Creek Buffers

Because the proposed work triggers a permit under RPBCWD Rule J and the onsite wetland is protected by the state Wetland Conservation Act, Rule D, Subsections 2.1a and 3.1 require buffer on the portion of the wetland downgradient from the proposed land-disturbing activities. No draining, filling of the onsite wetland is proposed.

A 2018 wetland delineation for the site was conducted by Terracon Consultants, Inc. and the report was included with the submittal. The MnRAM analysis submitted on July 13 indicates that the wetland onsite is a medium value wetland (Appendix D1). Rule D, Subsection 3.1.a.iii requires a wetland buffer with an average of 40 feet from the delineated edge of the wetland, minimum 20 feet. The buffer widths are summarized in the table below.

Regulated Feature	RPBCWD Wetland Value	Require Minimum Width[1] (ft)	Require Average Width[1] (ft)	Provided Minimum Width (ft)	Provided Buffer Width(ft)
Wetland	Medium	20	40	20	40

[1] Average and minimum required buffer width based on Rule D, Subsection 3.1.a

The Applicant is proposing revegetating disturbed areas within the proposed buffer with native vegetation in conformance with Rule D, Subsection 3.2. A note is included on the plan sheet indicating the project will be constructed so as to minimize the potential transfer of aquatic invasive species (e.g., zebra mussels, Eurasian watermilfoil, etc.) to the maximum extent possible conforming to Rule D, Subsection 3.5.

To conform to the RPBCWD Rule D the following revisions are needed:

D1. Buffer areas and maintenance requirements must be documented in a declaration recorded after review and approval by RPBCWD in accordance with Rule D, Subsection 3.4.

Rule J: Stormwater Management

Because the project will alter 4.07 acres of land-surface area, increase the imperviousness of the entire site by more than 50%, the project must meet the criteria of RPBCWD's Stormwater Management rule (Rule J, Subsection 2.3) for all the impervious surface on the site.

The project includes installation of an underground detention/infiltration system with pretreatment to provide runoff volume abstraction, water quality treatment, and rate control. Pretreatment of runoff prior to entering a detention/infiltration system is provided by sump manholes.

Rate Control

In order to meet the rate control criteria listed in Subsection 3.1.a, the 2-, 10-, and 100-year post development peak runoff rates must be equal to or less than the existing discharge rates at all locations where stormwater leaves the site. The applicant used a HydroCAD hydrologic model to simulate runoff rates for pre- and post-development conditions for the 2-, 10-, and 100-year frequency storm events using a nested rainfall distribution, and a 100-year frequency, 10-day snowmelt event. The existing and proposed 2-, 10-, and 100-year frequency discharges from the site are summarized in the table below.

Discharge Location	2-Year Discharge (cfs)		10-Year Discharge (cfs)		100-Year Discharge (cfs)		10-Day Snowmelt (cfs)	
	Ex	Prop	Ex	Prop	Ex	Prop	Ex	Prop
Century Boulevard	0.2	0.1	0.3	0.2	0.6	0.4	<0.1	<0.1
Wetland	5.1	1.6	10.2	4.5	22.3	11.1	1.0	0.6

The proposed project is in conformance with RPBCWD Rule J, Subsection 3.1.a.

Volume Abstraction

Subsection 3.1.b of Rule J requires the abstraction onsite of 1.1 inches of runoff from the impervious surface of the parcel. An abstraction volume of 12,629 cubic feet is required from the 137,763 square feet of regulated impervious area on the project for volume retention. The project includes an underground detention/infiltration system, with pretreatment using sump manholes, to abstract runoff from the site (Rule J, Subsection 3.1b.i).

Soil borings performed by Braun Intertec show that soils in the project area are typically lean clay soils with one area being underlain by silty sand soils. The construction drawings indicate the project will excavate below the underground detention/infiltration system to connect the system to the underlying

sands. This will improve the infiltration and abstraction capacity of the proposed project. The MN Stormwater Manual indicates an infiltration rate of 0.45 inches per hour for silty sand soils.

The soil boring at the underground infiltration system (ST-4) showed groundwater at elevation of 949 feet. Because the proposed bottom on the underground detention/infiltration system is at elevation 958.17 there is more than the required 3 feet separation (Rule J, Subsection 3.1.b.ii).

The table below summarizes the volume abstraction on the site. Based on information reviewed, the proposed project conforms to Rule J, Subsection 3.1.b.

Required Abstraction Depth (inches)	Required Abstraction Volume (cubic feet)	Provided Abstraction Depth (inches)	Provided Abstraction Volume (cubic feet)
1.1	12,629	1.16	13,013

Water Quality Management

Subsection 3.1.c of Rule J requires the Applicant provide for at least 60 percent annual removal efficiency for total phosphorus (TP), and at least 90 percent annual removal efficiency for total suspended solids (TSS) from site runoff. The Applicant is proposing an infiltration basin to achieve the required TP and TSS removals and submitted a P8 model to support a determination that the proposed stormwater management system will provide the necessary TP and TSS removals.

Pollutant of Interest	Regulated Site Loading (lbs/yr)	Required Load Removal (lbs/yr)	Provided Load Reduction (lbs/yr)
Total Suspended Solids (TSS)	2,437	2,193 (90%)	2,266 (93%)
Total Phosphorus (TP)	7.8	4.7 (60%)	6.6 (85%)

Based on information reviewed, the proposed project conforms to Rule J, Subsection 3.1.c.

Low floor Elevation

No structure may be constructed or reconstructed such that its lowest floor elevation is less than 2 feet above the 100-year event flood elevation according to Rule J, Subsection 3.6. The low floor elevation of the adjacent Control Concepts building and the adjacent stormwater management feature is summarized below. The information demonstrates the project meets the requirements of Rule J, Subsection 3.6.

Location Riparian to Stormwater Facility	Low Floor Elevation of Building (feet)	100-year Event Flood Elevation of Adjacent Stormwater Facility (feet)	Freeboard (feet)
Control Concepts Building	971.4	965.98	5.42

Maintenance

Subsection 3.7 of Rule J requires the submission of a maintenance plan. All stormwater management structures and facilities must be designed for maintenance access and properly maintained in perpetuity to assure that they continue to function as designed.

J1. Permit applicant must provide a draft maintenance and inspection plan. Once approved by RPBCWD, the plan must be recorded on the deed in a form acceptable to the District.

Rule L: Permit Fee:

Fees for the project are:

Rule C & J $2,000

Rule M: Financial Assurance:

Rule C: Perimeter Control: 1,190 L.F. x $2.50/L.F. = ...$3,000
Restoration: 4.1 acres x $2,500/acre = ...$10,200
Rule J: Underground Detention/Infiltration: 125% of Engineer's Opinion of Cost
(1.25*$432,000) = ...$540,000
Contingency (10%) $55,300
Administration (30%) $182,600
Total Financial Assurance.....$791,100

Applicable General Requirements:

1. The RPBCWD Administrator and Engineer shall be notified at least three days prior to commencement of work.
2. Construction shall be consistent with the plans and specifications approved by the District as a part of the permitting process. The date of the approved plans and specifications is listed on the permit.
3. Return or allowed expiration of any remaining surety and permit close out is dependent on the permit holder providing proof that all required documents have been recorded and providing as-built drawings that show that the project was constructed as approved by the Managers and in conformance with the RPBCWD rules and regulations.

Findings

1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
2. The proposed project will conform to Rules C, D, and J if the Rule Specific Permit Conditions listed above are met.

Recommendation:

Approval of the permit contingent upon:

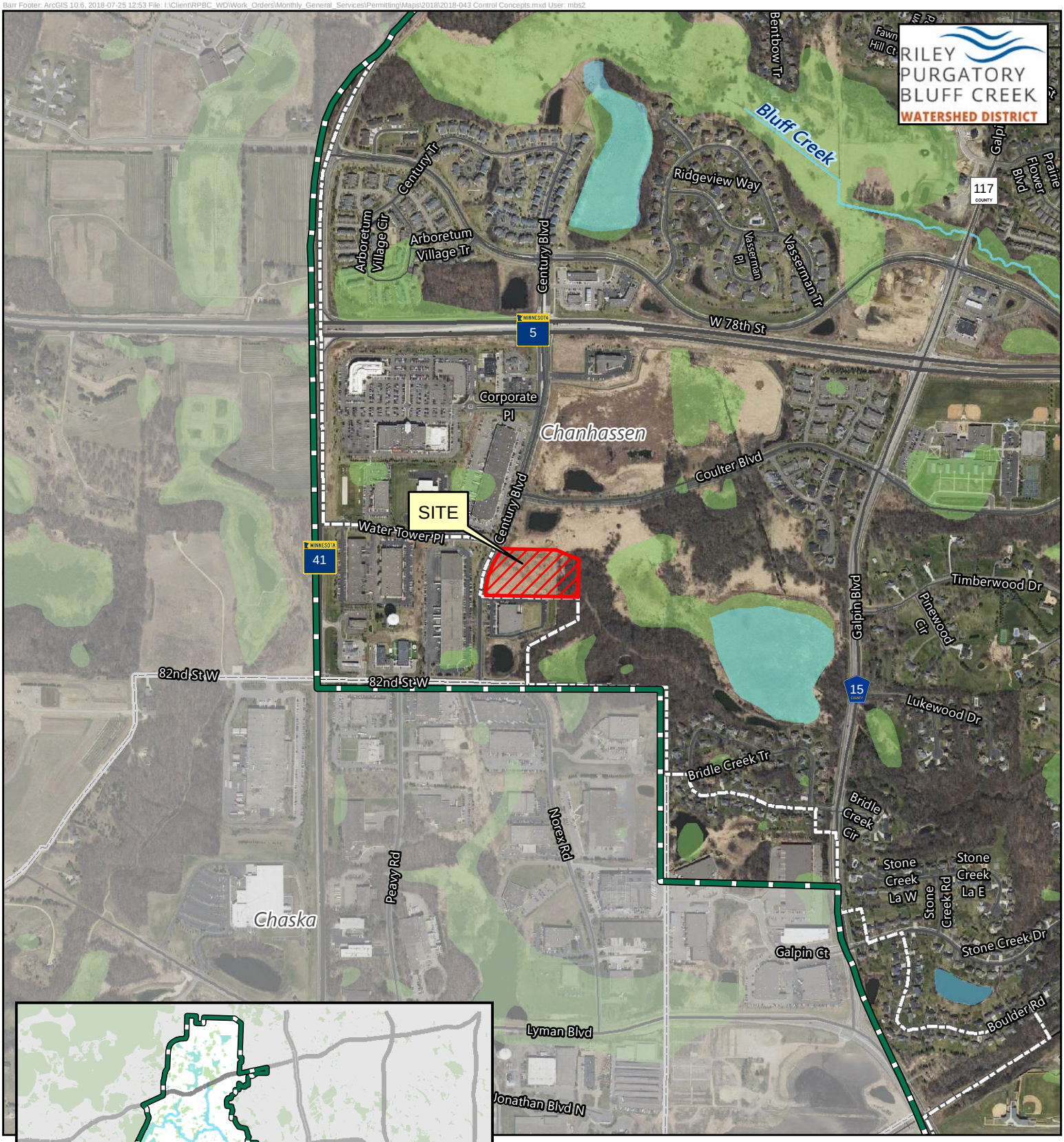
1. Continued compliance with General Requirements.
2. Financial Assurance in the amount of $791,100.
3. Applicant providing the name and contact information of the individual responsible for erosion and sediment control at the site.
4. Receipt in recordation a maintenance declaration for the operation and maintenance of the buffer and stormwater management facilities. A draft must be approved by the District prior to recordation.

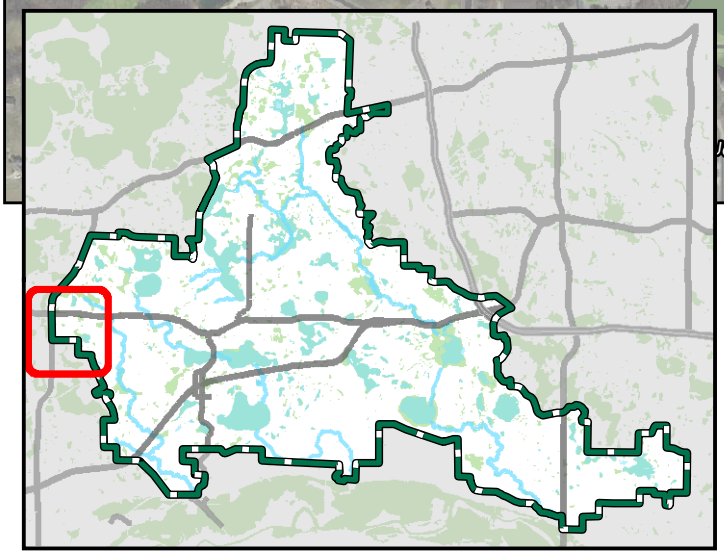
By accepting the permit, when issued, the applicant agrees to the following stipulations:

1. Per Rule J Subsection 4.5, upon completion of the site work, the permittee must submit as-built drawings demonstrating that at the time of final stabilization, stormwater facilities conform to design specifications as approved by the District.

Board Action

It was moved by Manager _____, seconded by Manager _____ to approve permit for permit No. 2018-043 with the conditions recommended by staff at the August 8, 2018 RPBCWD Board of Managers meeting.





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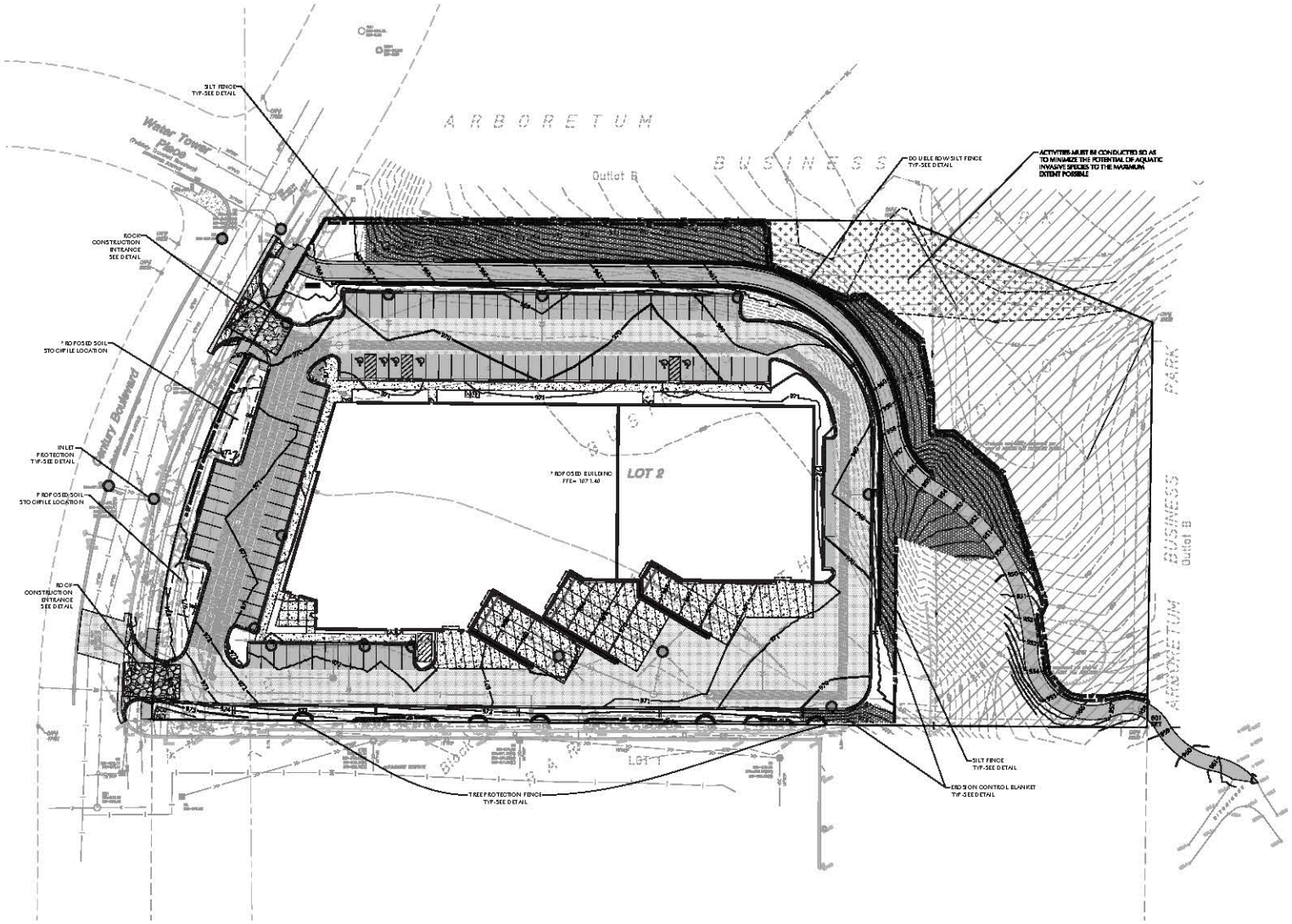
Feet

0 1,000

Permit Location Map

CONTROL CONCEPTS
Permit 2018-043
Riley Purgatory Bluff Creek
Watershed District



0 30 60
SCALE IN FEET

NOTE:
EXISTING CONDITIONS INFORMATION SHOWN IS PROVIDED BY LOUCKS. REFER TO ALTA/NSPS LAND TITLE SURVEY DATED 05/08/18 FOR COMPLETE SURVEY INFORMATION.

CIVIL LEGEND

SWPPP LEGEND

- SILT FENCE
- BIO ROLLS
- INLET PROTECTION
- EXISTING DRAINAGE PATTERN
- PROPOSED DRAINAGE PATTERN
- EROSION CONTROL BLANKET
- ROCK CONSTRUCTION ENTRANCE

Gopher State One Call
TWIN CITY AREA 651-454-0002
TOLL FREE 1-800-252-1166

WARNING

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL BURIED UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND / OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

Landscape Forms
Interiors | architecture

Project Information

CONTROL CONCEPTS

8077 CENTURY BLVD
CHANHASSEN, MN

NOT FOR CONSTRUCTION

LOUCKS
PLANNING
CIVIL ENGINEERING
LAND SURVEYING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
7200 Hemlock Lane, Suite 300
Maple Grove, MN 55369
763.424.5505
www.loucks.com
LOUCKS PROJECT NO. 13516

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

Trevor D. Gaye – PE
Printed Name

Signature
06/15/18 53706
Date Lic #

Issue Record

06-15-18	CITY SUBMITTAL	
06-15-18	WATERSHED SUBMITTAL	
07-13-18	WATERSHED RESUBMITTAL	
07-27-18	WATERSHED RESUBMITTAL	

Sheet Title
STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Sheet Information

FOR INFORMATION ONLY

Date
2018-06-15

C3.2

NOTE:
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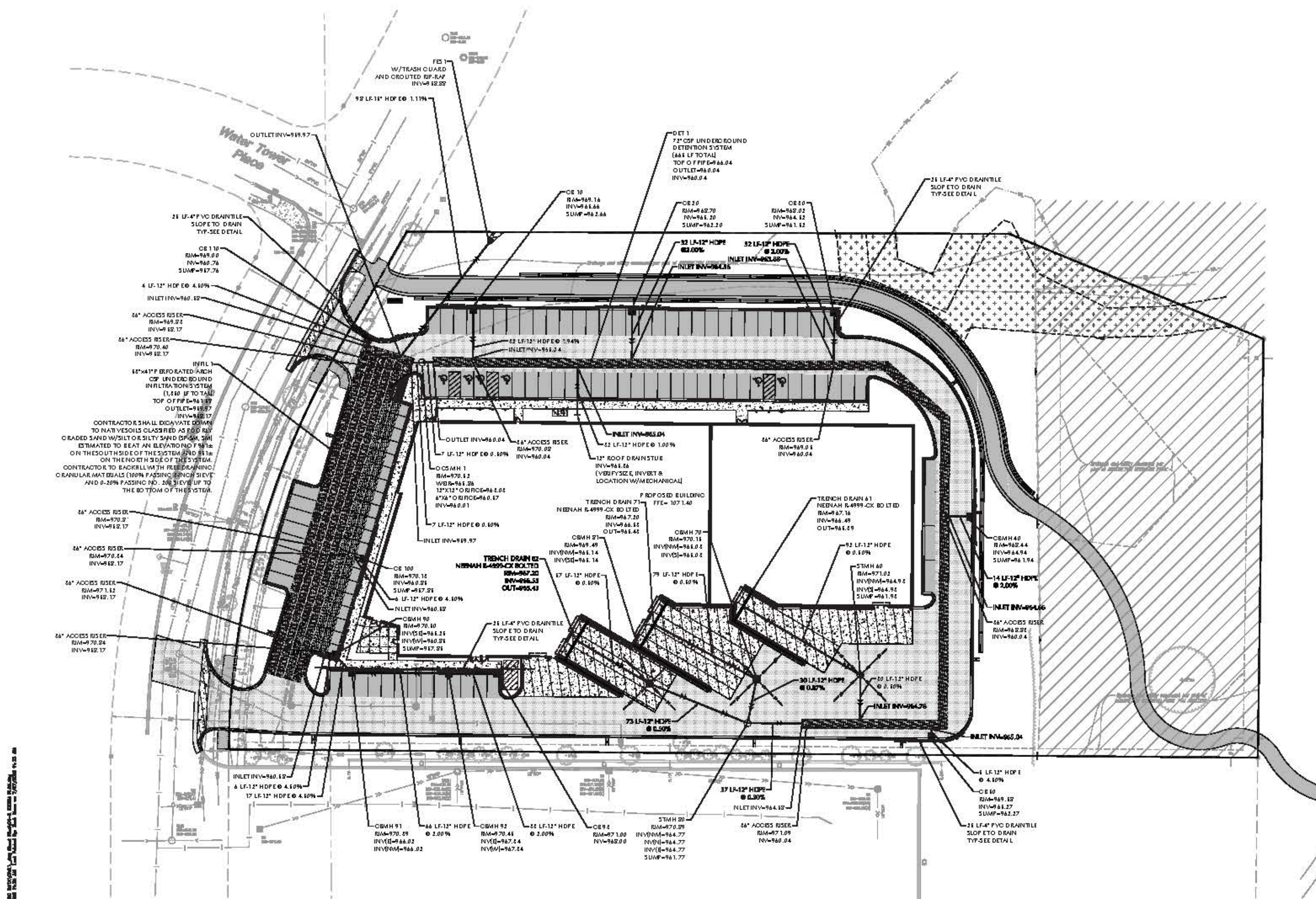

CIVIL LEGEND

UTILITY NOTES

1. ALL SANITARY SEWER, STORM SEWER AND WATERMAIN UTILITIES SHALL BE FURNISHED AND INSTALLED PER THE REQUIREMENTS OF THE SPECIFICATIONS, THE MINNESOTA PLUMBING CODE, THE LOCAL GOVERNING UNIT, AND THE STANDARD UTILITIES SPECIFICATION OF THE CITY ENGINEERS ASSOCIATION OF MINNESOTA (CEAM), 2018 EDITION.
2. ALL UTILITY PIPE BEDDING SHALL BE COMPACTED SAND OR FINE GRANULAR MATERIAL. ALL COMPACTION SHALL BE PERFORMED PER THE REQUIREMENTS OF THE CEAM SPECIFICATION AND THE GEOTECHNICAL REPORT.
3. ALL CONNECTIONS TO EXISTING UTILITIES SHALL BE PERFORMED PER THE REQUIREMENTS OF THE STATE AND LOCAL JURISDICTIONS. THE CITY DEPARTMENT OF ENGINEERING AND BUILDING INSPECTIONS DEPARTMENT AND THE CONSTRUCTION ENGINEER MUST BE NOTIFIED AT LEAST 48 HOURS PRIOR TO ANY WORK WITHIN THE PUBLIC RIGHT OF WAY, OR WORK IMPACTING PUBLIC UTILITIES.
4. ALL STORM SEWER, SANITARY SEWER AND WATER SERVICES SHALL TERMINATE 5' FROM THE BUILDING FACE UNLESS OTHERWISE NOTED.
5. A MINIMUM OF 18 INCHES OF VERTICAL SEPARATION AND 10 FEET OF HORIZONTAL SEPARATION IS REQUIRED BETWEEN WATERMAIN AND ALL UTILITIES UNLESS OTHERWISE NOTED.
6. ALL NEW WATERMAIN AND SERVICES MUST HAVE A MINIMUM OF 8.0 FEET OF COVER. EXTRA DEPTH MAY BE REQUIRED TO MAINTAIN A MINIMUM 18" VERTICAL SEPARATION TO SANITARY OR STORM SEWER LINES. THE CONTRACTOR SHALL FIELD ADJUST WATERMAIN TO AVOID CONFLICTS WITH SANITARY SEWER, STORM SEWER, AND SERVICES AS REQUIRED. INSULATION OF WATER AND SANITARY SEWER LINES SHALL BE PROVIDED WHERE 8.0 FEET MINIMUM DEPTH CAN NOT BE ATTAINED.
7. ALL FIRE HYDRANTS SHALL BE LOCATED 5 FEET BEHIND BACK OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
8. PROPOSED PIPE MATERIALS:

WATERMAIN	C900 PVC	6" TO 8" DIAMETER
SANITARY SEWER	PVC SCH 40	6" DIAMETER
STORM SEWER	DUAL WALL HDPE	12" TO 15" DIAMETER
	PERFORATED PVC	4" DIAMETER

9. ALL SANITARY SEWER WYES, TEES AND SERVICES SHALL BE 6" PVC SCH 40.
10. CONTRACTOR TO SUBMIT SHOP DRAWINGS OF UNDERGROUND DETENTION SYSTEM FOR ENGINEERS REVIEW.
11. ALL PORTIONS OF THE STORM SEWER SYSTEM, INCLUDING CATCH BASINS, LOCATED WITHIN 10 FEET OF THE BUILDING OR WATER SERVICE LINE MUST BE TESTED ACCORDANCE WITH MINNESOTA RULES, PART 4714.2820
12. ALL JOINTS AND CONNECTIONS IN THE STORM SEWER SYSTEM SHALL BE GASTIGHT OR WATERTIGHT (SEE MINNESOTA RULES, PART 4714.0700). APPROVED RESILIENT RUBBER JOINTS MUST BE USED TO MAKE WATERTIGHT CONNECTIONS TO MANHOLES, CATCH BASINS, AND OTHER STRUCTURES.
13. HIGH-DENSITY POLYETHYLENE (HDPE) STORM DRAINS MUST COMPLY WITH MINNESOTA RULES, PART 4714.0640:
    a. PIPES 4-INCH TO 10-INCH IN SIZE MUST COMPLY WITH AASHTO M252.
    b. PIPES 12-INCH TO 60-INCH IN SIZE MUST COMPLY WITH ASTM F2306.
    c. ALL FITTINGS MUST COMPLY WITH ASTM D3212.
    d. WATER-TIGHT JOINTS MUST BE USED AT ALL CONNECTIONS INCLUDING STRUCTURES.

Gopher State One Call

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NOT FOR CONSTRUCTION

FOR INFORMATION ONLY

interiors | architecture

LOUCKS
LOUCKS PROJECT NO. 17516

Project Information
CONTROL CONCEPTS

8077 CENTURY BLVD
CHANHASSEN, MN

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

Trevor D. Gruye – PE
Printed Name

Signature

06/15/18 — Date
53706 — Lic #

Issue Record

Sheet Title
UTILITY PLAN
STORM SEWER

Sheet Information

Date
2018–06–15

C4.2

Cost share grant application
2018

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

Do not fill in gray boxes. District use only.

Applicant type (check one) ☐Homeowner ☒Non-profit - 501(c)(4) (Homeowner Assn)
☐Business or corporation ☐Public agency or local government unit ☐School

Project type (check all that apply) ☐Raingarden ☐Vegetated swale ☐Lake/creek/wetland buffer
☐Shoreline/bank stabilization ☐Wetland restoration ☐Pervious hard surface ☐Infiltration basin
☒Conservation practice ☒Other Comprehensive Changes to Cultural Practices

Applicant information (PRAIRIE EAST FIFTH ASSOCIATION)

Works or resides in district?

Name Cory Miller, Board President Address 10357 Balsam Lane
City/State/Zip Eden Prairie MN 55347
Phone (952) 484-5602 Alt phone Email cmillerx7982@hotmail.com

Primary contact ☒ Contractor/Consultant

Name Mary Davy - No-Stress Gardening and Landscapes LLC Address 16526 W 78th Street #342
City/State/Zip Eden Prairie MN 55346
Phone Cell 612-267-0525 Alt phone 612-250-2048 Email mdavy@nostressgardening.com

Project location: Homeowners Assn Located in the NE Quadrant of Pioneer Trail & Franlo Road

Address 10320 Balsam Lane*** City/State/Zip Eden Prairie MN 55347
Property Identification Number (PID) 80 Residences
Property owner(s) Each Residence is Individually Owned, but included in the HOA for Landscape Maintenance.

Project located in district?

*** This is also the address for the Property Manager: Lori Waltzer, CCAM - Waltzer Management.
Phone: (952) 513-4709 E-Mail: info@waltzermanagement.com

Tributary to a waterbody?
No Yes, indirectly Yes, adjacent

Project summary

Title Irrigation System Controller Upgrade to Solar, SMART Weather-Based System
Total project cost $41,317.71 Grant amount requested $20,000.00
Estimated start date 15 July 2018 Estimated completion date 01 November 2018
Sub-watershed Purgatory Creek

Project located in priority drainage area?

Is project tributary to a water body? ☐No, water remains on site ☒Yes, indirectly ☐Yes, directly adjacent

2-3 sentence project description

Upgrade current irrigation controller system to improve efficiency, efficacy and sustainability. Project is one part of a comprehensive plan to develop and implement sustainable management & cultural practices to improve overall landscape performance. Performance objectives include, but are not limited to, reduction of water use, stormwater management (increased infiltration), and pollution reduction (less sediment run-off , elimination of manufactured fertilizer use and reduction in use of herbicides & pesticides).

Is this work required as a part of a permit? ☒No ☐Yes
(If yes: describe how the project provides water quality treatment beyond permit requirements on the next page.)

Site visit One of the requirements for a complete application is a site visit from district staff.
Have you had a site visit? ☐No ☒Yes Met with Seth Ristow on Thursday, 07 June 2018 at 2:00 pm.
(If you answered no, please contact staff to schedule one: 952-607-6512)

Project details

SEE SUPLEMENT for Checklist Items EXCEPT "Proof of Ownership" which is APPENDIX D

Do not fill in gray boxes. District use only.

Checklist To be considered complete the following must be included with the application.

- ☒ location map
- ☒ site plan & design schematics
- ☒ itemized budget or contractor bid
- ☒ project time-line
- ☒ proof of property ownership
- ☐ plant list & planting plan (if project includes plants)

Is time-line reasonable?

Is budget reasonable?

Is plan comprehensive?

Does plant list conform to district's approved plant list?

DESCRIPTION:

Describe the current site conditions, as well as site history, and past management.

SEE SUPLEMENT: "Site Plan & Design Schematics

What are the project objectives and expected outcomes? Give any additional project details.

SEE SUPPLEMENT: "Project Benefits & Expected Outcomes" for further discussion.

Are there multiple objectives?

Does the project have well-defined, measurable results?

List other key participants and their roles

1) Lori Waltzer, Property Manger: Participates in system management and facilitates updates to the Board and Residents. Participates in the development in a Comprehensive Master Plan for the Association.
2) No-Stress Gardening and Landscapes: Provides project management, on-going system maintenance, operations & reporting. NSGL also assists in the development of the Association's Comprehensive Master Plan.
3) Irrigation Management will install the new equipment and provide on-going irrigation technician support.

Does the project demonstrate strong partnerships & support?

Which cost share goals does the project support? (check all that apply)

- ☒ Improve watershed resources
- ☒ Increase awareness of the vulnerability of watershed resources
- ☒ Increase familiarity with and acceptance of solutions to improve waters
- ☒ Foster water resource stewardship

How does the project support the goals you checked?

This project has the benefit of being undertaken by a large group of property owners who are ACTIVELY demonstrating a commitment to developing and implementing sustainable and effective landscape maintenance strategies. This is being undertaken in a thoughtful, comprehensive and on-going manner with substantial financial resources being invested.

The process involves a high degree of interaction on a frequent basis, i.e. the project manager and property manager provide monthly reports to the Board. There is an active, on-going forum for educating and reporting to the residents.

This project has both qualified and quantified impacts of which the residents are highly invested . . . including FINANCIAL.

All of these conditions support the single most important component necessary to achieving all of the Cost Share Goals . . . POSITIVE AND SUSTAINED BEHAVIOR CHANGE.

Project details (continued)

Do not fill in gray boxes. District use only.

Benefits Estimate the project benefits in terms of restoration and/or **annual** pollution reduction. If you are working with a designer or contractor, they can provide these numbers. If you need help, contact the district cost share program coordinator.

In consultation with the district's technical consultant, Seth Ristow, we determined that the most *"quantifiable"* benefit of this project would be in the **significant reduction of water usage** based on readily available monitoring tools.

Does the project provide water quality treatment?

Additional benefits are substantial, but more difficult to quantify with the tools and resources available.

Does the project provide restoration?

"Qualified" benefits resulting from this project and other coordinated changes in cultural practices include reduction of sediment run-off, increased infiltration of stormwater, reduction in the use of herbicides & pesticides and elimination of the use of manufactured fertilizers.

SEE SUPPLEMENT: "Project Benefits & Expected Outcomes" for further discussion.

How will you share the project results with your community?

Is there educational value to the project?

Will the project be visible to the public?

1) Property Manager and Project Manager will make frequent, ongoing reports to the Board.
2) The Association has a quarterly newsletter where project progress and benefits will be shared with the residents on an ongoing basis (at least twice annually).
3) Article showcasing the project will be submitted for publication in local newspapers covering the watershed district, i.e. Eden Prairie Sun Current, Chaska Herald, Chanhassen Villager, and Shakopee Valley News.
4) Project Case Study will be developed on offered to watershed, conservation district and MN Extension staff for use in public education programs.

Are there other projects that could be initiated as a result of this one?

A Comprehensive Association Master Plan is in on-going development and implementation.
Components may include, but are not limited to:

1) Renovation of areas experiencing water erosion.
2) Master Tree & Large Shrub Inventory focusing on Plant Health Evaluation & Preservation Strategies
3) Soil Building & Rejuvenation to support the elimination of manufactured fertilizer use, increase water retention & infiltration and reduce sediment run-off.
4) Develop and implement comprehensive improvements to turf management cultural practices.

Evaluation

How will the project be monitored and evaluated?

System will be monitored via the web-based interface by the Project Manager, the Property Manger and Irrigation Tech.
Minimum monthly field assessments will be conducted by Project Manager and will make all appropriate adjustments.
System performance quantified by ongoing measurement of water usage.
System performance will be qualified based on ability to support thriving plant material.
Exploration of infiltration testing to evaluate performance is being explored with Sam Bauer, UMN Extension Turf Specialist.

Maintenance agreement

I acknowledge that receipt of a grant is contingent upon agreeing to maintain the project for the number of years outlined in the cost share guidelines document [X] Yes

Authorization

Name of landowner or responsible party Cory Miller, Board President - Prairie East Fifth Association

SIGNATURE Cory J Miller

DATE: 13 June 2018

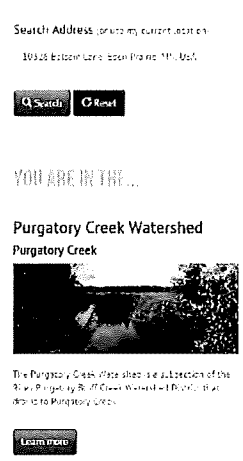
LOCATION MAP

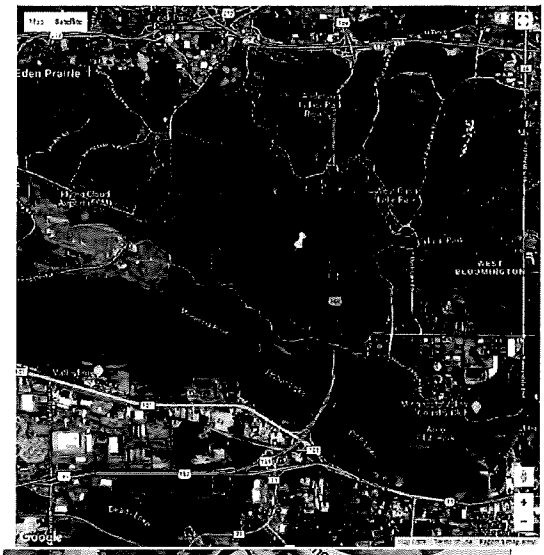
The Prairie East Fifth Association is in the heart of the Purgatory Creek Watershed. It is in the NW quadrant of Pioneer Trail and Franlo Road in Eden Prairie.

The Association has 20 multi-family (4-plexes) properties for a total of 80 private residences. It covers a total of 15 acres including 7.5 acres of turf.

PRAIRIE EAST FIFTH ASSOCIATION

Established in 1979



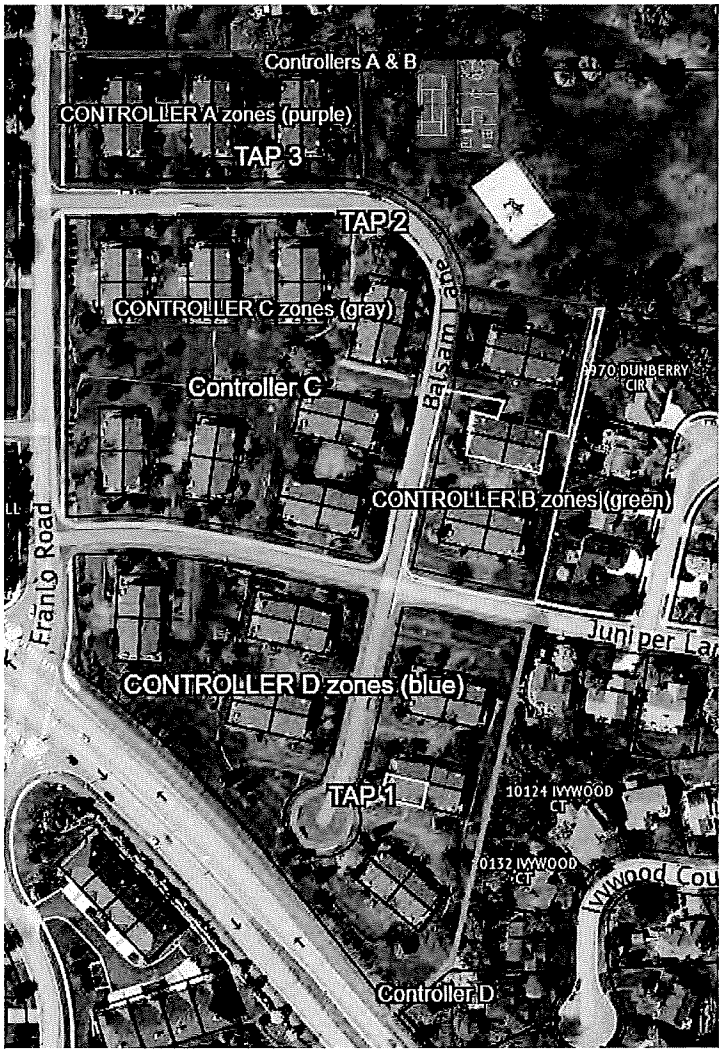


SITE PLAN & DESIGN SCHEMATICS

Prior to 2016, Prairie East Fifth did not have any Association-managed, in-ground irrigation. Lawn watering was conducted by individual residents via hose and sprinklers. This resulted in areas of severe over-watering and irregular watering contributing to stressed, poorly performing turf grass. Without a way to apply and manage supplemental water, it would be increasingly difficult to implement a renovation process to repair the problem as the turf continued to decline. In addition, the ability to provide supplemental water for new plant establishment (turf, trees, shrubs and/or perennials) would be needed.

Due to the size of the property (15 Total Acres including 7.5 Acres of Turf), the Association decided to install an in-ground irrigation system. The map shows the current configuration of the Irrigation System that was installed in 2016. This system utilized 4 separate battery-powered controllers with minimal management capabilities.

The map below shows the EXISTING Irrigation Layout.



PROPOSED LAYOUT CHANGES:

The IRRIGATION CONTROLLER UPGRADE will leave the same fundamental layout EXCEPT FOR combining Controllers A &B into a single zone managed by 1 Controller.

The PLANNED UPGRADE will utilize new solar powered Controllers which will have access to much greater power (electric) sources.

This change to Solar Power will provide the additional electricity needed to support the more efficient ET (Evapotranspiration) based Controllers without extensive construction to install direct power from electrical transformers.

Prairie East Fifth Association
PROJECT BUDGET:

LABOR COSTS (Contractors, Consultants, In-Kind Labor):

SERVICE PROVIDER	DESCRIPTION	FUNDS Requested from RPBCWD	Matching and/or In-Kind FUNDS	TOTAL LABOR COST
No-Stress Gardening and Landscapes LLC	Planning, Design & Project Management	$0.00	$1,500.00	$1,500.00
No-Stress Gardening and Landscapes LLC	Site Preparation (3). Install of 3 Concrete Pads per Specification. Includes complete mobilization, labor & materials necessary to meet specifications. Manage start-up, testing and system programming. Provide system management in cooperation with Irrigation Tech and Property Manager.	$0.00	$6,000.00	$6,000.00
Irrigation Management LLC	Remove 3 existing battery operated controlliers. Change-out existing solanoids with 24VAC valves. Install 3 Stainless Steel Pedestals, 3 Weathermatic SL4800 Contollers, 6 SmartLink Flow Sensors, 3 Smartline Weather Stations, and 3 Smartline Solar Assemblies. Start-up and fully test system.	$0.00	$4,500.00	$4,500.00
	SUB-TOTAL LABOR COSTS	**$0.00**	**$12,000.00**	**$12,000.00**

PROJECT MATERIAL COSTS:

MATERIALS DESCRIPTION	FUNDS Requested from RPBCWD	Matching and/or In-Kind FUNDS	TOTAL MATERIAL COST
3 Weathermatic SmartLine Controller SL4800 SOLAR PACKAGES**	$20,000.00	$4,934.71	$24,934.71
Shipping, Handling and Site Delivery for 3 Controller Packages	$0.00	$1,500.00	$1,500.00
Estimated Applicable Taxes	$0.00	$3,600.00	$2,883.00
****EACH Weathermatic PACKAGE INCLUDES:** 1 SL4800 SmartLine Controller 1 SLW5 SmartLine Wireless Weather Station 1 SmarkLink Wireless Network - SL AIRCARD 2 SLFSI-T SmartLink Flow Sensors 1 SLSOLAR48 SmartLIne Solar Assembly (Batteries, Panels, etc.) 1 SLPED-4800 Stainless Steel Pedestal EACH COMPLETE PACKAGE IS $8,311.57			
SUB-TOTAL MATERIAL COSTS	**$20,000.00**	**$10,034.71**	**$29,317.71**
PROJECT TOTALS	**$20,000.00**	**$22,034.71**	**$41,317.71**
Percent of Total Costs	**48.41%**	**53.33%**	**100.00%**

PROJECT TIME LINE

If approved, the plan is to implement the project this year (2018 Season) before the shut-down/winterization of the irrigation system.

Process would include:

1) Order Equipment and Materials (Custom Order requires between 4 and 8 weeks). Order would be submitted upon receipt of Grant Approval.
2) Perform Site Preparation and Install Concrete Pads. Elapsed time approximately 1 week.
3) Receive new equipment, transfer to site(s) and complete assembly and install on concrete pads. Elapsed time approximately 3 days.
4) Remove Existing Controllers and complete installation of New Controller System by transitioning electrical and water connections per specification. Elapsed time 3 to 4 days.
5) Test New System & Program Controllers. Approximately 1 day.
6) Monitor & Mange System to Fine-Tune Programs for the Balance of the Season.

The goal is to complete transition, so system is completely ready for operation during the ENTIRE 2019 Season.

"SMART" Weather-Based Irrigation Controllers (WBICs) - See APPENDIX A

The Environmental Protection Agency (EPA) selected smart irrigation controllers as one of the first technologies to endorse as a part of the WaterSense Program, the water equivalent of the Energy Star Program.

"SMART" Weather-Based Irrigation Controllers (WBICs) act like a thermostat for your sprinkler system telling it when to turn on and off. They use local weather and landscape conditions to tailor watering schedules to actual conditions on the site instead of irrigating using a controller with a clock and a preset schedule. "SMART" controllers allow watering schedules to better match plants' water needs, optimizing both water use and plant performance.

Tests by the Irrigation Association (IA) and the International Center for Water Technology at California State University – Fresno, have shown smart irrigation controllers to save up to 20% more water than traditional irrigation controllers.

APPENDIX A contains 3 EPA Fact Sheets which provide further background.

IRRIGATION ASSOCIATION TECHNICAL PAPER: A NEW GENERATION OF SMART CONTROLLERS - See APPENDIX B

The 2017 Irrigation Association Education Conference featured a paper on the use of SMART Controller Technology presented by Parry Webb, CLIA of Weathermatic. While this work was developed for the education of the industry, you will find that it is a very pragmatic and enlightening discussion of SMART Controller Technology in specific and the state of landscape irrigation practices in general.

APPENDIX B presents a comprehensive discussion in an easy-to-read, engaging way.

TECHNICAL SPECIFICATIONS of the PRAIRIE EAST PROJECT - See APPENDIX C

The system we have selected is a solar-powered, weather-based irrigation controller. This is combined with a cellular communication system that supports a remote, internet/web-based interface. It is manufactured and supported by Weathermatic.

This system is a custom specification that will provide the most comprehensive set of water management tools available. It is a well-established, proven technology that is efficient and easy to use. In addition to it's water control capabilities, it also a produces comprehensive data stream which allows for continual improvement of management and programming strategies.

APPENDIX C: TECHNICAL SPECIFICATIONS of the PRAIRIE EAST PROJECT provides detailed supporting documentation.

PROOF OF PROPERTY OWNERSHIP - See APPENDIX C

Proof of Ownership is the Prairie East Fifth Articles of Incorporation filed on 25 July 1979.

PROJECT BENEFITS & EXPECTED OUTCOMES

In consultation with the district's technical consultant, Seth Ristow, we determined that the most "quantifiable" benefit of this project would be in the reduction of water usage based on readily available monitoring tools.

Since the system was installed in late 2016, there is only 1 complete season (2017) of water usage information. While we have all the monthly data resulting in a total irrigation water usage of approximately 3,269,000 gallons, this is ONLY 1 year of data for a brand-new system. This should NOT be considered a hard base-line, but rather a relative reference point for illustration purposes only.

There are several new system capabilities that will greatly increase our ability to utilize irrigation water in an extremely efficient and effective manner. However, the addition of Evapotranspiration (ET) control capabilities is reported to provide significant reductions in water usage. Documented results range from conservative reductions of 20% to feasible 50% reductions. ***Utilizing a conservative estimate of a 20% reduction in water usage applied to our limited historical data would yield an annual savings of more than 653,000 gallons of water.***

Additional benefits are substantial, but more difficult to quantify with the tools and resources available. "Qualified" benefits resulting from this project and other coordinated changes in cultural practices include reduction of sediment run-off, increased infiltration of stormwater, reduction in the use of herbicides & pesticides and elimination of the use of manufactured fertilizers.

The technical committee has further questions on your applications.

What was the original water sense equipment that was originally installed when the irrigation system was installed? Why wasn't it successful?

The 4 controllers used in the initial installation (summer 2016) were Hunter XC-Hybrids - battery-operated. While these are stable, reliable base-line controllers and include the state mandated rain-sensor; they are NOT EPA WaterSense Certified Controllers.

The EPA WaterSense program created criteria to label high performing WBIC's (Weather-Based Irrigation Controllers). In other words, an irrigation controller must be weather-based to be WaterSense Certified. While rain sensors are one weather sensor, their use alone are not sufficient for a controller to be considered "weather-based". The performance standard for WaterSense certification requires the controller to meet plants' water needs without overwatering. All WaterSense labeled controllers have an irrigation adequacy greater than 80% in each irrigation zone and an irrigation excess less than 5 percent averaged across all irrigation zones.

It isn't that the original equipment "wasn't successful", we are simply moving to SUBSTANTIALLY IMPROVE the system to take advantage of the best technology currently available to effectively manage landscape watering needs. The Prairie East Fifth Association is delightfully unusual in that it consistently strives for on-going, incremental improvements to its stewardship practices. This irrigation upgrade is just one example.

Why do you have 3 weather smart systems within the proposal? Typically, controllers can cover multiple zone. Can you please clarify?

Yes, controllers are designed to control multiple zones. Their capacity is based on design requirements and range from as few as 4 zones to more than 200 zones.

However, an irrigation controller is based on and at the water source, i.e. there must be at least one controller per water source. In the case of Prairie East Fifth, they were required to use 3 separate water taps (sources) because the City of Eden Prairie does not allow the extension of irrigation supplies under the city streets.

If you need three controllers because the zones are independent, why not have one weather smart system and then have 2 controller that feed off of it?

While it is technologically possible to utilize a single weather-based system for 3 controllers, it is important to understand that the technology currently available to do so is primarily scaled for much larger applications (both in geographic area and zone numbers) ***and would be many times more costly to utilize.***

The system we have selected for this upgrade is properly scaled and provides the necessary features

to dramatically improve the efficiency and efficacy of managing the landscape watering needs at a competitive cost. Factors involved include a project's geographic size, current zone requirements, future zone requirements, existing design (wire, pipe, etc.). While there is some duplication of features, these duplications result in a very small cost ($) and are ultimately the most cost-effective way to achieve the desired outcome in the system we have to upgrade.

Additional information might be needed as we review this application.

Thanks,
Claire

--

Claire Bleser
District Administrator
Riley-Purgatory-Bluff Creek Watershed District
952-607-6512

From: Michelle Jordan <mjordan@rpbcwd.org>
Date: Wednesday, June 20, 2018 at 10:44 AM
To: Mary Davy <mdavy@nostressgardening.com>
Cc: "sristow@co.carver.mn.us" <sristow@co.carver.mn.us>, Claire Bleser <cbleser@rpbcwd.org>, Terry Jeffery <tjeffery@rpbcwd.org>
Subject: Re: FINAL COST SHARE GRANT APPLICATION: Prairie East Fifth Association

Good morning Mary,

Thank you for submitting this application. It has been received and submitted to technical review. As we spoke about earlier on the phone, because of the scope and tier of this project, it goes to a more substantial technical review, and if advanced would need to go to a public hearing as well. Functionally, this means the process tends to take longer than smaller, homeowner projects.

Your primary points of contact going forward will be Seth Ristow, the conservation technician we work with, and the Watershed District Administrator Claire Bleser. If additional information is required during the review process, they will reach out.

Sincerely,

Michelle Jordan
Community Outreach Coordinator
Riley Purgatory Bluff Creek Watershed District
18681 Lake Drive East
Chanhassen, MN 55317

SmartLine SOLAR

CONTROLLERS

SOLAR CONTROLLER

Water, Power, and Wire Savings

The SmartLine® Solar irrigation control system features the industry's first hybrid solar to AC power supply, allowing the SmartLine® weather based irrigation control system to operate in locations with no power. SmartLine® Solar uses proven SmartLine® controllers and industry standard 24VAC valves for greatly enhanced operational life and reduced equipment cost.

FEATURES

- SmartLink® Aircard compatible
- Converts SmartLine® to a totally "portable" water management system by using proven solar technology
- SmartLine® is a SWAT tested ET system
- Green power source using 100% renewable energy
- Easy installation for both Conventional and 2-Wire systems
- SmartLine® Solar uses industry standard 24VAC valves, which out perform debris-prone latching solenoids required with battery operated systems
- System Diagnostics include Volt meter, Amp meter and Valve Locator
- 2-Wire SmartWire compatible
- LCD display indicates battery and solar power condition
- Dual deep cycle batteries provide up to 7 days of operation with no solar charge
- State of the art Solar Charge Technology (SCT) prolongs battery life and protects batteries from over charge and assures a full charge
- Using standard AC power components makes for easy conversion from solar to grid power and allows early stage construction of landscape in new construction projects

SmartLink® COMPATIBLE

SLSOLAR48

SmartLine® Solar Specifications

Model	Description
SLSOLAR48	SmartLine® Solar System, 48 Zones
SLSOLAR48TW	SmartLine® Solar System, 48 Zones 2-Wire
SLSOLAR96TW	SmartLine® Solar System, 96 Zones 2-Wire

Weathermatic®
Water Conserving Innovation

SmartLine®

The Smart Irrigation Controller

With over 360,000 SmartLine Controllers saving vast amounts of water around the world, your next project will be added to the growing list.

The SmartLine feature set exceeds that of most high-end controllers, yet was engineered to make ET-Based Water Management affordable for any sized project.

weathermatic.com

1 TWO CONTROLLERS IN ONE

The "Basic" mode programs exactly like the conventional controllers used by most manufacturers. There's no need to learn a new method. The "Smart" mode is where the power lies. Combined with our SLW Series Weather Stations, SmartLine becomes an ET-Based water-saving controller that automatically adjusts watering times 365 days a year.

2 SMART MODE

ET Watering adjusts the duration, frequency, and soak time by several factors. Weather Data combined with geographical location, sprinkler type, plant type, soil type, and a fine tuning option, enables your SmartLine controller to make precise watering decisions.

3 ACCESS YOUR SMARTLINE CONTROLLERS FROM VIRTUALLY ANYWHERE

The days of irrigation controllers being programmed once, and left alone for months, is over. Adding the SmartLink Network gives you access to your SmartLine controllers via your Computer, Tablet, or Smartphone. Irrigation Management made simple, affordable, and packed with features.

4 BACKLIT LCD / REAL TIME CLOCK / CALENDAR & NON-VOLATILE PROGRAM MEMORY

No flashlight required in dark basements and garages. No battery required! On board memory chip retains time, date and program information even during a power outage

5 OMIT TIMES/DAYS/DATES SEASONAL % ADJUST BY MONTH BY PROGRAM

Automatically comply with local water restrictions; eliminate irrigated water lost to evaporation in the heat of the day; stop irrigation on lawn maintenance days; never water on the date of an annual event (ex: July 4th). A monthly watering budget % can be set up by program to automatically adjust zone run times for seasonal changes.

6-10 ADVANCED MENU

The Advanced Menu contains 17 tools, ranging from diagnostics, troubleshooting, and advanced water management tools. Below only scratches the surface.

6 BUILT-IN VALVE LOCATOR

Locate hidden valves by simply listening for the audible chatter of the solenoid created by a unique electrical frequency. (U.S. Pat #7406363)

7 ON-BOARD MULTI-METER

Displays the electrical current reading of each zone for quick troubleshooting and a proactive approach to maintenance.

8 MASTER VALVE/PUMP SETTINGS

Achieve hydraulic control with settings for zone-to-zone delays, master valve timing, and master valve On/Off by zone

9 BACKTRACK STORED PROGRAM GROW-IN PROGRAM FEATURE

Allows you to easily store a default program and retrieve the saved program in the event someone improperly reprograms the controller. Allows you to set up a temporary program to grow in new plant material then automatically switch to a day to day program when you decide.

10 RUNOFF ELIMINATOR

Eliminate runoff by setting the maximum allowable run time and minimum soak time by program

SmartLink®
Wireless Landscape Network

IRRIGATE FROM ANYWHERE

AFFORDABLE, WEB-BASED IRRIGATION CONTROL HAS ARRIVED.

For years, landscape professionals, like you, have been demanding that irrigation controllers would enter the 21ST century. Weathermatic has engineered the solution. Finally, affordable web-based irrigation control is available to everyone. With SmartLink™, you can manage all of your sites from any computer, or mobile device, and a web-browser. No software to install. No expensive hardware needed. You'll be up and running in minutes.

SmartLink is a web application that provides you the tools to be one step ahead. Make controller program changes, manage flow, use the on-site inspection tools, receive email alerts, send global commands, the list goes on and on. SmartLink becomes an indispensable part of your work-flow.

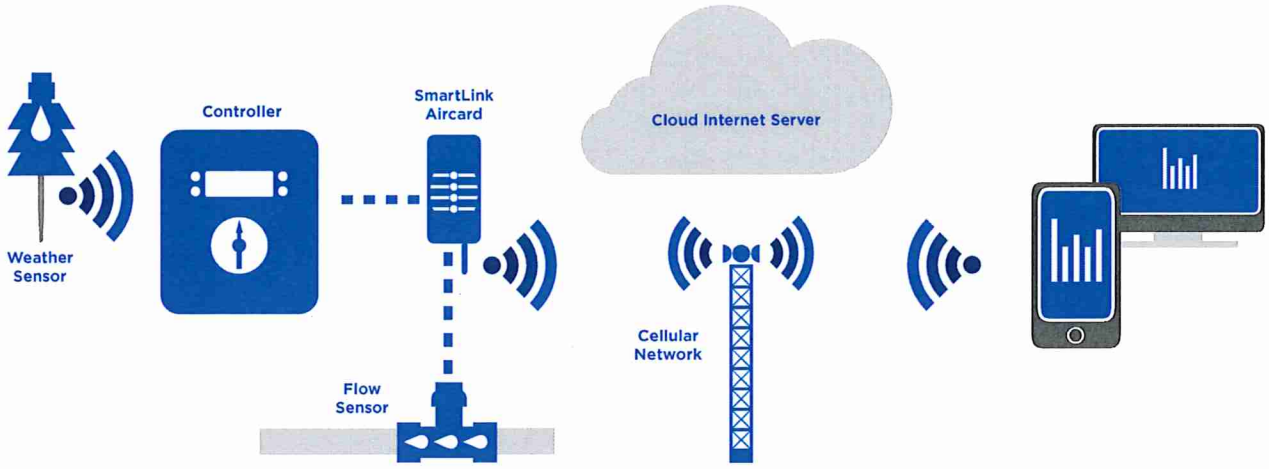
Having mobile access using your tablets or smartphones means you're able to respond faster than before. Customers appreciate it, and water is saved in the process.

Reliable cellular networks ensure the connection is stable and our hosted cloud-servers ensure that your controllers are available when you need it.

Weathermatic®
Water Conserving Innovation

weathermatic.com

HOW IT WORKS



Irrigate from **Anywhere** with SmartLink™

Affordable Web-Based Control

Unlimited data and accounts for pennies a day.

Inspection Reporting

Evaluate, record, and export a report for your customers.

Cloud Back-up

Retains time, date and program and does not require batteries. Complies with city ordinances.

Mobile Access

Available on tablets or smartphones. Change controller setting off site.

Powerful Flow Management

The SmartLink Flow Sensor enables high and low flow shutdowns, email notification, and water use reports.

Reports & Alerts

Know before they do. Receive alerts via email. Web-Based reporting provides historical water use and overlays high and low temperature.

Automatic Updates

New features are automatically added as they become available.

Unlimited Sites

Manage sites with multiple controllers, from anywhere.

Labor Saver

Eliminating the need to send someone to a property.

SmartLine Controller

- Installed at more than 350,000 properties, water savings averaging 38%
- Weather-based watering option that auto-adjusts every day, based on temperature, and precipitation
- Accounts for location, soil type, plant type, sprinkler type, and degree of slope, to optimize water efficiency, resulting in beautiful landscapes
- Complies with local water restrictions by enabling you to Omit Days

SLW5 Weather Sensor

- Records and processes weather data to establish auto-adjust run times
- Installs quickly, no wires, communicates to the controller from up to 1,500ft away
- Extended rain delay feature prevents system from watering after rain, waiting until there is a moisture deficit
- Prevents watering in freezing conditions. No more icy parking lots

SmartLink Flow Sensors

- Consistent measurement and performance
- Web-based control means you can learn, measure, monitor, and manage flow
- Smart electronics provides better signal filtering and conditioning

SmartLink Aircards

- The SmartLink Aircard and SmartLink Aircard Flow are the gateway to the SmartLink Network
- Manages communication between your SmartLine Controller and the Internet using reliable cellular connections
- Securely links your SmartLine controller to our cloud-based servers for web-enabled control and connectivity

SmartLink Web Application

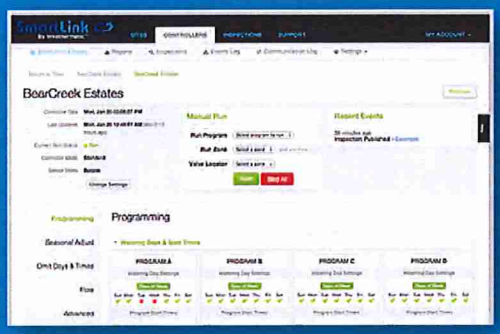
- Program your SmartLine or ProLine controller with a simple web interface
- Turn on and off multiple controllers remotely from any Internet connection
- Receive water savings reports and system alerts
- Manage your system from any computer, web-enabled tablet or smartphone

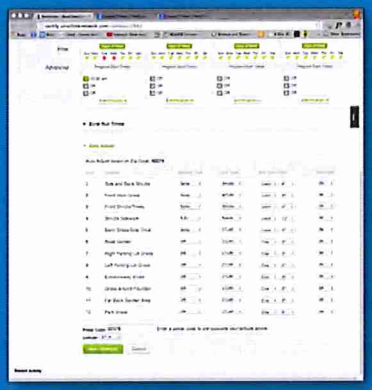
SmartLink®
Wireless Landscape Network

SmartLink WEB USER EXPERIENCE

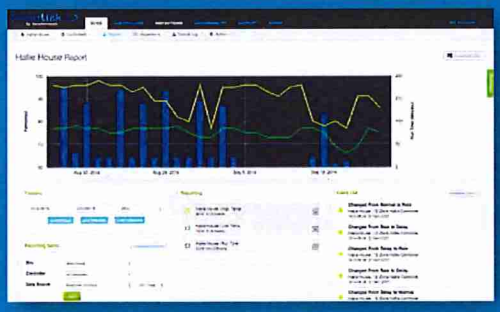
Accessing your Controller is as Easy as Accessing the Web

The SmartLink user interface is intended to make activating and programming your irrigation controllers incredibly simple. Appreciate the ease of use that saves time on programming and helps respond to customer requests or weather related events. Manage hundreds of sites, send global commands and copy programs to save significant time and expense.

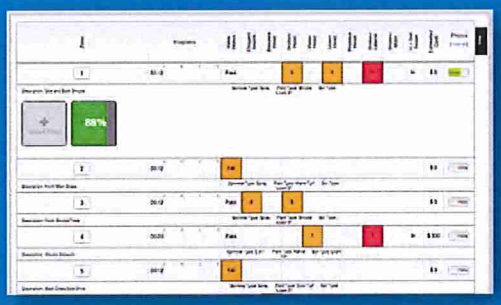




Advanced programming features at your finger tips.



Powerful reporting features for flow and weather by zone so you can share with your customers.



The inspection reporting feature enables you to record repairs needed and share with customers.

"Customers don't hesitate when they find out they'll save 20 to 50 percent on their water bills and that the system will pay for itself in 12 to 18 months."

Tom Raden
Irrigation Professional
Las Vegas, Nevada

Weathermatic Headquarters
3301 W. Kingsley Rd.
Garland, TX 75041
1-888-484-3776

www.smartlinknetwork.com

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Technical Specifications
SMARTLINE SOLAR48

FEATURES

- Converts SmartLine to a totally "portable" water management system using proven solar technology
- The SmartLine controller paired with the SLW weather station is SWAT tested and EPA Watersense certified: Smart Irrigation, Smart Power
- Green power source using 100% renewable energy
- SmartLine Solar uses industry standard 24VAC valves, which outperform debris-prone latching solenoids required with battery operated systems
- Patented system diagnostics include Volt meter, Amp meter and Valve Locator
- LCD display indicates battery and solar power condition
- Dual deep cycle solar batteries provide up to 7 days of operation with no solar charge
- State of the art Solar Charge Technology (SCT) prolongs battery life and protects batteries from over charge and assures a full charge
- Heavy-duty 16-gauge stainless steel enclosure for secure installation
- Easy conversion from solar to standard AC grid power allowing for early stage construction of landscape in new or phased-in projects
- Comes pre-wired and ready to install with:
  - SmartLine controller with all modules
  - Stainless steel enclosure
  - Two industrial-grade solar panels
  - Two solar batteries
  - Four-digit digital meter
  - Circuit breakers
  - Wiring harnesses and cables

SmartLine Solar Controller	
Model	**Description**
SLSOLAR48	48 Zone Solar Conventional-Wire Controller

Weathermatic™
Water Conserving Innovation
3301 W. Kingsley Road
Garland, Texas 75041-2207
888-484-3776 Fax: 972-271-5710
www.weathermatic.com

Weathermatic™
Water Conserving Innovation

Technical Specifications
SMARTLINE SOLAR48

SMARTLINE CONTROLLER

- Large backlit LCD display
- Nonvolatile memory and real time clock/calendar to retain programs and current date and time even if solar batteries lose their charge
- 2 run modes: Standard mode runs user input zone run times; Auto Adjust mode requires SLW Series On-Site Weather Station to calculate weather based run times
- 4 programs: A, B, C; program D can operate concurrently
- 8 start times per program
- Zone run times from 1 min. to 9 hrs. 55 min. with operation countdown displayed in hours, minutes, and seconds
- Watering day selections of custom days of the week, odd/even, or interval days (1 – 30 days)
- Omit settings: omit time of day window, omit day(s) of week, and omit up to 7 calendar dates

SOLAR DIGITAL METER

- Four-digit digital meter displays voltage, current, temperature, logged data, settings, alarms and error reporting.
- Additional displayed information includes battery level, amp hours, and battery operating state
- 3-button menu navigation with custom icons and back lighting
- Automatic circuit protection against faults and user mistakes such as short circuit, overload, high temperature and low voltage disconnect

SOLAR PANELS

Two 24" x 36" Industrial-rated Solar Panels

- Low iron High-transmission 3.2mm tempered impact resistant glass.
- Clear anodized extruded aluminum frame
- 36 EVA encapsulated solar cells bonded to a TPT/TPE Tedlar backsheet.

SOLAR BATTERIES

Two 12-volt GEL maintenance free deep cycle solar GEL batteries

- High purity lead calcium-tin alloy charging grid
- Non-spillable
- Combination reaction (recombinant battery) which prevents escape of hydrogen and oxygen gases.
- Electrical
  - Nominal Voltage: 12V
  - Amp Hour Capacity @ 20 hr rate: 97.6 a/h

STAINLESS STEEL ENCLOSURE

- 16-gauge stainless steel construction with brushed finish
- 2-part cabinet and pedestal mount model
- Filtered louvers for ventilation
- Cam style keylock
- Weather-resistant
- NEMA TYPE 3R rated with SmartLine controller installed
- SLPED-ENC CABINET Dimensions – *19½" W x 19½" H x 9" D (49,53 cm x 49,53 cm x 22,86 cm)*
- SLPED-ENC BASE Dimensions – *19 ¾" W x 24" H x 15" D (50,17 cm x 60,96 cm x 38,1 cm)*

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Technical Specifications
SMARTLINE SOLAR48

CONTROLLER(S) shall be model SL4800 as manufactured by Weathermatic Sprinkler Division of Telsco Industries. Controller(s) shall be a four (4) program controller with hot swappable 12-zone modules to allow expansion to 48 zones.

OPERATION: Controller shall be capable of standard timed watering or auto adjust watering times when equipped with an optional SLW weather monitor manufactured by Weathermatic. Auto Adjust watering shall be based on real time, on-site weather data and system audit data entered by the user. Auto adjust timing shall be based on the Hargreaves ET calculation formula. Controller shall provide reviewable watering deficits, scheduled run times by zone and a total run time recap for each zone which is resettable by the user. A more or less function shall be provided to allow run time adjustment by zone for shade/sunlight, system efficiency and other local factors. Auto adjust mode shall also include automatic calculation of run/soak times based on both soil type and zone elevation.

Each program shall have eight independent start times, calendar schedules, watering budgets by month and a soak/cycle for varying soil percolation rates.

Controller shall have a pump start/master valve position which shall be programmable to operate on demand from any selected zone. A programmable safety delay shall be included for zone to zone delay and master valve to zone delay for opening and closure.

Controller shall have input for rain and freeze sensor devices. Use of the optional SLW weather monitor shall incorporate the rain and freeze shutdown functions and shall incorporate a 48 hour delay after closure of the rain sense switch.

Controller shall have self-diagnostic capabilities to detect "short" or "open" zones and the ability to display lists of faults on an LCD display for the user. Diagnostics shall also include LCD display of volt/amp readings by zone and for transformer output as well as backup battery reading. A chatter function shall also be provided to assist in locating buried valves. The controller shall automatically prevent master valve opening or pump start when the valve locator diagnostic is used.

Display shall be backlit for clear viewing in all lighting conditions. Zone timing shall be settable from 1 minute to 9 hours and 55 minutes.

Program D shall operate concurrently with programs A, B and C. Programs A, B and C shall stack in sequence of start time operation.

Program schedules shall include options for days of the week, odd date, even date or an interval of 1 to 30 days. A 'no water' window shall be available to inhibit daily operations of a program between two selected times on a given day; omission of up to 7 specified calendar dates or specific days of the week. Adjustments for leap year shall be automatic.

Manual operation shall be provided by program, by station, or on a programmable test program with durations from ten (10) seconds to ten (10) minutes. The programmable test program shall also check for short and open conditions on each zone each time it is run.

Non-volatile memory shall retain all programming and real-time clock shall be provided to maintain date and time.

CONSTRUCTION: Controller shall be enclosed in a U.L., CE and C-Mark Listed rainproof plastic enclosure with optional key lock. The enclosure shall be rated for outdoor or indoor use. Enclosure shall be a wall mount (pedestal mount) model with removable knockouts on the lower side and back of the housing for choice of wiring location. The operating panel shall be a totally enclosed module that is removable from the housing for programming at a separate location. A test post for 24V a.c. operation shall be accessible with or without the operating panel. Zone modules (SLM12) shall be self-contained modules that can be installed without turning off power to the unit and programming of new zones shall not be required. Module wiring connections shall be of the type that allows insertion of solid wires without any tool. Each module shall contain its own surge protection.

ELECTRIC: Controller shall be completely electric in operation. Controller shall be installed and wired in accordance with manufacturer's published instructions. Controller shall be capable of operating from an independent power supply. Primary shall be 115V a.c. 60hz or 230V, 50hz.

SOLAR BATTERY ASSEMBLY shall be model SOLARBATT-48 as assembled by Weathermatic Sprinkler Division of Telsco Industries, or approved equal.

CONSTRUCTION: SOLARBATT-48 shall be an American made GEL maintenance free deep cycle battery. The GEL battery case shall be a shock absorbent thick wall polypropylene. The charging grid shall be a high purity lead calcium-tin alloy. The battery shall be non-spillable and be a recombination reaction (recombinant battery) which prevents escape of hydrogen and oxygen gases. The battery may be operated in virtually any position except upside-down.

ELECTRIC: SOLARBATT-48 shall have the following electrical specifications:
Nominal Voltage: 12V; Amp Hour Capacity @ 20 hr rate: 97.6 a/h; Reserve Capacity @ 25 amp discharge rate: 190 mins; BCI Group Size: 30H; Terminal Type: dual terminal

SOLAR CHARGE CONTROL BOX ASSEMBLY shall be model SOLARCHG as assembled by Weathermatic Sprinkler Division of Telsco Industries, or approved equal. SOLARCHG shall consist of a digital meter, voltage inverter, and fuse box.

Weathermatic™
Water Conserving Innovation

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Garland, Texas 75041-2207
888-484-3776 Fax: 972-271-5710
www.weathermatic.com

Weathermatic™
Water Conserving Innovation

Technical Specifications
SMARTLINE SOLAR48

OPERATION: The SOLARCHG digital meter shall be a universal, four digit display with custom icons that is compatible with several Morningstar controllers and inverters. The digital meter shall display voltage, current, temperature, logged data, settings, alarms and error reporting. The digital meter shall display this data as present, cumulative and maximums/minimums measurements. The digital meter shall also display battery level and operating state. The digital meter's icons and units indicators shall be displayed to indicate whether the numerical information relates to solar, load, battery 1 or 2, options, errors or self-test. The digital meter shall have three soft buttons to allow for navigation of the meter menus. The unit shall also have custom icons and back lighting. The digital meter shall be designed for low self-consumption to avoid draining the system batteries. Self-consumption shall be 6 mA with
backlight off and 15 mA with backlight on. The temperature may be displayed in either °C or °F, the backlight timer may be adjusted for desired running time and the amp-hours and minimum/maximum values may be reset.

The SOLARCHG voltage inverter shall be a pure sine wave inverter designed specifically for electrification requiring AC power using solar. The pure sine wave design shall provide an AC equivalent to grid power. The unit shall utilize a toroidal transformer design to generate a stable wave form throughout the range of input voltages. The voltage inverter shall handle a 200% surge during load start-up to a maximum of 600 watts. Self-consumption shall be 450mA while powering loads and automatically powers down to stand-by mode during no load conditions. The unit shall have electronic protections that will automatically protect against faults and user mistakes such as short circuit, overload, high temperature and low voltage disconnect. Recovery from most faults shall be automatic.

SOLAR PANELS shall be model SOLARPAN-50 as assembled by Weathermatic Sprinkler Division of Telsco Industries, or approved equal.

CONSTRUCTION: SOLARPAN-50 shall be high quality industrial solar modules that have a low iron High-transmission 3.2mm tempered glass front that is impact resistant. The panel frames shall be constructed from clear anodized extruded aluminum. The units shall have pre-drilled holes for easy mounting to mounting frame. Each panel shall have TPT/TPE Tedlar backsheet. The solar cells shall be encapsulated in EVA and bonded to the Tedlar backsheet. Each panel unit shall consist of 36 solar cells that are connected in series. A weather proof junction box shall be mounted to each panel to allow for connection with a waterproof strain relief connectors and conduits or weather resistant output cables.

STAINLESS STEEL PEDESTAL ENCLOSURE shall be model SLPED-ENC as manufactured by Weathermatic Sprinkler Division of Telsco Industries

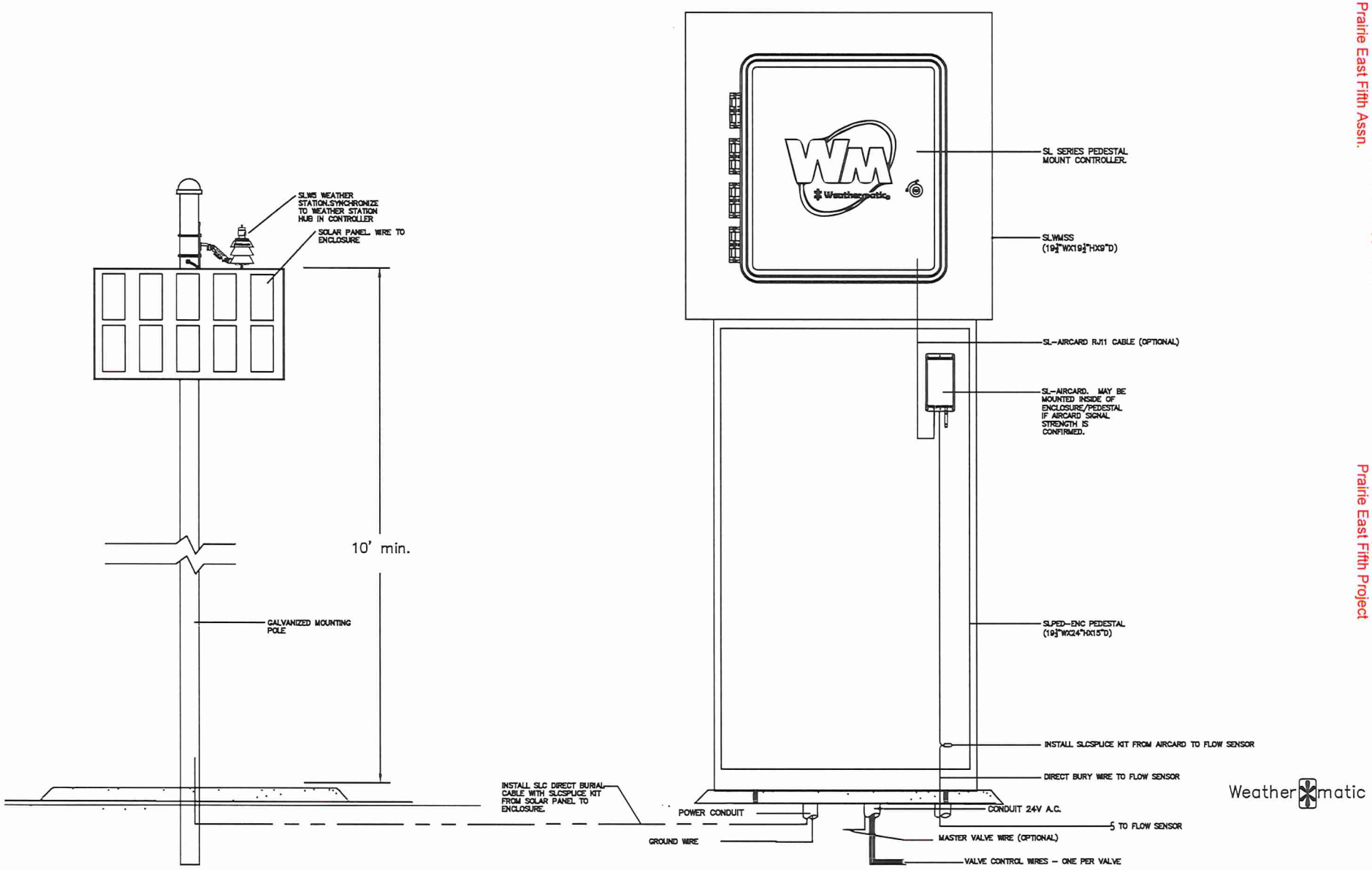
CONSTRUCTION: Pedestal enclosure shall be fabricated from 16-gauge stainless steel with a brushed finish. The enclosure shall be NEMA type 3R rated weather-resistant with filtered side louvers for cross-ventilation. A removable stainless steel door shall be mounted to the front of the enclosure and include a cam style key-lock to restrict access to the enclosure. Enclosure shall measure 19 ¾" wide x 24" high x 15" deep.

The cabinet shall be fabricated from 16-gauge stainless steel with a brushed finish. The cabinet shall be NEMA type 3R rated weather-resistant. A removable stainless steel door shall be mounted to the front of the cabinet and include a cam style key-lock to restrict access to the cabinet. The cabinet shall measure 19 ½" wide x 19 ½" high x 9" deep.

WARRANTY:
SLSOLAR48 – 2-Years

Weathermatic™
Water Conserving Innovation

3301 W. Kingsley Road
Garland, Texas 75041-2207
888-484-3776 Fax: 972-271-5710
www.weathermatic.com



SL4800 IN SLPED-ENC ENCLOSURE W/SLW5 & AIRCARD W/FLOW & SOLAR

NOT TO SCALE

Weather matic

SmartLine® Controllers
SL4800

SL4800 CONTROLLER(S) shall be model SL4800 as manufactured by Weathermatic Sprinkler Division of Telsco Industries, or approved equal. Controller(s) shall be a four (4) program controller with hot swappable 12-zone modules to allow expansion to 48 zones.

OPERATION: Controller shall be capable of standard timed watering or auto adjust watering times when equipped with an optional SLW weather monitor manufactured by Weathermatic. Auto Adjust watering shall be based on real time, on-site weather data and system audit data entered by the user. Auto adjust timing shall be based on the Hargreaves ET calculation formula. Controller shall provide reviewable watering deficits, scheduled run times by zone and a total run time recap for each zone which is resettable by the user. A more or less function shall be provided to allow run time adjustment by zone for shade/sunlight, system efficiency and other local factors. Auto adjust mode shall also include automatic calculation of run/soak times based on both soil type and zone elevation.

Each program shall have eight independent start times, calendar schedules, watering budgets by month and a soak/cycle for varying soil percolation rates.

Controller shall have a pump start/master valve position which shall be programmable to operate on demand from any selected zone. A programmable safety delay shall be included for zone to zone delay and master valve to zone delay for opening and closure.

Controller shall have input for rain and freeze sensor devices. Use of the optional SLW weather monitor shall incorporate the rain and freeze shutdown functions and shall incorporate a 48 hour delay after closure of the rain sense switch.

Controller shall have self-diagnostic capabilities to detect "short" or "open" zones and the ability to display lists of faults on an LCD display for the user. Diagnostics shall also include LCD display of volt/amp readings by zone and for transformer output as well as backup battery reading. A chatter function shall also be provided to assist in locating buried valves. The controller shall automatically prevent master valve opening or pump start when the valve locator diagnostic is used.

Display shall be backlit for clear viewing in all lighting conditions. Zone timing shall be settable from 1 minute to 9 hours and 55 minutes.

Program D shall operate concurrently with programs A, B and C. Programs A, B and C shall stack in sequence of start time operation.

Program schedules shall include options for days of the week, odd date, even date or an interval of 1 to 30 days. A 'no water' window shall be available to inhibit daily operations of a program between two selected times on a given day; omission of up to 7 specified calendar dates or specific days of the week. Adjustments for leap year shall be automatic.

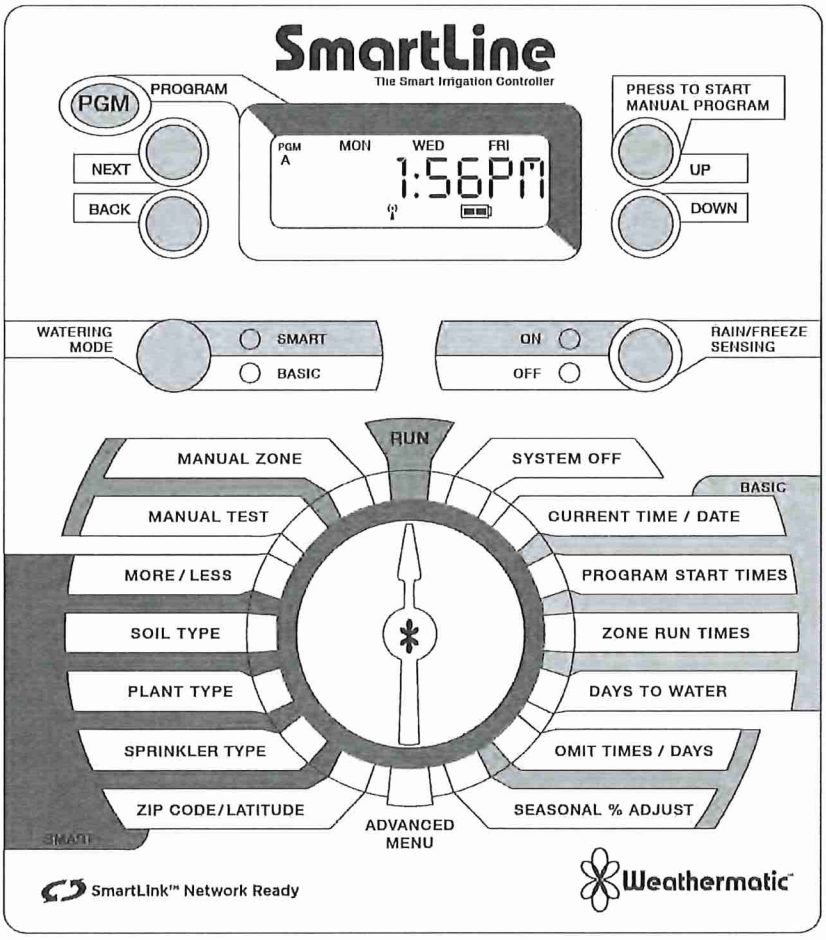
Manual operation shall be provided by program, by station, or on a programmable test program with durations from ten (10) seconds to ten (10) minutes. The programmable test program shall also check for short and open conditions on each zone each time it is run.

Non-volatile memory shall retain all programming and real-time clock shall be provided to maintain date and time.

CONSTRUCTION: Controller shall be enclosed in a U.L., CE and C-Mark Listed rainproof plastic enclosure with optional key lock. The enclosure shall be rated for outdoor or indoor use. Enclosure shall be a wall mount (pedestal mount) model with removable knockouts on the lower side and back of the housing for choice of wiring location. The operating panel shall be a totally enclosed module that is removable from the housing for programming at a separate location. A test post for 24V a.c. operation shall be accessible with or without the operating panel. Zone modules (SLM4) shall be self-contained modules that can be installed without turning off power to the unit and programming of new zones shall not be required. Module wiring connections shall be of the type that allows insertion of solid wires without any tool. Each module shall contain its own surge protection.

ELECTRIC: Controller shall be completely electric in operation. Controller shall be installed and wired in accordance with manufacturer's published instructions. Controller shall be capable of operating from an independent power supply. Primary shall be 115V a.c. 60hz or 230V, 50hz.

WARRANTY: Controller shall have a manufacturer's limited warranty of three (3) years.



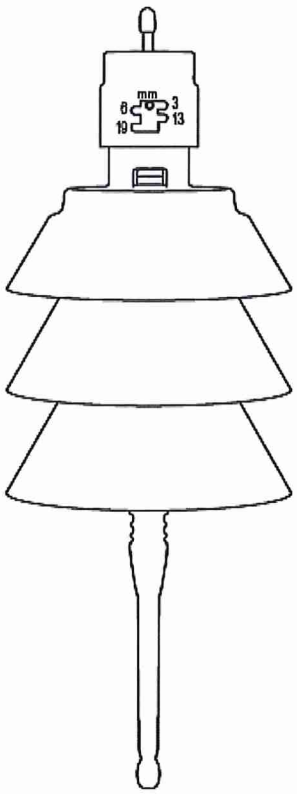
SmartLine® Weather Stations
SLW5

WEATHER STATION(S) shall be model SLW5 manufactured by Weathermatic Sprinkler Division of Telsco Industries. Weather stations must be compatible for use with SmartLine irrigation controls.

CONSTRUCTION: Weather station shall be wireless in design using bi-directional communication. Weather station shall have integrated on-site sensors for rain-shut off, freeze shut-off and calculation of daily evapotranspiration irrigation deficits. Weather station shall have an integral mounting bracket with a two-point articulating arm made from high-impact molded resin. Weather station shall be suitable for outdoor mounting in light-commercial or residential environments. Weather station shall be capable of two-way communications with the SmartLine controls and have independent power supply, self-diagnostic circuit and microprocessor.

OPERATION: Weather stations rain sensor shall be adjustable to interrupt irrigation after a user selected precipitation amount of 1/8th", 1/4" or 1/2". Weather station shall be capable of interrupting irrigation after temperatures reach below 37 degrees Fahrenheit. Weather station shall provide instant notification to the controller of either a rain or freeze event and upon clearing of the same. Evapotranspiration deficits shall be calculated daily and transferred to the SmartLine controller each day.

WARRANTY: Weather station shall have a manufacturer's limited warranty of two (2) years.



SmartLink™
Wireless Landscape Network

SMARTLINK: **s**hall be model SL-AIRCARD1 as manufactured by Weathermatic Sprinkler Division of Telsco Industries. SL-AIRCARD1 is comprised of the SL-AIRCARD and SL-PLAN1for 1 year of service. Additional plans are available in 2, 3, 4, 5 and 10 year packages. Optional package to be available with flow monitoring.

CONSTRUCTION**:** SL-AIRCARD shall be housed in an indoor/outdoor housing. It shall incorporate an L.E.D. visible externally to indicate operating conditions of the SL-AIRCARD. The SL-AIRCARD shall be connected to the SmartLine Control, as manufactured by Weathermatic, through a cable from the SL-AIRCARD terminating in the SmartLine Control with the use of a plug-in RJ11 connector.

OPERATION: **SL-AIRCARD** communications protocol will be cellular (either GSM or CDMA) allowing connection through secure web based servers to smartlinknetwork.com.

SmartLink will not require software to be installed locally on a web-enabled appliance. Connection to SmartLink through the web will be through a web-enabled appliance such as a PC, Smart Phone, Tablet, etc.

SmartLink will not require software to be installed locally on a web-enabled appliance. User access to smartlinknetwork.com has password secured access to the users account.

Security to the account with access to individual sites and controllers is defined by the account administrator.

Each account will have the capability of unlimited users, sites and controllers.

At the controller page of SmartLink, the web user will be able to review, change or establish all programs available in the SmartLine Controller.

User defined names for Sites, Controllers, and individual zones will be available.

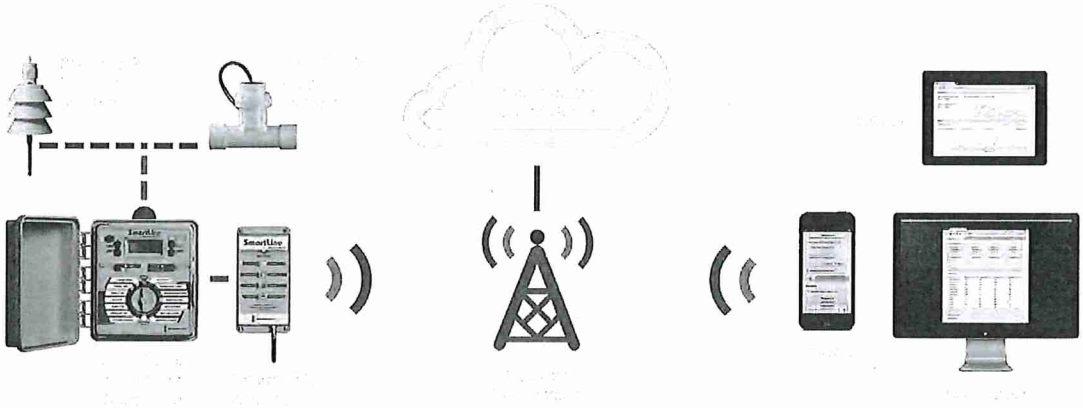
System/Controller/zone alerts will be sent to prescribed user by text or e-mail.

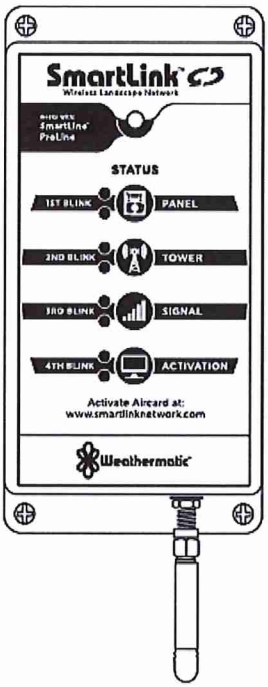
SmartLink will be enabled with Global Commands for complete/partial system control.

SmartLink will be enabled with AT-A-Glance Dashboard for easy review of SmartLine Controller parameters and manual watering operations.

WARRANTY: **SL-AIRCARD** shall have a manufacturer's limited warranty of two (2) years. Optional Extended Warranty is to be available.

Weathermatic™
Water Conserving Innovation





SmartLink® Flow Sensors
SLFSI-T or SLFSI-S

FLOW SENSOR(S) shall be model SLFSL-T or SLFSL-S manufactured by Creative Sensor Technology, Incorporated of Rochester, Massachusetts. The Model number shall include the Series designation followed by a three character group beginning with T (Tee Mounted) or S (Saddle Mounted) and followed by a two digit code referencing line size followed by a three digit electronic version designator. Therefore, the model number for a one inch size flow sensor with standard electronics would be written as: FSI-T10. Flow sensors must be compatible for use with SmartLine irrigation controls.

CONSTRUCTION: The flow sensor shall consist of a custom molded tee or saddle configured shaped body with socket ends conforming to PVC pipe dimensions, a flow sensor housing containing the electronic circuitry and carrying the spinning impeller and a retaining nut.

The meter body shall be an in line type available in 1", 1 1/2", 2", 3" and 4" pipe sizes, molded from Rigid Polyvinyl Chloride material – color white (Tee Mounted) or color grey (Saddle Mounted) - conforming to ASTM D-1784, Cell Class 12454.

The 4 blade impeller (paddle wheel) shall be the only moving part.

The impeller shall be molded of HDPE (High Density Polyethylene) incorporating an integral bearing. The shaft material shall be tungsten carbide. These two items are considered wear items and shall be replaceable in the field without special tools.

The electronics housing, molded from the same material as the body shall be held in place with a single ACME threaded PVC retaining nut held captive by the wire leads. The housing will be sealed with one BUNA N O-Ring and shall be easily removed from the meter body. The electronics housing and tee body shall feature direction of flow arrows to assist in assembly.

The sensor electronics will be epoxy-sealed and fitted with 2 single conductors solid copper U.L. listed #18 AWG leads with direct burial insulation 48 inch in length extending from the top of the sensor. The positive (+) lead shall have red insulation and the negative (-) lead shall have black insulation.

The housing and mounting tee are custom molded to form an integrated measurement chamber resulting in highly accurate, repeatable flow measurements through a wide range of velocities.

The flow sensor shall be designed to schedule 40 specifications and have a tested working pressure of 240 psi @ 73°F (23°C). Maximum working temperature is 140°F (60°C).

The sensor flow range shall be 0.25 to 15 FPS.

The Product Serial Number shall be printed on shrink tubing and attached to the wire leads as they exit the top of the electronics housing.

The Product Model Number shall be printed on shrink tubing and attached to the wire leads above the Product Serial Number.

INSTALLATION and OPERATION: The flow sensor shall be installed with a minimum of 10 diameters of straight pipe upstream, and a minimum of 5 diameters of straight pipe downstream to eliminate irregular flow profiles caused by valves, fittings or pipe bends.

The flow senor shall be installed a valve box or meter pit of sufficient size to provide access to the flow sensor for service.

The installed sensor shall require a minimum clearance of approximately 4 inches (100 mm) above sensor for removal of the electronics housing.

Watertight Wire connections shall be made in the valve box using industry accepted methods and sealing products.

The maximum wire run between flow sensor and the controller shall be 2,000 feet if a 20/2 twisted pair shielded cable is used.

ELECTRICAL SPECIFICATIONS: The flow senor shall have an output Frequency Range of 0.3 Hz to 200 Hz.

The flow sensor shall output a minimum of a 5-millisecond low pulse at low frequencies and reverts to approximately a square wave above 100 Hz.

Quiescent current 600 uA@8 VDC to 35 VDC max.

On State (VLow) = Max. 1.2 VDC@50mA max.

WARRANTY: Flow sensors shall have a manufacturer's limited warranty of five (5) years.

SmartLine® Solar Assembly
SLSOLAR48

SOLAR BATTERY ASSEMBLY shall be model SOLARBATT-48 as assembled by Weathermatic Sprinkler Division of Telsco Industries, or approved equal.

CONSTRUCTION: SOLARBATT-48 shall be an American made GEL maintenance free deep cycle battery. The GEL battery case shall be a shock absorbent thick wall polypropylene. The charging grid shall be a high purity lead calcium-tin alloy. The battery shall be non-spillable and be a recombination reaction (recombinant battery) which prevents escape of hydrogen and oxygen gases. The battery may be operated in virtually any position except upside-down.

ELECTRIC: SOLARBATT-48 shall have the following electrical specifications:
Nominal Voltage: 12V
Amp Hour Capacity @ 20 hr rate: 97.6 a/h
Reserve Capacity @ 25 amp discharge rate: 190 mins
BCI Group Size: 30H
Marine Cranking Amps @ 32* F: 640 amps
Cold Cranking Amps @ 0* F: 450 amps
Terminal Type: dual terminal

WARRANTY: SOLARBATT-48 shall have a manufacturer's limited warranty of one (1) year.

SOLAR CHARGE CONTROL BOX ASSEMBLY shall be model SOLARCHG as assembled by Weathermatic Sprinkler Division of Telsco Industries, or approved equal. SOLARCHG shall consist of a digital meter, voltage inverter, and fuse box.

OPERATION: The SOLARCHG digital meter shall be a universal, four digit display with custom icons that is compatible with several Morningstar controllers and inverters. The digital meter shall display voltage, current, temperature, logged data, settings, alarms and error reporting. The digital meter shall display this data as present, cumulative and maximums/minimums measurements. The digital meter shall also display battery level and operating state. The digital meter's icons and units indicators shall be displayed to indicate whether the numerical information relates to solar, load, battery 1 or 2, options, errors or self-test. The digital meter shall have three soft buttons to allow for navigation of the meter menus. The unit shall also have custom icons and back lighting. The digital meter shall be designed for low self-consumption to avoid draining the system batteries. Self-consumption shall be 6 mA with backlight off and 15 mA with backlight on. The temperature may be displayed in either °C or °F, the backlight timer may be adjusted for desired running time and the amp-hours and minimum/maximum values may be reset.

The SOLARCHG voltage inverter shall be a pure sine wave inverter designed specifically for electrification requiring AC power using solar. The pure sine wave design shall provide an AC equivalent to grid power. The unit shall utilize a toroidal transformer design to generate a stable wave form throughout the range of input voltages. The voltage inverter shall handle a 200% surge during load start-up to a maximum of 600 watts. Self-consumption shall be 450mA while powering loads and automatically powers down to stand-by mode during no load conditions. The unit shall have electronic protections that will automatically protect against faults and user mistakes such as short circuit, overload, high temperature and low voltage disconnect. Recovery from most faults shall be automatic.

WARRANTY: SOLARCHG shall have a manufacturer's limited warranty of one (1) year.

SOLAR PANELS shall be model SOLARPAN-50 as assembled by Weathermatic Sprinkler Division of Telsco Industries, or approved equal.

CONSTRUCTION: SOLARPAN-50 shall be high quality industrial solar modules that have a low iron High-transmission 3.2mm tempered glass front that is impact resistant. The panel frames shall be constructed from clear anodized extruded aluminum. The units shall have pre-drilled holes for easy mounting to mounting frame. Each panel shall have TPT/TPE Tedlar backsheet. The solar cells shall be encapsulated in EVA and bonded to the Tedlar backsheet. Each panel unit shall consist of 36 solar cells that are connected in series. A weather proof junction box shall be mounted to each panel to allow for connection with a waterproof strain relief connectors and conduits or weather resistant output cables.

City of Woodbury

Nathan Landwehr
Environmental Science, Policy and Management
University of Minnesota Twin Cities

Organization Background

The City of Woodbury is a suburb in the southeastern Twin Cities Metro Area. Established in 1967, Woodbury is the largest city in Washington County and the 9th largest city in the state, with 67,855 residents as of 2015. Woodbury prides itself on its water conservation goals and is striving to mitigate increasing water demands as a result of a steadily increasing population.

"This internship gave me an excellent opportunity to make a positive impact on a thriving and progressive community. I gained valuable experience working in water conservation and irrigation best practices, developed a deepened understanding of city infrastructure, and created meaningful working relationships with the city staff." ~ NL

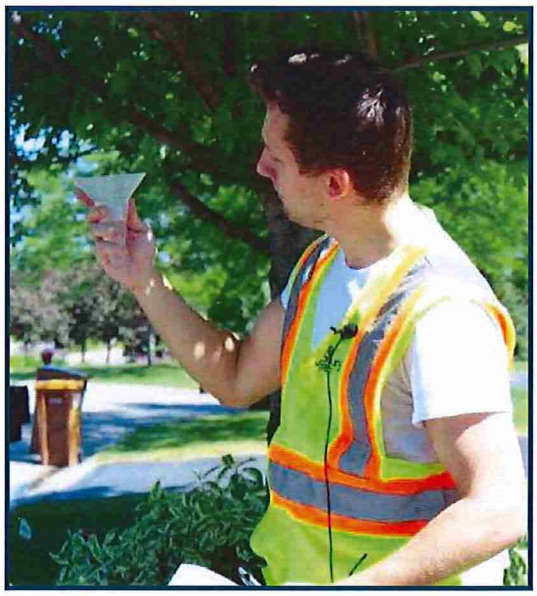
Project Background

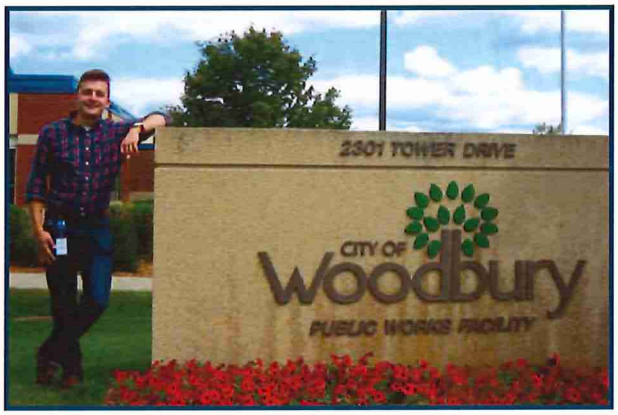
The City of Woodbury established a "Flat Water Use by 2030" goal in 2014 to meet increasing water demands. This means that Woodbury plans to draw only as much water from the aquifer in 2030 as was drawn in 2014. To accomplish this, Woodbury is focusing on implementing water conservation best management practices in all areas of municipal water use. Water used for irrigation represents a significant portion of this total water use during the spring and summer, making it a focus area for improvement. The project is focused on reducing residential irrigation water use, with a goal of developing a pilot program designed to distribute and evaluate the effectiveness of smart irrigation controllers to determine if large-scale distribution of these controllers in the future would be cost-effective.

Incentives To Change

The City of Woodbury pumps water on a peak-demand basis. Currently, the city has 18 wells in operation and is in the process of constructing a 19th well. Evaluation of groundwater use trends shows that current use rates with projected population growth may compromise the long-term sustainability of the Prairie du Chien-Jordan aquifer. As Woodbury grows and water demand increases, more wells may need to be built to meet these demand increases. Building new wells not only represents a substantial cost for the city, but also causes additional strain on the aquifer. Improving water efficiency practices reduces the need to build more wells. Given Woodbury's large and steadily growing population, a significant opportunity exists to optimize water efficiency practices and contribute to sustaining the capacity of the aquifer.

Woodbury manages the municipal water utilities for the majority of properties within the City (private wells were not included in the scope of this project). In addition, Woodbury is responsible for enforcing watering policies. The current policy prohibits residential landscape irrigation of any kind between noon and 5pm





every day and also follows an odd/even structure that only allows odd numbered properties to water on odd calendar days and vice-versa.

SOLUTIONS

The City developed a plan and budget to fully subsidize the purchase and distribution of 100 Rachio IRO 2nd generation smart irrigation controllers to residents that submitted an application and qualified. Qualification was based on objective information on their current irrigation system; this information was used to determine if significant savings could be realized.

Smart irrigation controllers optimize water use in two ways that traditional clock-based controllers cannot. Clock based controllers irrigate on a schedule set by the user. The run times per zone, start times, and dates programmed into the controller are fixed unless changed manually. Smart controllers use advanced scheduling based on lawn characteristics (soil composition, slope of lawn, vegetation, shade, etc.) and also utilize local weather data. Smart controllers automatically skip irrigation if a predetermined precipitation threshold is predicted to be exceeded by a weather forecast. The controller used in this pilot program also estimates water usage and savings.

The first stage of the project involved enrollment of residents and distribution of smart controllers. The city used social media and email notifications to citizen groups connected to city environmental news to inform residents of the opportunity. The intern and city staff developed an application that consisted of a participation agreement with prerequisite criteria, a survey to obtain details about residents' current irrigation system, and additional optional participation methods. Based on the program agreement, residents were responsible for the installation of their new controller.

The second stage involved live-monitoring of water consumption through Rachio's cloud-based technology and conducting irrigation audits to evaluate system performance and calculate water usage. This information was ultimately used to determine total savings. To calculate actual water savings per unit, five irrigation audits were conducted. An irrigation audit is a systematic process of determining the distribution uniformity of each zone in an irrigation system. Distribution uniformity is a measure of how evenly an irrigation system distributes water over a zone. A zone is defined as a section of the irrigated property based on location of sprinkler heads and the area covered. A precipitation rate, or the average output of water by the system, is also determined during an audit. The savings data from the five audits was averaged and extrapolated to estimate the savings for all 100 units.

Continue Purchasing and Distributing Smart Controllers to Qualifying Residents

Based on the audits, clock-based controllers each used approximately 74,490 gallons per year. The average annual savings upon implementing the smart controllers was approximately 37,074 gallons per year each or a 50% savings. It is recommended that Woodbury continue to purchase and distribute smart controllers to realize additional savings. It is also recommended that the city follow up via survey with current pilot program participants in one year to get additional feedback on the controllers and to verify the amount of water saved per household.

	Implementation Cost	Annual Water Savings (Gal)	Annual Cost Savings (Per 100 Residents)	Status
Purchase and distribute smart controllers	$15,000	3,000,000	$2,640	Implemented
Continue to purchase and distribute smart controllers	$15,000	3,000,000	$2,640	Recommended

*Over a 5 month irrigation season

WATER EFFECIENCY PROGRAM – COMMERCIAL IRRIGATION RATE PAYERS

PURPOSE

With the goal of increasing water use efficiency, the City of Woodbury is implementing a cost-share program to support the installation of state-of-the-art irrigation technologies to existing irrigation systems. The following program is designed to provide a structured procedure for the implementation of the water efficiency improvement incentives for those customers paying the commercial irrigation water rate.

PROGRAM

The city will share up to 50 percent of the cost not to exceed $8,000 per metered property over the life of the program to eligible customers seeking to improve the water efficiency of their existing irrigation systems with irrigation optimization technologies receiving prior approval by the City.

Applicants may request funding for the costs of purchasing, installation, and/or maintenance of their existing irrigation system with the intent of improvement to the irrigation system(s) water efficiency. The city will not provide a cost-share for any technologies not deemed appropriate or approved by the city. Selections will be made on a first-come, first-serve basis as well as the proposed project's potential to improve water efficiency. The city's share of the funds will be reimbursed upon verification of purchase, payment for and installation; as well as the completion and submission of all necessary documentation. The city reserves the right to approve, modify, or reject any cost-share proposals as it sees fit.

To receive financial funds as part of the program, commercial irrigation rate paying customers participating in the program must meet the following expectations:

- Provide a scope of work to the City for approval with specific details of proposed water efficiency improvements.
- Receive from the city a letter acknowledging the city's portion of financial commitment to the project and approval to proceed.
- Sign a contract with their irrigation system contractor which outlines in detail the financial cost, the scope of work on the existing irrigation system(s), and timeline for completion.
- Provide a copy of the signed contract and scope of work to the city prior to implementation of the project.
- Pay for all costs for irrigation system upgrade and services provided under the contract.
- Provide proof of payment (paid receipts/canceled checks) to the City for implemented services.
- Complete and return to the city an acknowledgment of receipt of IRS Form W-9
- Complete and return to the city a signed IRS Form W-9
- Agree to verification by the city and/or its subcontractors of performance of scope of work.
- Agree to the city monitoring the water usage for irrigation on the accounts.

- Agree that information gathered under this program (including the commercial irrigation rate payer name) may be used in recommendations to city council, city publications, presentations and the like.

The city will not be responsible for the installation of any equipment or the execution of any system performance audits. In addition, no warranty or guarantee is or will be provided by the city for work completed under this program. Installation is to be handled by the commercial irrigation rate payer or a 3rd party contractor.

Applicant Participation & Cost Share Cap
Metered properties that applications are approved may only participate in the program once a year and properties are capped at $8,000 over the life of the program.

Schedule & Life of the program
The program schedule will be established annually with the program lifespan lasting until December 31, 2021, unless extended by the city council.

Funding
Funding for this program will come from revenues generated from the water utilities accounts and budget will be established on an annual basis for the life of the program.

Application
Applicants must submit an application and signed project agreement to be considered for participation. The Project agreement will detail minimum criteria that must be met for participation in the program.

MEASURES OF SUCCESS
Success for this program is defined broadly as reduced annual irrigation water use as a result of implementing irrigation optimization technologies. The City will evaluate the effectiveness and further define success of the program based on any of the following criteria:

- Average pumping volume reduction taken over 5 years following installation of new technologies
- Number of controller installations
- Number of sensors (rain, soil-moisture, etc.) installed
- Number of replaced sprinkler heads with pressure optimizing heads
- Number of irrigation system wide pressure reducing devices
- Number of irrigation audits conducted
- Number of replacements/additions not otherwise listed.

Water savings are dependent on the type of technology, the use of each technology, and the system to which the technology is applied.

WATER EFFICIENCY INCENTIVE PROGRAM – RESIDENTIAL IRRIGATION CONTROLLER PROGRAM

I. PURPOSE

With the goal of increasing water use efficiency, the City of Woodbury is implementing an incentive program to support the installation of WaterSense certified smart irrigation controllers to existing irrigation systems on residential lots, under the Council Directive Water Efficiency Incentive Program (CD-ENGPW-4.11). The following program is designed to provide a structured procedure for the implementation of the water efficiency incentive program for residential water customers.

II. PROGRAM

The City will purchase WaterSense certified smart irrigation controllers in bulk, promote the opportunity to residents with existing irrigation systems on their properties connected to city-water, and distribute to participants on a first come, first served basis. The city may add a participation fee.

Applicants must have existing irrigation systems installed in 2017 or earlier. Households that participated in a previous pilot program are not eligible for participation in the Water Efficiency Incentive Program- Residential Irrigation Controller Program. The city reserves the right to approve or reject any applicants as it sees fit. If not accepted into the program in a given year, eligible residents will be placed on a waiting list and contacted in future iterations of the program.

Those interested must complete the online application, receive notice of acceptance from city staff, and pick up their controller in the given timeframes and locations. Participants are solely responsible for controller installation and must send a photo verifying installation to city staff within two weeks of pick up unless an extension is approved. Participants will be surveyed occasionally to inform decisions of future program years. All participating homes will be added to annual monitoring efforts, analyzed in summary form only.

The city will not be responsible for the installation of any equipment. In addition, no warranty or guarantee is or will be provided by the city for work completed under this program. Installation is to be handled by the homeowner.

A. Applicant Participation & Fee
Controllers will be purchased in bulk from budgeted funds out of the water utility fund. Participants may be charged a small fee at time of pick up (less than 50% of total cost of controller), collected funds are subjected to taxes and will be returned to the utility fund general account to be used further in this program or similar water efficiency programming.

B. Schedule & Life of the program
The program schedule will be established annually with the program lifespan lasting through 2028, with possibility of extension by the City Council.

C. Funding
Funding for this program will come from revenues generated from the Water Utility Fund and the budget will be established on an annual basis for the life of the program.

D. Application
Applicants must submit an application to be considered for participation. By picking up a controller, participants consent to program details emailed to them in the form of an acceptance notification.

III. MEASURES OF SUCCESS

Success for this program is defined broadly as reduced annual irrigation water use as a result of distributing WaterSense certified irrigation controllers. The City will evaluate the effectiveness and further define success of the program based on any of the following criteria:

- Average pumping volume reduction taken over 5 years following installation of new, smart controllers
- Number of controller installations

Water savings are dependent on the type of technology, the use of each technology, the system to which the technology is applied, and the operation of the technology after installation.

Cost share grant application
2018

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

[redacted]

Applicant type (check one) ☐Homeowner ☐Non-profit - 501(c)(3)
☐Business or corporation ☐Public agency or local government unit ☒School

Project type (check all that apply) ☐Raingarden ☐Vegetated swale ☐Lake/creek/wetland buffer
☐Shoreline/bank stabilization ☐Wetland restoration ☒Pervious hard surface ☐Infiltration basin
☐Conservation practice ☐Other_____

Applicant information [redacted]

Name Eden Prairie Schools/School Distr #272 Address 8100 School Rd.
City/State/Zip Eden Prairie, MN 55344
Phone 952-975-7071 Alt phone_____ Email Jason_Mutzenberger @edenpr.k12.mn.us

Primary contact ☐Same as applicant (leave blank)

Name Jim Anderson Address 8100 School Rd.
City/State/Zip Eden Prairie, MN. 55344
Phone 952-975-7126 Alt phone_____ Email James_Anderson @edenpr.k12.mn.us

Project location

Address 12000 Anderson Lakes Pkwy City/State/Zip Eden Prairie, MN. 55344
Property Identification Number (PID) 23-116-22-13-0002
Property owner(s) School District No. 272 [redacted]

Project summary [redacted]

Title Eden Lake School Outdoor Patio Areas
Total project cost $45,000 Grant amount requested $22500
Estimated start date 8/14/18 Estimated completion date 8/31/18
Sub-watershed Purgatory Creek [redacted]
Is project tributary to a water body? ☐No, water remains on site ☐Yes, indirectly ☒Yes, directly adjacent (Eden Lake then Purgatory Creek)

2-3 sentence project description

Provide two outdoor play & performance areas for Eden Lake school students, and staff, and visiting parents. The areas allow more formal and informal gatherings and outdoor events for students. Porous Pave offers infiltration instead of typical asphalt.

Is this work required as a part of a permit? ☒No ☐Yes
(If yes: describe how the project provides water quality treatment beyond permit requirements on the next page.)

Reference: www.PorousPaveInc.com

Site visit One of the requirements for a complete application is a site visit from district staff.
Have you had a site visit? ☒No ☐Yes
(If you answered no, please contact staff to schedule one: 952-607-6512)

Project details

[redacted]

Checklist To be considered complete the following must be included with the application.

- [x] location map
- [x] site plan & design schematics
- [x] itemized budget or contractor bid
- [x] project time-line
- [x] proof of property ownership
- [ ] plant list & planting plan (if project includes plants)

[redacted]

x General spec
+ Permeability test
x Porosity test

Description

Describe the current site conditions, as well as site history, and past management.

The two areas currently are covered partially in landscape rock and partially in grass surfaces. The areas are within asphalt paths and are not used.

What are the project objectives and expected outcomes? Give any additional project details.

[redacted]

Provide outdoor areas for students to encourage and promote outdoor play and outdoor performances both formally and informally.

List other key participants and their roles

[redacted]

School children - Enjoy outdoor activities in education environment

Teachers - same

Parents/PTA/School Board - same.

Which cost share goals does the project support? (check all that apply)

- [x] Improve watershed resources
- [x] Increase awareness of the vulnerability of watershed resources
- [x] Increase familiarity with and acceptance of solutions to improve waters
- [x] Foster water resource stewardship

How does the project support the goals you checked?

- Promotes active outdoor learning opportunities
- Encourages physically active lifestyle
- Educates on ecology/environment of water resources

Project details (continued)

[redacted]

Benefits Estimate the project benefits in terms of restoration and/or **annual** pollution reduction. If you are working with a designer or contractor, they can provide these numbers. If you need help, contact the district cost share program coordinator.

Benefit	Amount	
Water captured		gal/year
Water infiltrated	47,100	gal/year
Phosphorus removed		lbs/year
Sediment removed		lbs/year
Land restored		ft²

[redacted]

How will you share the project results with your community?

[redacted]

- Educating students & staff on water resource benefits of this product verses typical asphalt.
- Education boards at site partnering with the RPBCWD on promotional environmental benefits
- School district and individual social media opportunities

Are there other projects that could be initiated as a result of this one?

Yes, through other potential sites in the ED school district and through increased awareness of Environmental/water resource/freeze-thaw benefits for stakeholders (parents, teachers/staff) to potentially use on their own projects

Evaluation

How will the project be monitored and evaluated?

- Maintenance staff will monitor for performance throughout seasons
- Staff & students can provide feedback on usage & benefits.
- Usage of spaces before/after can be compared especially usage opportunity later in fall and earlier in spring time.

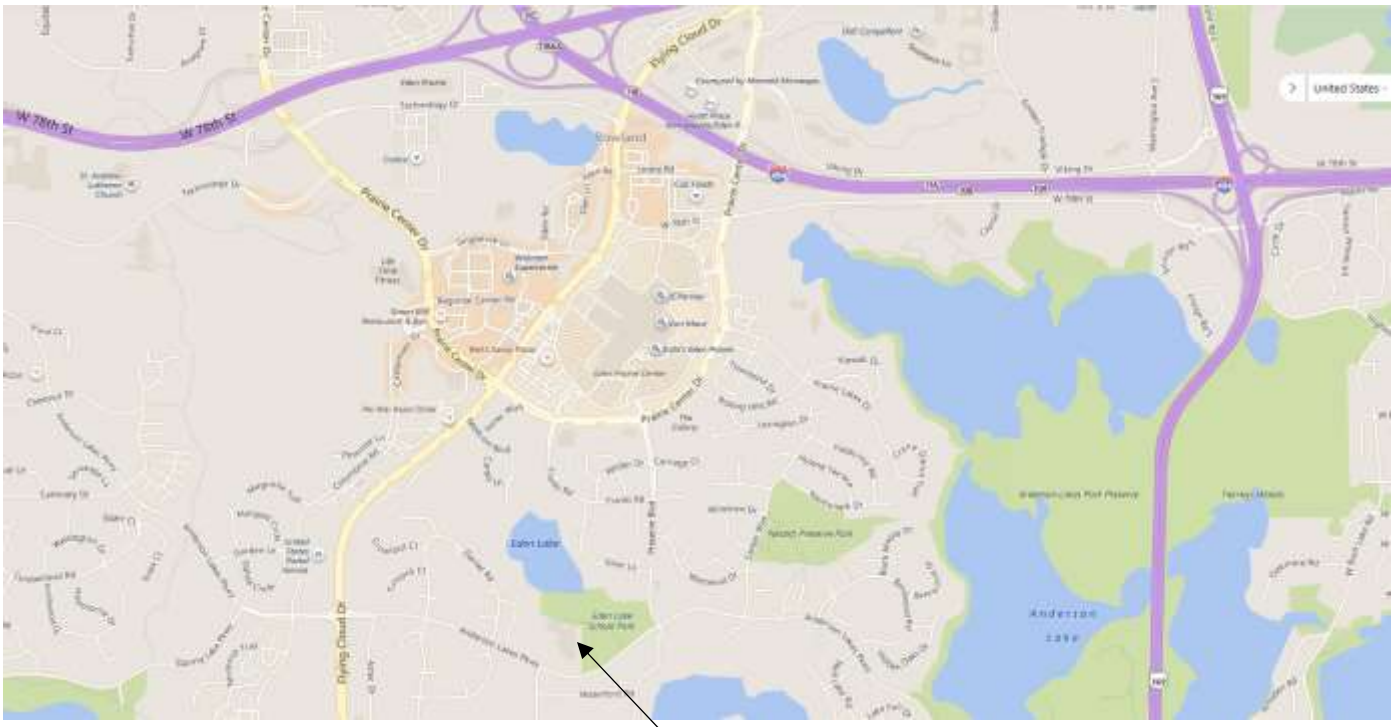
Maintenance agreement

I acknowledge that receipt of a grant is contingent upon agreeing to maintain the project for the number of years outlined in the cost share guidelines document ☑ Yes

Authorization

Name of landowner or responsible party Jason Mutzenberger

Signature [signature] Date 8/2/2018



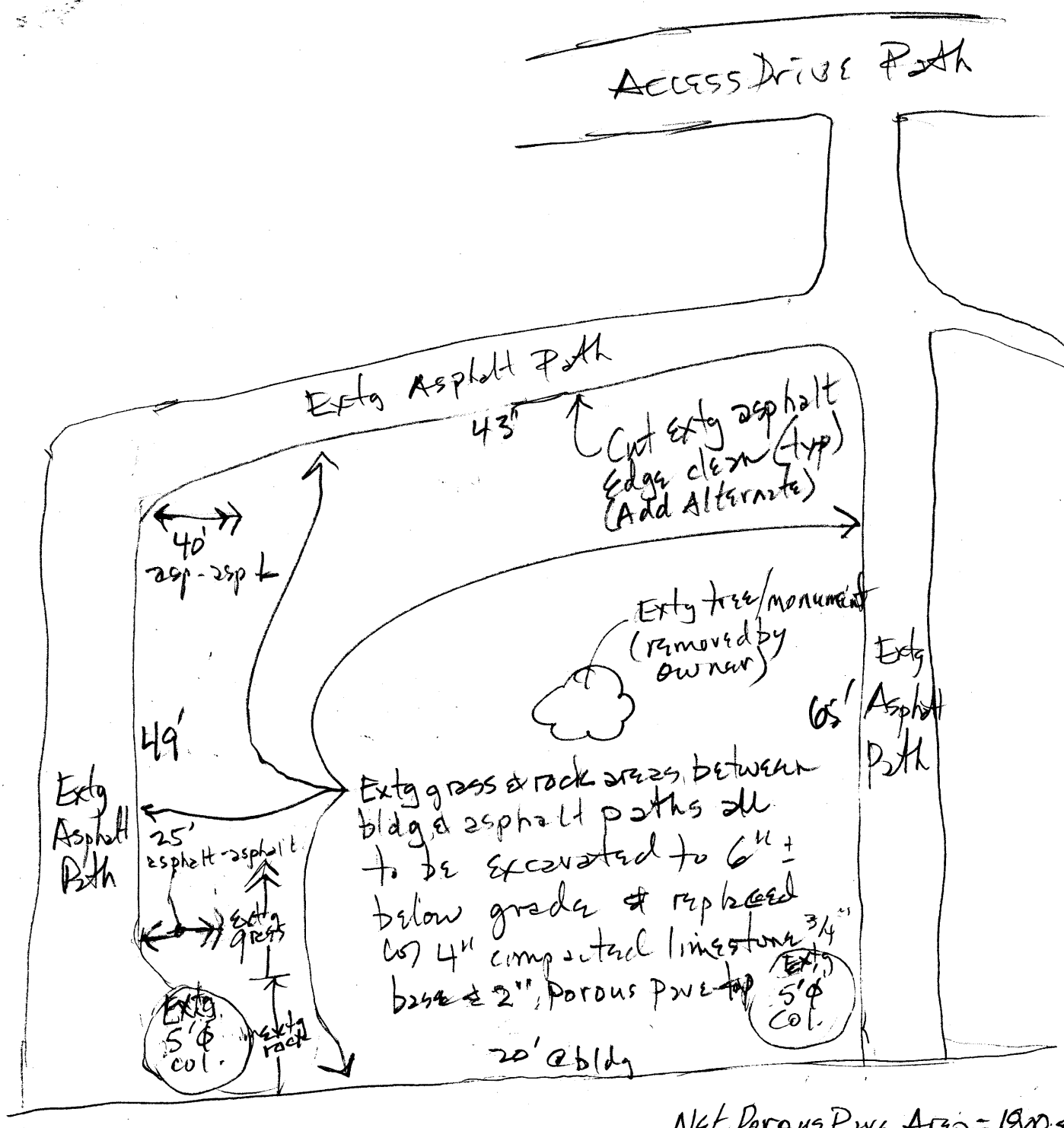
Site at Eden Lake School`

Location Map

Project Sites

North Patio

South Patio



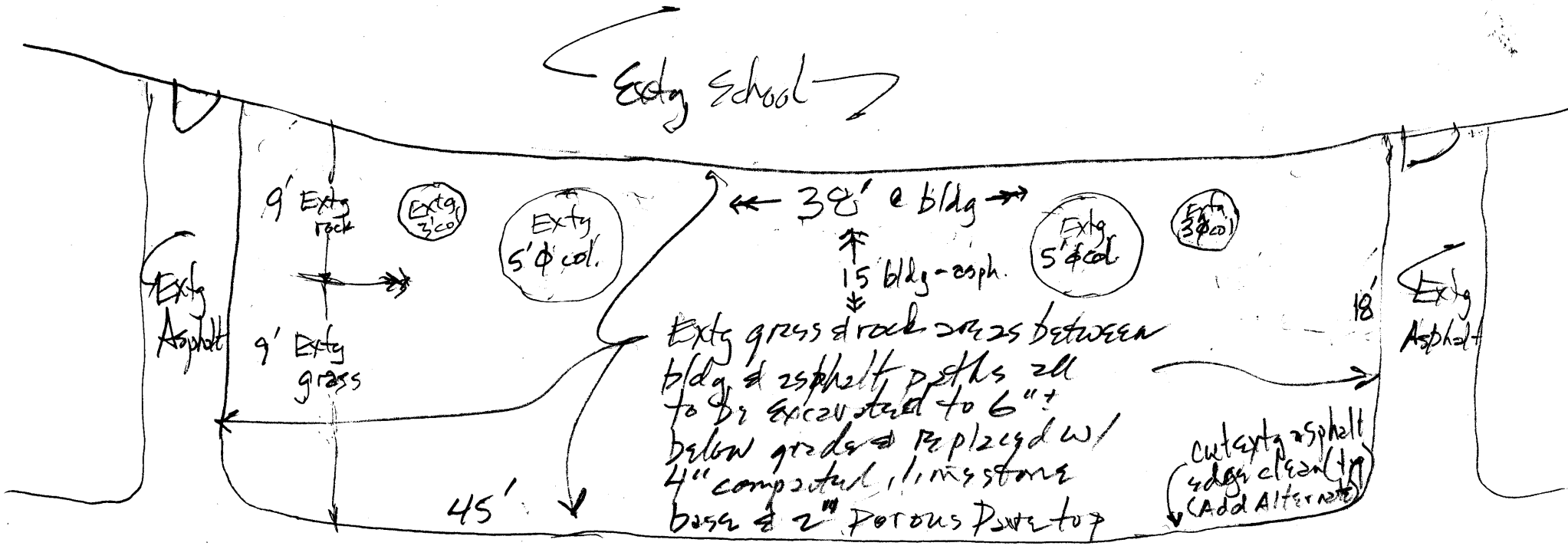
Net Porous Pave Area = 1800 sf
(w/o col.)

Exist School Bldg

Proposed Site Plan - North Patio

N NTS TERRANOVA, LLC 7/25/18
REV. 7/31/18

155' current



Net Porous Pave Area = 640 sf
(w/o col.)

Proposed Site Plan - South Patio

N → NTS TERRANOVA, LLC 7/25/18
REV 7/31/18

TERRANOVA, LLC
Real Estate/Engineering/Construction

August 02, 2018

Mr. Jim Anderson, Director of Facilities and Safety
Eden Praire Schools
Eden Prairie, MN. 55347

RE: TERRANOVA Proposal for Construction Services
EPS Eden Lake North and South Porous Pave Patios

Dear Mr. Anderson:

We are pleased to present our proposal to you and your company and we would be very pleased to be chosen to work with you and the EP Schools on this project. Our proposal is based upon our schematic plan drawings (attached) and our on-site walkthrough of the spaces. Our value-added approach allows you to have a successful project without surprises from the conceptual drawings through completion. With that, the proposal is as follows:

Scope Clarifications

1. Design Plans/Specifications (attached dated 7/31/18) at North and South Patios to provide and install the Porous Pave XL product. The color to be selected by Owner. Includes sawcutting a clean line interface at existing asphalt paths adjacent to Porous Pave installation at both patios. Includes coordination with city of Eden Prairie and RPBC Watershed District agencies on applications, approvals, and site observations. Includes $375 allowance for moving existing monument and existing tree from North Patio area.
2. General Building Permit and Grading Permit are not required (confirmed with city).
3. Irrigation work, bonding, prevailing wage are not included.
4. Includes excess material offsite removals, cleaning throughout project and final sweep clean.
5. One year system warranty provided on new furnished and installed materials and equipment. Other manufacturer product warranty beyond that as available direct through manufacturer.

Schedule

Upon timely notice to proceed from owner, we are prepared to start immediately and to develop a project schedule with a completion as agreed in time for the start of school activities.

Cost

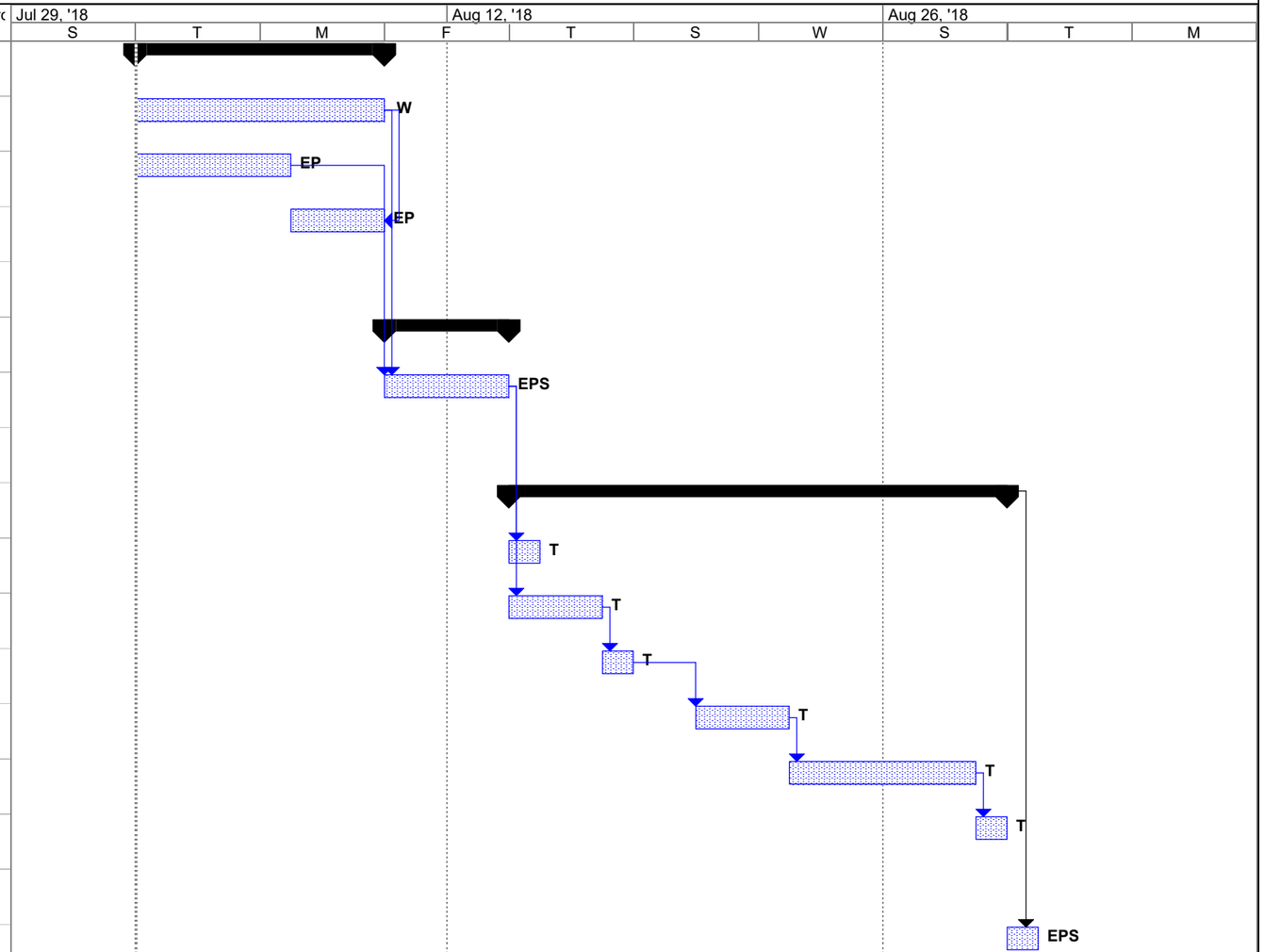
Lump sum cost: $45,000.

We would be very pleased to do this project with you and our team is ready and available to proceed immediately. I look forward to talking with you again.

Rodney H. Miller, P.E.
TERRANOVA, LLC
952-937-7663 (w) 952-236-6679 (fax)
Rod@TERRANOVA-US.com
www.TERRANOVA-US.com

TERRANOVA, LLC | Eden Praire Schools - Eden Lake School North and South Outdoor Patios | 8/1/2018

ID	Task Name	Duration	Start	Finish	Predeces	Resourc Names
1	**Agency Approvals**	**6 days**	**Thu 8/2/18**	**Thu 8/9/18**		
2	RPBCWD Cost Sharing Grant	6 days	Thu 8/2/18	Thu 8/9/18		W
3	City EP Water Quality Rebate	3 days	Thu 8/2/18	Mon 8/6/18		EP
4	Gopher One Call	3 days	Tue 8/7/18	Thu 8/9/18	2FF	EP
5						
6	**Owner Agrement**	**2 days**	**Fri 8/10/18**	**Mon 8/13/18**		
7	Contract / Notice To Proceed	2 days	Fri 8/10/18	Mon 8/13/18	2,3	EPS
8						
9	**Project Construction**	**12 days**	**Tue 8/14/18**	**Wed 8/29/18**		
10	Sawcut	1 day	Tue 8/14/18	Tue 8/14/18	7	T
11	Excavation	3 days	Tue 8/14/18	Thu 8/16/18	7	T
12	Subgrade compaction	1 day	Fri 8/17/18	Fri 8/17/18	11	T
13	Limestone base	3 days	Mon 8/20/18	Wed 8/22/18	12	T
14	Porous Pave Overlay	4 days	Thu 8/23/18	Tue 8/28/18	13	T
15	Cleanup	1 day	Wed 8/29/18	Wed 8/29/18	14	T
16						
17	**Occupancy**	1 day	Thu 8/30/18	Thu 8/30/18	9	EPS



Proof of Property Ownership

Hennepin

Residents
Information and services

Business
Regulations and opportunities

Property information address search result

Parcel Data for Taxes Payable 2018

- Current year taxes due
- View map of property
- Current year values
- Prior year taxes
- Print details

This database is updated daily (Monday - Friday) at approximately 9:15 p.m. (CST)

Property ID number:	**23-116-22-13-0002**
Address:	**12000 ANDERSON LAKES PKWY**
Municipality:	**EDEN PRAIRIE**
School district:	272
Watershed:	4
Sewer district:	
Construction year:	1986
Owner name:	SCHOOL DIST NO 272
Taxpayer name & address:	IND SCHOOL DIST 272 8100 SCHOOL RD EDEN PRAIRIE MN 55344

Sale information

Sales prices are reported as listed on the Certificate of Real Estate Value and are not warranted to represent arms-length transactions.

NO SALE INFORMATION ON FILE FOR THIS PROPERTY.

Tax parcel description

The following is the County Auditor's description of this tax parcel. It may not be the legal description on the most recent conveyance document recording owne

Addition name:	LAKE EDEN
Lot:	
Block:	
Approximate parcel size:	S758X681X723X824
Metes & Bounds: Common abbreviations	OUTLOT B
Abstract or Torrens:	BOTH

General Specifications

MADE IN THE USA

Porous Pave

PERMEABLE • DURABLE • FLEXIBLE

A revolutionary paving product that is heavy duty, flexible and highly porous. It is made from recycled tires, aggregate and a special single component urethane that remains flexible.

Features	Benefits
Permeable	Rated at up to 29% porosity, 5800-6300 GPH permeability
Slip Resistant	Lessons the chance of slip and fall accidents
Flexible	Flexibility of product withstands cracking or heating
Durable	Resistant to most hostile materials (oil, gas, chlorine, UV, etc.)
Quick Installation	Mix and pour in place application on site
Strong	Can handle low speed traffic at only 2" thick
Environmentally Friendly	Made from recycled tires, every 1000 sq. ft. of Porous Pave saves about 300 tires from the landfill

Installation should be preformed by a Certified Installer

A hard material made from 50% recycled tires, 50% stone aggregate and a moisture cured urethane binding agent. Thickness of install will vary from 1" to 2" thick depending on application. Can be installed from 45º to 95ºF temperatures, curing temperature should not drop below 35ºF. Available for use 24 hours after installation, creating an extremely porous, heavy duty surface.

Substrates for Porous Pave

- At 2" thick a base of 4" crushed stone or similar aggregate with low fines, 3/8" to 3/4" in size, compacted to a density of 95% minimum is needed
- At 11/2" thick it is designed for foot traffic only and requires a 2" aggregate base
- At 1" thick it is designed to install over an existing engineered surface (concrete, asphalt, wood, etc.)

Uses

Storm water management, driveways, parking lots, sidewalks, pathways, patios, pool surrounds, tree surrounds, play grounds, maintenance strips, golf courses, etc.

Available in 8 colors

Black *Blue* *Brown* *Cypress* *Grey* *Green* *Redwood* *Tan*

Soil and Materials Engineers, Inc.
4705 Clyde Park Avenue SW
Grand Rapids, MI 49509-5114

tel (616) 406-1756
fax (616) 406-1749

www.sme-usa.com

March 12, 2012

Mr. Dave Ouwinga
Porous Pave
4385 East 110th Street
Grant, Michigan 49327

Via E-mail: *dave@porouspaveinc.com*

RE: Test Results for Laboratory Services
Porous Pave Laboratory Services
SME Project No. 065090.00 Revised

Dear Mr. Ouwinga,

Soil and Materials Engineers, Inc. (SME) a permeability test on one of the 6 inch diameter by 1½ inch thick samples that you delivered to our office on February 17, 2012. The test procedures, calculations, and results are shown on the appended reports.

We appreciate the opportunity to serve you. Please call if you have questions or concerns regarding this letter.

Yours very truly,

SOIL AND MATERIALS ENGINEERS, INC.

Jeremy S. Hugo, EIT
Senior Engineer

for Gerard P. Madej, PE
Vice President

Attachments: Test Results for Permeability

T/PROJ/65000/065090.00/065090.00-031212-LTR.DOC

Test Results for Permeability

SME used the following procedures for the falling head permeability test: The core was placed in the end of a 6" PVC stand pipe and was held in place with an end cap for the pipe. An approximate 5.67 inch diameter hole was cut into the end cap to allow water to flow through the sample and out of the stand pipe. The cap face was then covered and the stand pipe was filled with 10 liters of water, the cap face was uncovered, and the time for the water to flow through the sample was recorded with a stop watch. This procedure was repeated 8 times and the high and low values were deleted. The average time for the 10 liters of water to flow through the sample was 7.65 seconds. The coefficient of permeability (K) was calculated using the following formula: $K=2.3(aL/At)*\log(h1/h2)$.

- a = cross-sectional area of the stand pipe
- L = average height of the sample
- A = cross-sectional area of the sample
- t = elapsed time in seconds
- h1 = height of the water at the start of the test
- h2 = height of the water at the completion of the test

The coefficient of permeability for the 6 inch diameter core was 5.98 $x10^{-1}$ inches/second.

The flow rate for the 6 in diameter core was 0.043 cubic feet per second (0.344 gallons per second)

6" diameter sample = 28.26 square inches.

1 square foot = 144 sq inches.

144 divided by 28.26 = 5.0955

.344 gallons per second x 5.0955 = 1.7528 gallons per second per square foot
or 105.2 gallons per minute
or 6312 gallons per hour per square foot

4705 Clyde Park Avenue SW
Grand Rapids, MI 49509-5114

T (616) 406-1756

www.sme-usa.com

November 3, 2015

Mr. Jay Oosterhouse
Porous Pave
4385 East 110th Street
Grant, Michigan 49327

Via E-mail: *jay@porouspaveinc.com*

RE: Summary of Void Content Testing
Porous Pave Laboratory Services
SME Project No. 073275.00

Dear Mr. Oosterhouse,

SME performed a void content (porosity) test on the 12 inch by 12 inch by 2 1/8 inch thick sample that was delivered to our office on October 28, 2015. This letter presents the results of our tests.

TEST PROCEDURES

For the void content test, the sample was submerged in water for 24 hours before being weighed suspended in the water (Immersed Weight). After this measurement, the sample was allowed to drain for one minute +/- 5 seconds, and then weighed (Saturated Weight - Ws). SME sealed the edges and bottom of the sample and filled the sample with water and weighed the sample (Weight of Sample plus Water filled Voids - Ww).

CALCULATIONS

Volume of Voids:
[Ww-Ws] / 62.4lb/cubic ft = Volume of Voids (cubic feet)

Total Volume:
Length x Width x Height = Total Volume (cubic feet)

Void Content:
Volume of Voids/Total Volume x100=void content (%) TEST RESULTS

The calculated void content of the sample was 27%.

We appreciate the opportunity to serve you. Please call if you have questions or concerns regarding this letter.

Yours very truly,

SME

Jeremy S. Hugo, PE
Project Engineer

Louis J. Northouse, PE
Senior Consultant

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