Riley-Purgatory-Bluff Creek Watershed District

Board of Managers Workshop and Regular Meeting

Wednesday, February 7, 2018
5:30pm Board Workshop
6:30pm Meet and Greet
7:00pm Regular Board Meeting
DISTRICT OFFICE
18681 Lake Drive East
Chanhassen

Agenda

1. Call to Order

2. **5:30pm 10 year plan review of comments, wetlands program update**

3. **6:30pm Board/CAC meet and greet**

4. **7:00pm Approval of the Agenda** (Additions/Corrections/Deletion) **Action**

5. **Annual report presentation** **Information**

6. **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.

7. **Reading and approval of minutes** **Action**
   Board of Manager Meeting, January 3, 2018

8. **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 Staff Report
   b. Accept Engineer's Report (with attached Inspection Report)
   c. Approve permit 2018-004 Lake Susan Park Pond Permit

d. Authorize to go out for bids for Chanhassen High School
e. Authorize to go out for bids for Lake Susan Park Pond

9. Citizen Advisory Committee **Information**

10. Action Items **Action**
    a. Accept December Treasurer's Report
    b. Approve Paying of the Bills
    c. March board meeting re-schedule (MAWD Legislative Days)
    d. Approval to use CAC funds to send a representative to the Road Salt Symposium
    e. Review of CAC Applications - Round 2
    f. Release response to comment for ten year plan and schedule public hearing to be set at March board meeting

11. Discussion Items **Information**

    a. Upcoming Meeting

12. Upcoming Events **Information**

- Citizen Advisory Committee monthly meeting & annual orientation, February 26, 5:30 pm, 18681 Lake Drive East, Chanhassen. Orientation begins at 5:30 pm, regular meeting to follow after.
- Regular Board Meeting, March 7th, 7:00 pm, 18681 Lake Drive East, Chanhassen
- MAWD Legislative Days, March 7-8, Saint Paul

What's happening

WATERSHED MANAGEMENT PLAN

One of the most important projects the watershed worked on in 2017 was updating its Watershed Managment Plan.

This watershed management plan (also called the 10-Year Plan) guides the District's actions for the next 10 years.

The community played an essential role by participating in a public engagement process. Close to 500 stakeholders engaged in this process, making their voices heard about their values for clean water. The graphic to the right highights how the communitry contributed to the planning effort.

The draft plan was relased for public review in late 2017. After comments are addressed, the District will submit a final plan for approval in 2018. Check our website for updates on the process: rpbcwd.org

Thank you! To everyone who shared their thoughts, ideas, hopes and concerns. We truly appreciate you being a part of this process.

DIVE DEEPER

Interested in learning more? Explore the following reports on our website.

Aquatic plants
Johnson, J. 2017. 2017 Aquatic Plan Survey: Lake Ann.

JaKa, J. and Newman, R. 2014. Aquatic Plant Community of Lakes Ann, Lotus, Lucy, Mitchell, Susan, Riley and Staring within the Riley Purgatory Bluff Creek Watershed: Final Report 2009 – 2014. University of Minnesota.

Watershed study
BARR Engineering. 2013. Lake Lucy and Lake Ann: Use Attainability Analysis.

Stormwater ponds
RPBCWD. 2013. Stormwater pond project.

Carp management
Bajer P.G., Headrick,M., Miller B. D. and Sorensen P. W. 2014. Development and implementation of a sustainable strategy to control common carp in Riley Creek Chain of Lakes. University of Minnesota.

Contact us

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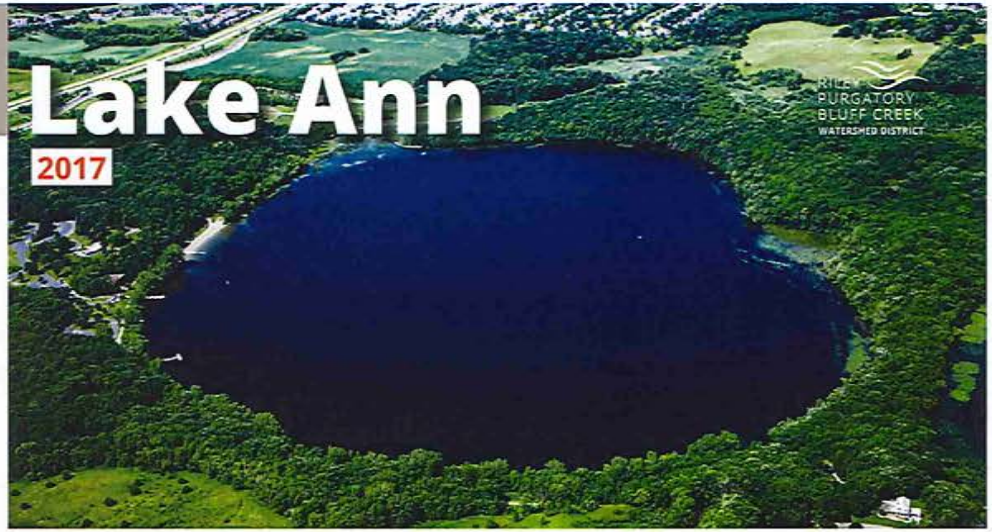


Located in Chanhassen, Lake Ann is at the headwaters of Riley Creek. Over the past 40 years, Lake Ann has consistently met Minnesota Pollution Control Agency clean water standards.

CHARACTERISTICS

Size	119 acres
Volume	2005 acre-ft
Average depth	16.8 ft
Max depth	40 ft
Watershed size	250 acres
Land draining directly into	105 acres
MPCA lake classification	Deep
Impairment listing	Mercury
Trophic status	Mesotrophic
Common fish	Bluegill, White Sucker, Black Crappie, Yellow Perch
Invasive species	Curlyleaf Pondweed, Eurasian Watermilfoil, Common Carp, Brittle Naiad

WATERSHED BOUNDARIES

LAND USE in the Lake Ann Watershed

How healthy is Lake Ann?

For the past 40 years, Lake Ann has consistently met the clean water standards set by the Minnesota Pollution Control Agency (MPCA). The graphs on the next page show the trends over time. The red line on each graph marks the MPCA standard. The goal is for the average values (the dots) to be below the red line.

During the growing season (June - September), district staff visit Lake Ann every other week to collect water samples and take measurements. The water samples are sent to a lab where they are tested for several compounds including total phosphorous (TP) and chlorophyll a (Chl-a). Staff also measure how clear the water is using a disk that is lowered into the water until it can no longer be seen. All three of these parameters help indicate whether the water is clean. Find out more about each on the next page.

Ann is classified as a "Deep Lake", which means that it is over 15 feet deep and light can not reach the bottom in most of the lake. To be considered healthy by the MPCA, deep lakes need to be clear enough to see 1.4 meters down, and have very low TP and Chl-a levels. Water quality increased from 2016 to 2017, and remains well below the MPCA standards.

District staff monitoring Lake Ann during the fall.

A common loon taking a dip in Lake Ann.

In August, the invasive species **Brittle Naiad** was found in Lake Ann. RPBCWD implemented a **rapid response plan** to treat the lake and plans to reassess the lake in early 2018. We remind our community clean, drain, and dry boats and other equipment after each visit to a lake.

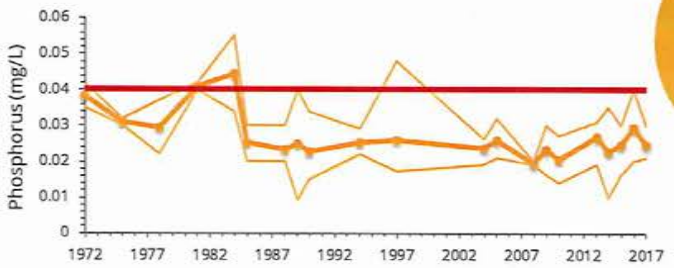
Clean all visible aquatic plants, zebra mussels, and any other invasive species before leaving any water access.

Drain water-related equipment by removing drain plugs, and keep them out while transporting.

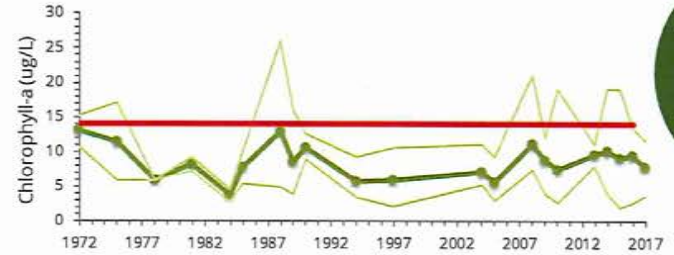
Dry your boat, trailer, and all equipment for at least 5 days.

Water quality graphs 1972 - 2017

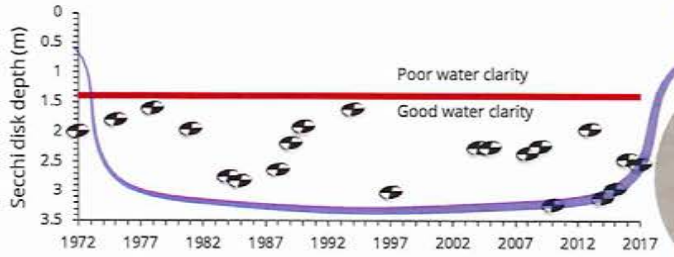
Points are growing season (Jun-Sep) averages. Thin lines are the min and max values for each year.



Phosphorus is a nutrient that plants and algae need to grow. It is often measured as total phosphorus (TP). Too much phosphorous can cause algae blooms.



Chlorophyll-a is the main pigment in algae, so measuring chl-a can tell us how much algae there is. Too much chl-a means that there are too many nutrients in the water.



Water clarity is measured using a **Secchi Disk**, a black and white disk the size of a dinner plate. It is lowered into the water, and the depth at which it is no longer visible is recorded.

Summary table

	MPCA standard	1972 - 2016 max	1972 - 2016 min	1972 - 2016 average	2017 max	2017 min	2017 average
TP	<0.04 mg/l	0.055	0.009	0.026	0.03	0.021	0.024
Chl-a	<14 ug/l	26	2	8.5	11.6	3.56	7.8
Secchi	>1.4 m	6.8	1	2.5	3.5	1.8	2.5

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Blue Water Science. 2014. Aquatic plant surveys for Duck Lake, Eden Prairie, MN.

Stormwater ponds
RPBCWD. 2013. Stormwater pond project.

Watershed study
BARR Engineering. 2017. Purgatory Creek Watershed Use Attainability Analysis.

Located in Eden Prairie, Duck is one of the district's shallow lakes. Since 2011, it has seen improvement in water quality, and has met the Minnesota Pollution Control Agency's clean water standards several years.

CHARACTERISTICS

Size	41 acres
Volume	131 acre-ft
Average depth	3.4 ft
Max depth	8 ft
Watershed size	233 acres
Land draining directly into	174 acres
MPCA lake classification	Shallow
Impairment listing	Not listed
Trophic status	Eutrophic
Common fish	Bluegill, Black Crappie, Bullhead
Invasive species	Curlyleaf Pondweed, Purple Loosestrife

WATERSHED BOUNDARIES

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LAND USE in the Duck Lake Watershed

How healthy is Duck Lake?

2017 saw some of the clearest water since records began on Duck Lake in 1975. Until 2011, Duck Lake had failed to meet the clean water standards set by the Minnesota Pollution Control Agency (MPCA). For the past seven years however, water quality has continued to improve. Continued monitoring will track whether this continues, and help us understand why.

During the growing season (June - September), district staff visit Duck Lake every other week to collect water samples and take measurements. The water samples are sent to a lab where they are tested for several compounds including total phosphorous (TP) and chlorophyll a (Chl-a). Staff also measure how clear the water is using a disk that is lowered into the water until it can no longer be seen. All three of these parameters help indicate whether the water is clean.

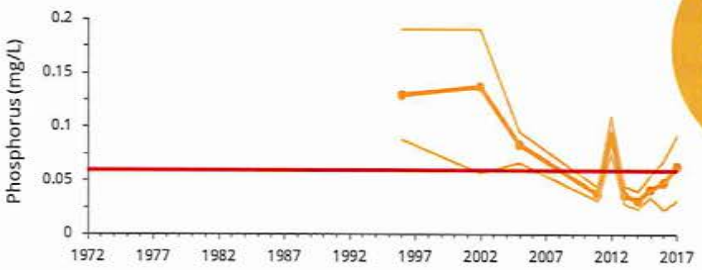
Duck is classified as a "Shallow Lake", which means that it is generally less than 15 feet deep and light can reach the bottom in most of the lake. This ample light means that shallow lakes often have a lot of aquatic plants, and are habitat to many types of fish and birds.

Motorized boats are not allowed on shallow Duck Lake, but it is a popular place to kayak and canoe.

Duck Lake on a warm, summer day.

Water quality graphs 1975 - 2017

Points are growing season (Jun-Sep) averages. Thin lines are the min and max values for each year.



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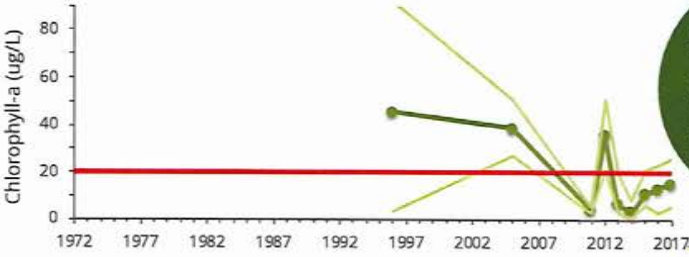

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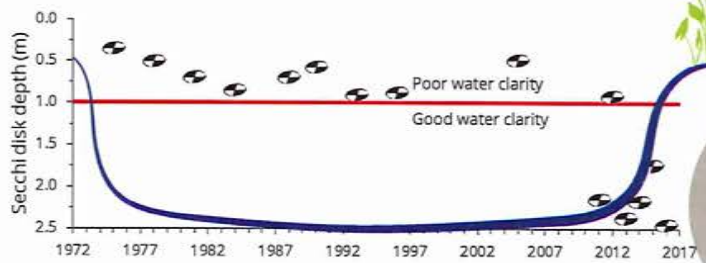

Water clarity

Is measured using a **Secchi Disk**, a black and white disk the size of a dinner plate. It is lowered into the water, and the depth at which it is no longer visible is recorded.

Rainwater runoff - the water that flows across yards, parking lots, and streets into stormdrains - is one of the main causes of pollution in urban areas. You can take simple actions to help protect Duck Lake.

Keep the curb clean

Sweep up leaves, grass clippings and fertilizer from driveways and streets.

Water with care

Grass requires 1-inch of water per week: about one hour of sprinkling per week if it has not rained.

Salt smart

The salt we use to melt ice can pollute our lakes and creeks. Use salt sparingly and always shovel first.

Reuse the rain

Collect and reuse rainwater with a rain barrel.

Build a raingarden

Raingardens soak up water and filter out pollution. Visit our website for help.

Summary table

	MPCA standard	1975/1996 - 2016 max	1975/1996 - 2016 min	1975/1996 - 2016 average	2017 max	2017 min	2017 average
TP	<0.06 mg/l	0.191	0.023	0.065	0.092	0.031	0.064
Chl-a	<20 ug/l	92.3	1.0	17.0	25.8	5.34	15.3
Secchi	>1 m	2.7	0.2	1.5	2.8	2.4	2.6

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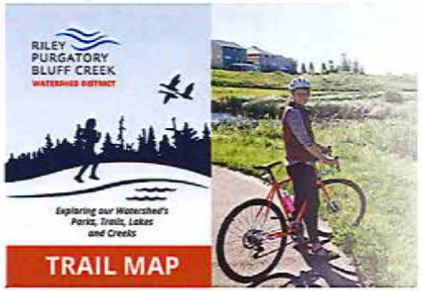
DIVE DEEPER

Interested in learning more? Explore these reports and documents on our website.

Watershed study
BARR Engineering. 2017. Hyland Lake Use Attainability Analysis.

Updated Parks & Trails Map
Explore the watershed through our updated parks and trails map. Want a printed copy? Stop by our office!



Hyland Lake

2017

Located in Bloomington, Hyland Lake is surrounded by Hyland Lake Park Reserve, a Three Rivers Park District facility. Visitors can paddle the lake in the summer, hike nearby trails, and ski in the winter.

CHARACTERISTICS

Size	84 acres
Volume	780 acre-ft
Average depth	7.5 ft
Max depth	12 ft
Watershed size	922 acres
MPCA lake classification	Shallow
Impairment listing	Nutrients
Trophic status	Hypereutrophic
Common fish	Bluegill, Black Crappie, Walleye, Black Bullhead
Invasive species	Curlyleaf Pondweed

WATERSHED BOUNDARIES

Contact us

and find out how you can get involved

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How healthy is Hyland Lake?

After a substantial decrease in 2015, water quality in Hyland Lake has continued to improve through 2017. However, it still failed to meet the clean water standards set by the Minnesota Pollution Control Agency (MPCA). The graphs on the next page show the trends over time. The red line on each graph marks the MPCA standard. The goal is for the average values (the dots) to be below the red line.

During the growing season (June - September), Three Rivers Park District staff visit Hyland Lake every other week to collect water samples and take measurements. The samples are tested for several compounds including total phosphorous (TP) and chlorophyll a (Chl-a). Staff also measure how clear the water is using a disk that is lowered into the water until it can no longer be seen. All three of these parameters help indicate whether the water is clean.

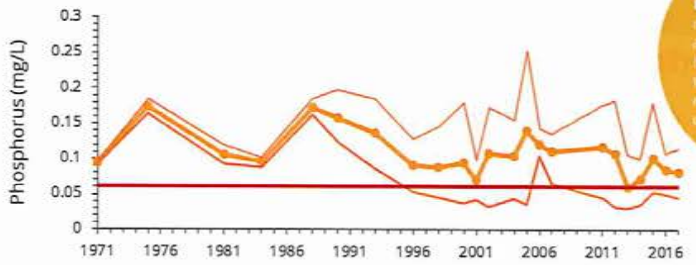
Hyland is classified as a "Shallow Lake", which means that it is generally less than 15 feet deep and light can reach the bottom in most of the lake. This ample light means that shallow lakes often have a lot of aquatic plants, and are habitat to many types of fish and birds. To be considered healthy by the MPCA, shallow lakes need to be clear enough to see one meter down, and have low TP and Chl-a levels.

Staff checking a water level sensor on Hyland Lake. The sensor tracks how high the lake gets.

A frog enjoys a dip in shallow Hyland Lake.

Water quality graphs 1971 - 2017

Points are growing season (Jun-Sep) averages. Thin lines are the min and max values for each year.



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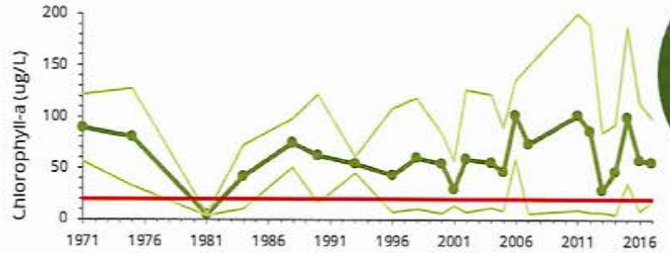

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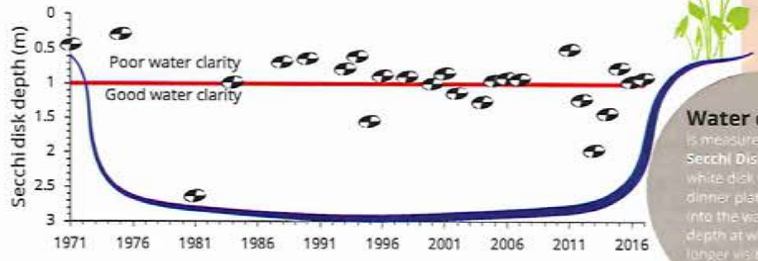

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Summary table

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		max	min	average	max	min	average
TP	<0.06 mg/l	0.252	0.031	0.105	0.115	0.045	0.082
Chl-a	<20 ug/l	200	3.5	64.5	99.5	16.5	55.3
Secchi	>1 m	3.7	0.2	1.0	2.10	0.41	0.93

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Blue Water Science. 2014. Aquatic plant surveys for Idlewild Lake, Eden Prairie, MN.

Stormwater ponds
RPBCWD. 2013. Stormwater pond project.

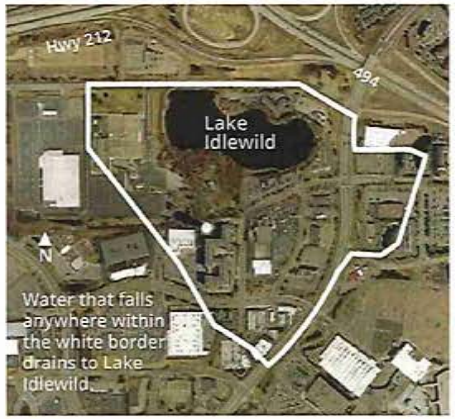
Watershed study
BARR Engineering. 2017. Purgatory Creek Watershed Use Attainability Analysis.

Located in Eden Prairie, Idlewild is a part of the Purgatory Creek Watershed. Painted turtles are a common site in this small basin, which is completely surrounded by commercial development.

CHARACTERISTICS

Size	12 acres
Volume	51 acre-ft
Average depth	4 ft
Max depth	8.2 ft
Watershed size	89 acres
MPCA lake classification	Not classified
Impairment listing	Not listed
Trophic status	Hypereutrophic
Common fish	Bluegill, Black Crappie, Black Bullhead, Golden Shiner
Invasive species	None Listed

WATERSHED BOUNDARIES



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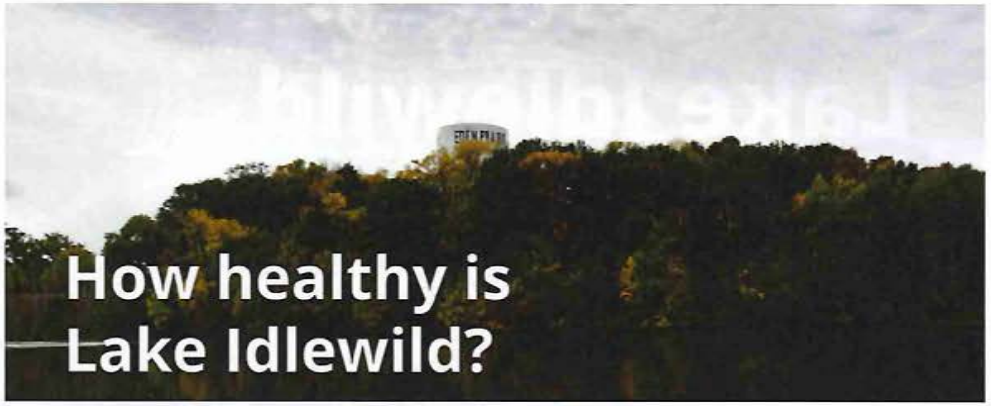

How healthy is Lake Idlewild?

Lake Idlewild was first monitored in 2014. All four years water quality has met, or been near to the clean water standards set by the Minnesota Pollution Control Agency (MPCA). The graphs on the next page show the trends over time. The red line on each graph marks the MPCA standard. The goal is for the average values (dots) to be below that line.

During the growing season (June - September), the city of Eden Prairie or the watershed district visits Lake Idlewild every other week to collect water samples and take measurements. The samples are sent to a lab to be tested for several compounds including total phosphorous (TP) and chlorophyll a (Chl-a). Staff also measures how clear the water is using a disk that is lowered into the water until it can no longer be seen. All three of these parameters help indicate whether the water is clean.

Idlewild was recently reclassified from a "Shallow Lake" to a wetland. However it continues to be monitored for water quality, and using the shallow lake water standards can be a useful bench mark for seeing how the lake health changes over time.

Collecting water samples on Lake Idlewild.

Lake Idlewild on a cool, fall morning.

Water quality graphs 2014 - 2017

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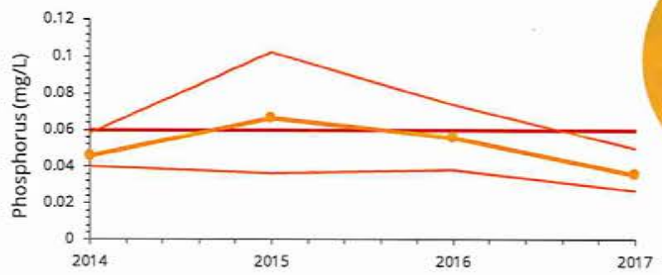

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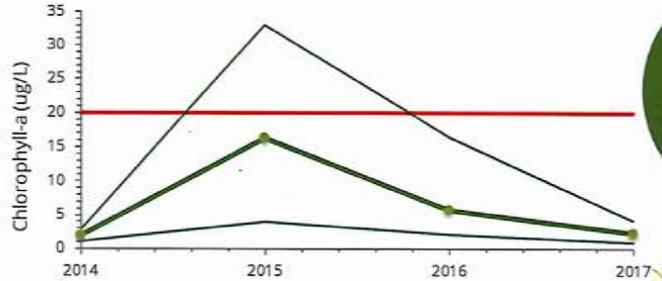

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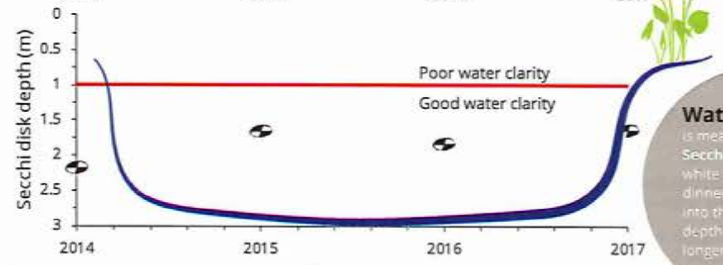

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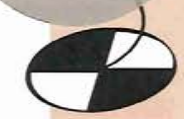

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TP	<0.06 mg/l	0.102	0.036	0.056	0.050	0.027	0.036
Chl-a	<20 ug/l	33	1.1	8.0	4.1	1	2.225
Secchi	>1 m	2.6	1.1	1.9	1.8	1.4	1.6

What's happening

WATERSHED MANAGEMENT PLAN

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Paleolimnology
Ramstack J. M. and Edlund M. B. 2011. Historical water quality and ecological change of three lakes in the Riley Purgatory Bluff Creek Watershed District, MN.

Carp management
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Watershed study
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Stormwater ponds
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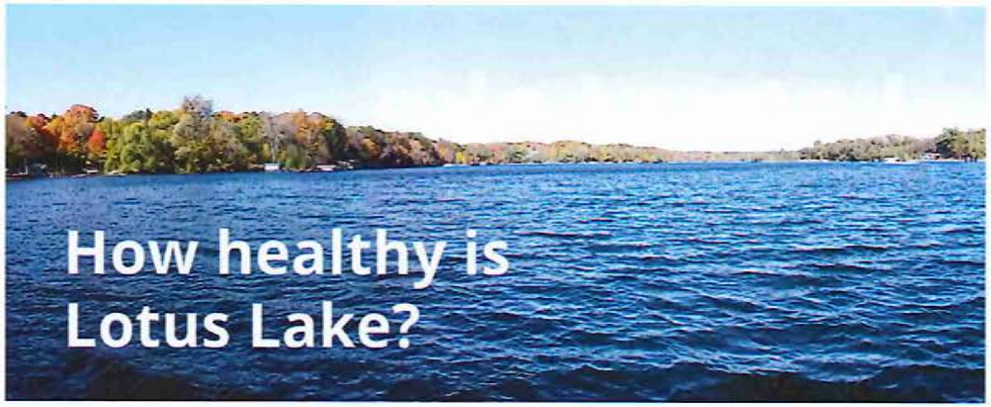
Located in eastern Chanhassen, Lotus Lake is one of three headwaters of Purgatory Creek. Water flows out of Lotus into the south fork of Purgatory Creek which eventually meets up with two other forks.

CHARACTERISTICS

Size	248 acres
Volume	2500 acre-ft
Average depth	16 ft
Max depth	31 ft
Watershed size	1397 acres
Land draining directly into	316 acres
MPCA lake classification	Deep
Impairment listing	Mercury & Nutrients
Trophic status	Hypereutrophic
Common fish	Bluegill, Yellow Perch, Walleye
Invasive species	Eurasian Watermilfoil, Common Carp, Brittle Naiad, Curlyleaf Pondweed

WATERSHED BOUNDARIES

Water that falls anywhere within the white border drains to Lotus Lake.



How healthy is Lotus Lake?

Water clarity improved slightly from 2016 to 2017, but Lotus Lake still failed to meet the clean water standards set by the Minnesota Pollution Control Agency (MPCA). The graphs on the next page show the trends over time. The red line on each graph marks the MPCA standard. The goal for each graph is for the average values (the dots) to be below the red line.

During the growing season (June - September), district staff visit Lotus Lake every other week to collect water samples and take measurements. The samples are sent to a lab where they are tested for several compounds including total phosphorous (TP) and chlorophyll a (Chl-a). Staff also measure how clear the water is using a disk that is lowered into the water until it can no longer be seen. All three of these parameters help indicate whether the water is clean.

Lotus is classified as a "Deep Lake", which means that it is over 15 feet deep and light can not reach the bottom in most of the lake. To be considered healthy by the MPCA, deep lakes need to be clear enough to see 1.4 meters down, and have very low TP and Chl-a levels.

Staff collect water samples on Lotus Lake during a beautiful summer day.

A loon enjoys a paddle on Lotus.

In October, the **invasive species Brittle Naiad** was found in Lotus Lake. RPBCWD conducted a **rapid response plan** to treat the lake and plans to reassess the lake in early 2018. We remind our community to **clean, drain,** and **dry** boats and other equipment after each visit to a lake.

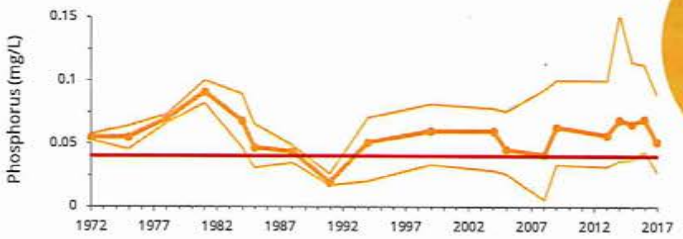
Clean all visible aquatic plants, zebra mussels, and any other invasive species before leaving any water access.

Drain water-related equipment by removing drain plugs, and keep them out while transporting.

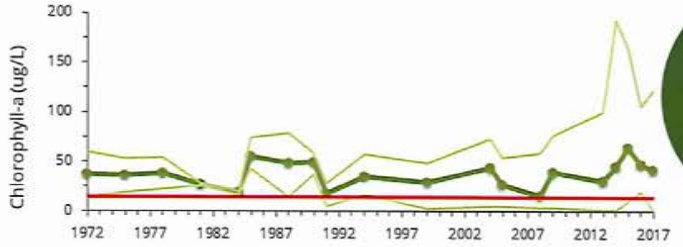
Dry your boat, trailer, and all equipment for at least 5 days.

Water quality graphs 1972 - 2017

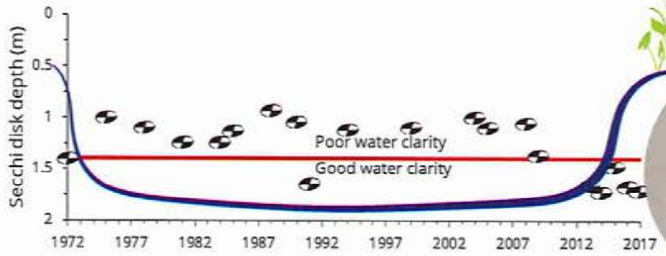
Points are growing season (Jun-Sep) averages. Thin lines are the min and max values for each year.



Phosphorus is a nutrient that plants and algae need for growth. It is often measured as total phosphorus (TP). Too much phosphorous can cause algae blooms.



Chlorophyll-a is the main pigment in algae, so measuring chl-a can tell us how much algae there is. Too much chl-a means that there are too many nutrients in the water.



Water clarity is measured using a **Secchi Disk**, a black and white disk the size of a dinner plate. It is lowered into the water, and the depth at which it is no longer visible is recorded.

Summary table

	MPCA standard	1972 - 2016 max	1972 - 2016 min	1972 - 2016 average	2017 max	2017 min	2017 average
TP	<0.04 mg/l	0.152	0.005	0.057	0.089	0.03	0.051
Chl-a	<14 ug/l	192	2.7	36.4	121	2.67	41.5
Secchi	>1.4 m	4.2	0.3	1.3	3.5	0.9	1.7

What's happening

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Wenck Associates Inc. 2015. Lake Lucy Aquatic Plant Management Plan.

Watershed study

BARR Engineering. 2013. Lake Lucy and Lake Ann: Use Attainability Analysis.

Carp management

Bajer P.G., Headrick,M., Miller B. D. and Sorensen P. W. 2014. Development and implementation of a sustainable strategy to control common carp in Riley Creek Chain of Lakes. U of M.

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Lake Lucy is the headwaters to Riley Creek. Water flows out of Lucy to Lake Ann and then into Riley Creek. On its way south to the Minnesota River, Riley Creek passes through Lakes Susan, Rice Marsh, and Riley.

CHARACTERISTICS

Size	88 acres
Volume	558 acre-ft
Average depth	6.5 ft
Max depth	20 ft
Watershed size	997 acres
Land draining directly into	111 acres
MPCA lake classification	Shallow
Impairment listing	Mercury
Trophic status	Eutrophic
Common fish	Bluegill, Northern Pike, Yellow Bullhead
Invasive species	Curlyleaf Pondweed, Eurasian Watermilfoil, Common Carp

WATERSHED BOUNDARIES

Water that falls anywhere within the white border drains to Lake Lucy.

How healthy is Lake Lucy?

Water quality in Lake Lucy increased from 2016 to 2017, and met two of the clean water standards set by the Minnesota Pollution Control Agency (MPCA). The graphs on the next page show the trends over time. The red line on each graph marks the MPCA standard. The goal is for the average values (the dots) to be below the red line.

During the growing season (June - September), district staff visit Lake Lucy every other week to collect water samples and take measurements. The samples are sent to a lab and tested for several compounds including total phosphorous (TP) and chlorophyll a (Chl-a). Staff also measure how clear the water is using a disk that is lowered into the water until it can no longer be seen. These parameters help indicate whether the water is clean.

Lucy is classified as a "Shallow Lake", which means that it is generally less than 15 feet deep and light can reach the bottom in most of the lake. This ample light means that shallow lakes often have a lot of aquatic plants, and are habitat to many types of fish and birds. To be considered healthy by the MPCA, shallow lakes need to be clear enough to see one meter down, and have low TP and Chl-a levels.

A volunteer extracting invasive Common Carp from Lake Lucy.

Lake Lucy on a beautiful summer afternoon.

Rainwater runoff, the water that flows across yards, parking lots, and streets into stormdrains, is one of the main causes of pollution in urban areas. You can take simple actions to help protect Lake Lucy.

Keep the curb clean
Sweep up leaves, grass clippings and fertilizer from driveways and streets.

Water with care
Grass requires 1-inch of water per week: about one hour of sprinkling per week if it has not rained.

Salt smart
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Reuse the rain
Collect and reuse rainwater with a rain barrel.

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Water quality graphs 1972 - 2017

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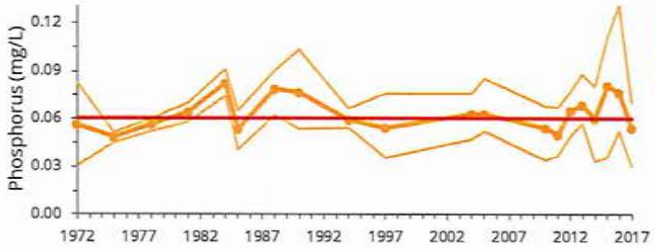

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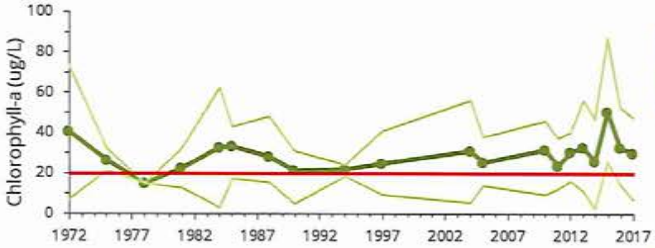
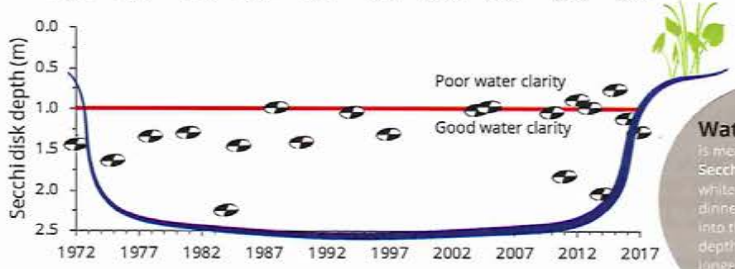


Chlorophyll a is the main pigment in algae, so measuring chl-a can tell us how much algae there is. Too much chl-a means that there are too many nutrients in the water.



Water clarity is measured using a **Secchi Disk**, a black and white disk the size of a dinner plate. It is lowered into the water, and the depth at which it is no longer visible is recorded.

Summary table

	MPCA standard	1972 - 2016 max	1972 - 2016 min	1972 - 2016 average	2017 max	2017 min	2017 average
TP	<0.06 mg/l	0.11	0.03	0.064	0.07	0.03	0.05
Chl-a	<20 ug/l	87	2.7	29.8	47.2	7.12	30.01
Secchi	>1 m	6.9	0.5	1.3	3.15	0.8	1.3

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Stormwater ponds
RPBCWD. 2013. Stormwater pond project.

Paleolimnology
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Watershed study
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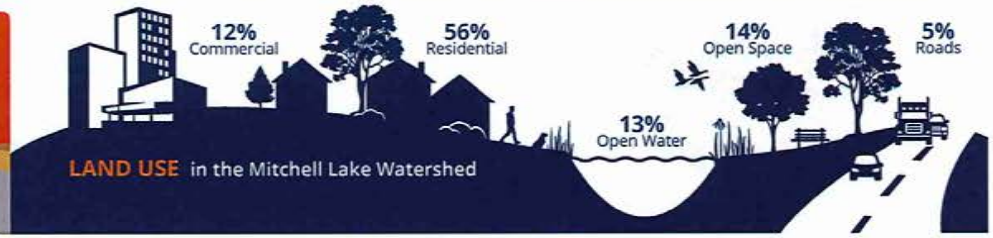
Located in Eden Prairie, Mitchell Lake is a part of the Purgatory Creek chain of lakes. During high water events it outflows through an overflow pipe to Red Rock Lake.

CHARACTERISTICS

Size	124 acres
Volume	729 acre-ft
Average depth	5.3 ft
Max depth	19 ft
Watershed size	937 acres
Land draining directly into	154 acres
MPCA lake classification	Shallow
Impairment listing	Mercury
Trophic status	Hypereutrophic
Common fish	Bluegill, Black Bullhead, Black Crappie, Northern Pike, Pumpkinseed
Invasive species	Curlyleaf Pondweed, Eurasian Watermilfoil, Purple Loosestrife

WATERSHED BOUNDARIES

Water that falls anywhere within the white border drains to Mitchell Lake.



LAND USE in the Mitchell Lake Watershed

How healthy is Mitchell Lake?

After decades of failing to meet the clean water standards set by the Minnesota Pollution Control Agency (MPCA), Mitchell Lake has improved and been at or near standards for the last seven years. Continued water sampling will help monitor whether the trend persists.

The graphs on the next page show the trends over time. The red line on each graph marks the MPCA standard. The goal is for the average values (the dots) to be below the red line.

During the growing season (Jun - Sept), the city of Eden Prairie visits Mitchell Lake to collect water samples and take measurements. The samples are tested for several compounds including total phosphorous (TP) and chlorophyll a (Chl-a). The city also measures how clear the water is using a disk that is lowered into the water until it can not be seen. These tests help indicate if the water is clean.

Mitchell is classified as a "Shallow Lake", which means that it is generally less than 15 feet deep and light can reach the bottom in most of the lake. This ample light means that shallow lakes often have a lot of aquatic plants, and are habitat to many types of fish and birds. To be considered healthy by the MPCA, shallow lakes need to be clear enough to see one meter down, and have low TP and Chl-a levels.

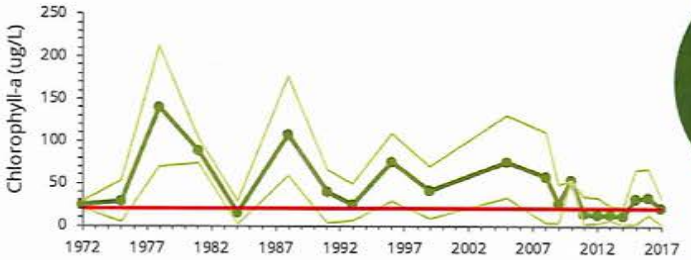
An osprey looks out on Mitchell Lake, scanning the surface for signs of the fish it relies on for food.

District Staff taking samples to monitor zooplankton, an important food for native fish.

Water quality graphs 1972 - 2017

Points are growing season (Jun-Sep) averages. Thin lines are the min and max values for each year.

Phosphorus is a nutrient that plants and algae need for growth. It is often measured as total phosphorus (TP). Too much phosphorous can cause algae blooms.



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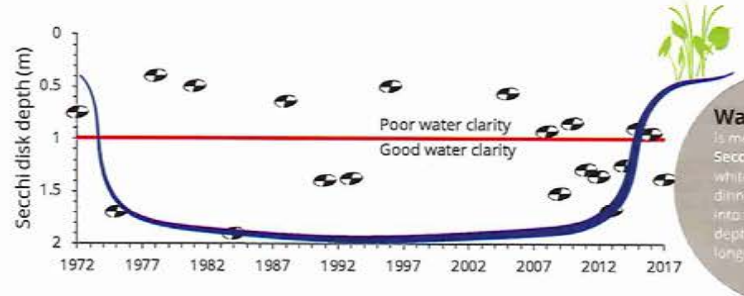

Water clarity is measured using a **Secchi Disk**, a black and white disk the size of a dinner plate. It is lowered into the water, and the depth at which it is no longer visible is recorded.

Summary table

	MPCA standard	1972 - 2016 max	1972 - 2016 min	1972 - 2016 average	2017 max	2017 min	2017 average
TP	<0.06 mg/l	0.33	0.02	0.078	0.073	0.037	0.063
Chl-a	<20 ug/l	211	1	36.45	32	1	20.5
Secchi	>1 m	4.084	0.3	1.2	3.81	0.67	1.38

Rainwater runoff, the water that flows across yards, parking lots, and streets into stormdrains, is one of the main causes of pollution in urban areas. You can take simple actions to help protect Mitchell Lake.

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Sweep up leaves, grass clippings and fertilizer from driveways and streets.

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Wenck Associates Inc. 2015. Red Rock Lake Plant Management Plan.

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Watershed study
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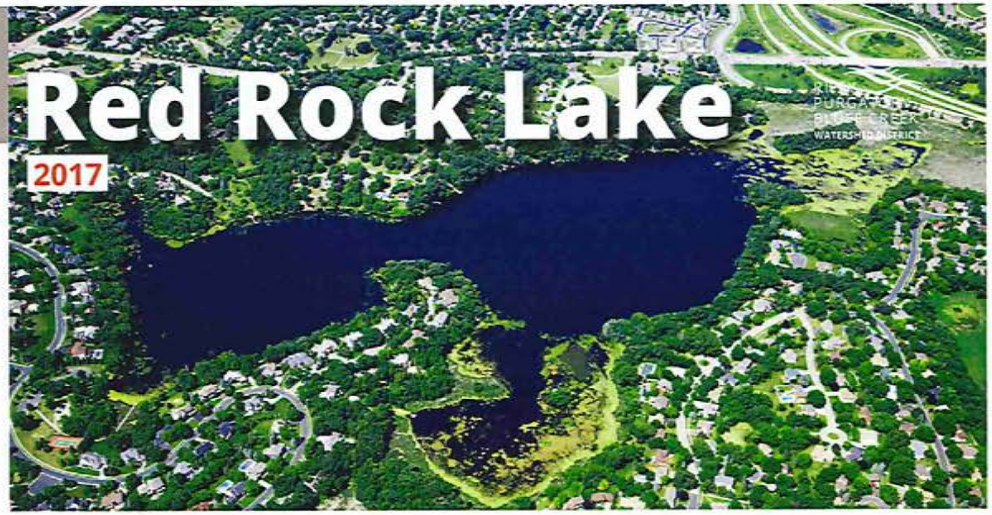

Located in Eden Prairie, Red Rock Lake is a part of the Purgatory Creek chain of lakes. During high water events it outflows through an overflow pipe to Staring Lake.

CHARACTERISTICS

Size	121 acres
Volume	615 acre-ft
Average depth	4.7 ft
Max depth	19 ft
Watershed size	1286 acres
Land draining directly into	332 acres
MPCA lake classification	Shallow
Impairment listing	Mercury
Trophic status	Eutrophic
Common fish	Bluegill, Northern Pike, Pumpkinseed, Yellow Perch
Invasive species	Curlyleaf Pondweed, Eurasian Watermilfoil

WATERSHED BOUNDARIES

Water that falls anywhere within the white border drains to Red Rock Lake.

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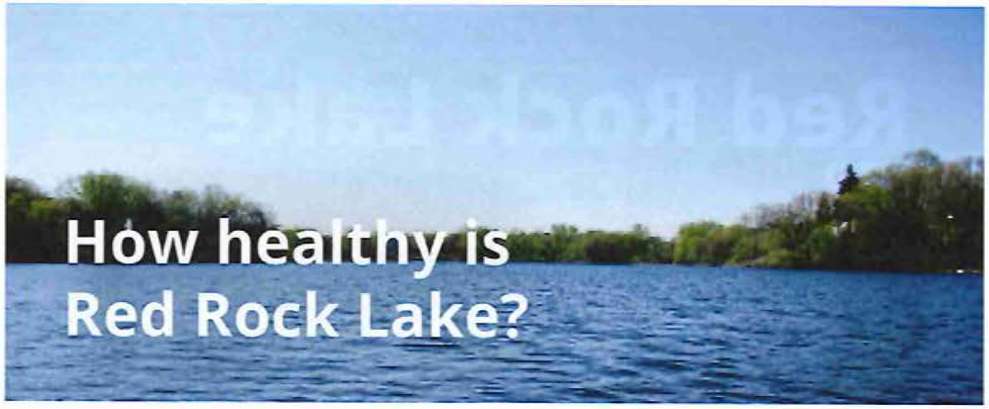

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During the growing season (Jun - Sept), the city of Eden Prairie visits Red Rock to collect water samples and take measurements. The samples are tested for several compounds including total phosphorous (TP) and chlorophyll a (Chl-a). The city also measures how clear the water is using a disk that is lowered into the water until it can not be seen. These tests help indicate if the water is clean.

Red Rock is classified as a "Shallow Lake", which means that it is generally less than 15 feet deep and light can reach the bottom in most of the lake. This ample light means that shallow lakes often have a lot of aquatic plants, and are habitat to many types of fish and birds. To be considered healthy by the MPCA, shallow lakes need to be clear enough to see one meter down, and have low TP and Chl-a levels.

Water lilies are a common site on the lake.

Red Rock Lake on an early summer morning.

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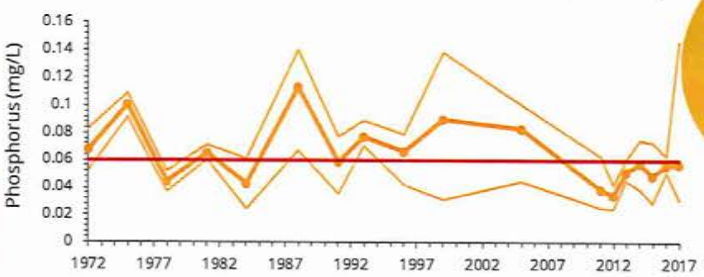

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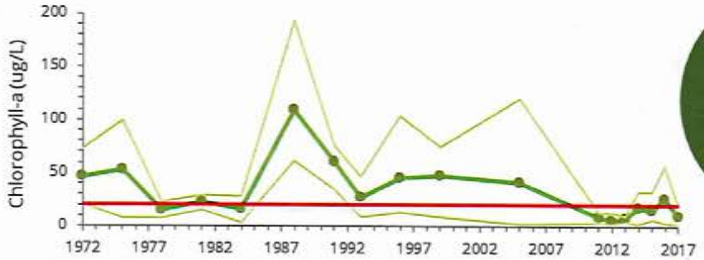

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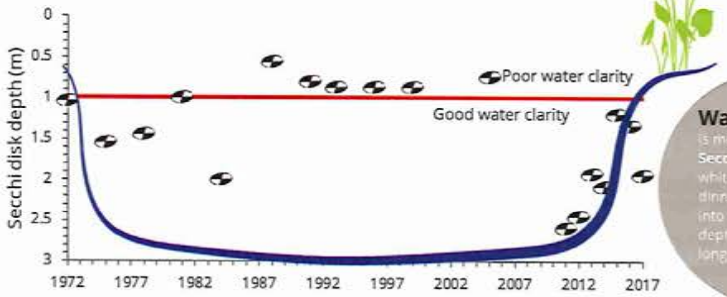

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Blue Water Science. 2014. Aquatic plant survey for Rice Marsh Lake, Eden Prairie.

Carp management
Bajer P.G., Headrick,M., Miller B. D. and Sorensen P. W. 2014. Development and implementation of a sustainable strategy to control common carp in Riley Creek Chain of Lakes. University of Minnesota.

Paleolimnology
Ramstack Hobbs J. M. and M.B. Edlund. 2014. Historical water quality and ecological change in Rice Marsh Lake. St. Croix Watershed Research Station.

Stormwater ponds
RPBCWD. 2013. Stormwater pond project.

Watershed study
BARR Engineering. 2016. Rice Marsh Lake and Lake Riley Use Attainability Analysis.

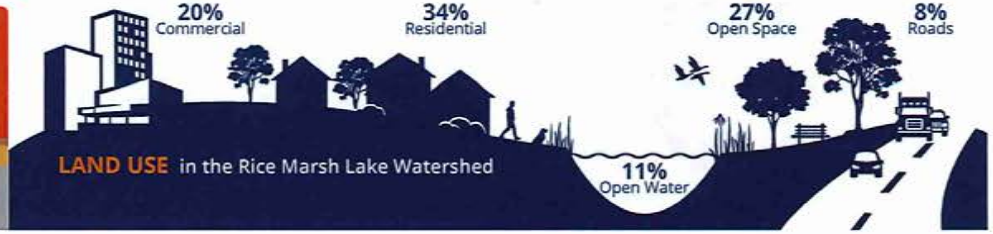
Located in both Eden Prairie and Chanhassen, Rice Marsh Lake is aerated in the winter. This management practice helps keep bluegill sunfish alive so that they can feed on invasive carp eggs in the spring.

CHARACTERISTICS

Size	83 acres
Volume	375 acre-ft
Average depth	5 ft
Max depth	11 ft
Watershed size	966 acres
Land draining directly into	280 acres
MPCA lake classification	Shallow
Impairment listing	Not listed
Trophic status	Hypereutrophic
Common fish	Bluegill, White Sucker, Northern Pike
Invasive species	Curlyleaf Pondweed, Purple Loosestrife, Common Carp

WATERSHED BOUNDARIES

Water that falls anywhere within the white border drains to Rice Marsh Lake.



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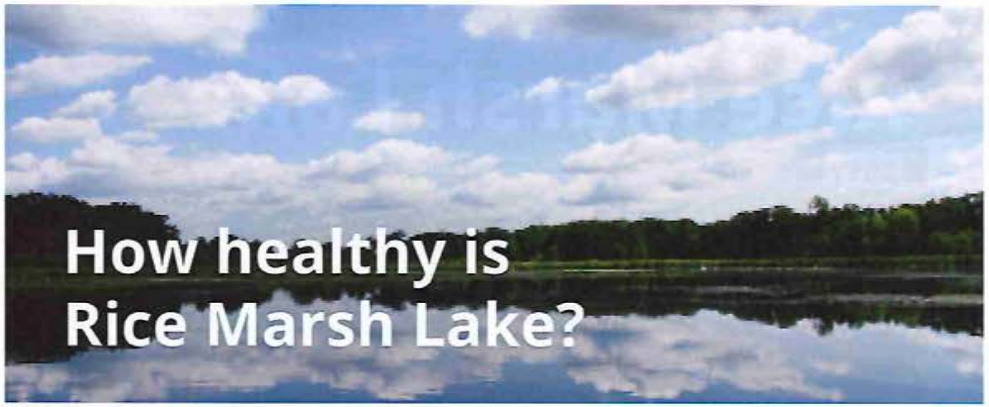


How healthy is Rice Marsh Lake?

Water quality in Rice Marsh Lake improved from 2016 to 2017 and met all three parameters for clean water standards set by the Minnesota Pollution Control Agency (MPCA). The graphs on the next page show the trends over time. The red line on each graph marks the MPCA standard. The goal is for the average values (the dots) to be below the red line.

During the growing season (June - September), district staff visit Rice Marsh Lake every other week to collect water samples and take measurements. The water samples are sent to a lab where they are tested for several compounds including total phosphorous (TP) and chlorophyll a (Chl-a). Staff also measure how clear the water is using a disk that is lowered into the water until it can no longer be seen. All three of these parameters help indicate whether the water is clean.

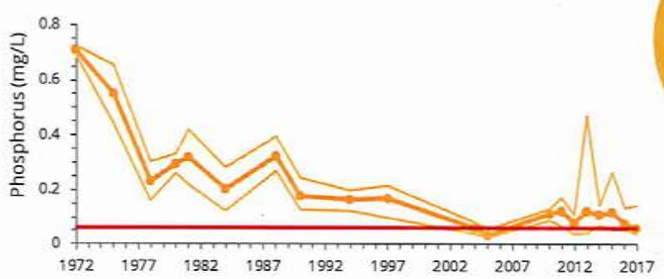
Rice Marsh is classified as a "Shallow Lake", which means that it is generally less than 15 feet deep and light can reach the bottom in most of the lake. This ample light means that shallow lakes often have a lot of aquatic plants, and are habitat to many types of fish and birds. To be considered healthy by the MPCA, shallow lakes need to be clear enough to see one meter down, and have low TP and Chl-a levels.

Motorized boats are not allowed on the shallow Rice Marsh Lake, but it is a popular place to kayak and canoe.

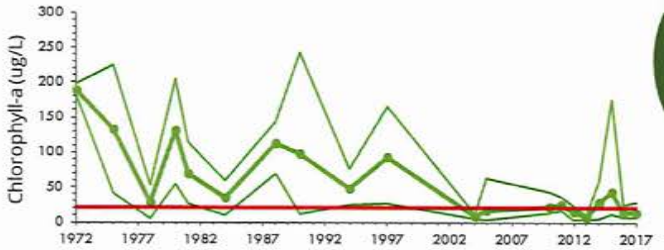
Two Canadian Geese resting on Rice Marsh Lake before preparing themselves for flight.

Water quality graphs 1972 - 2017

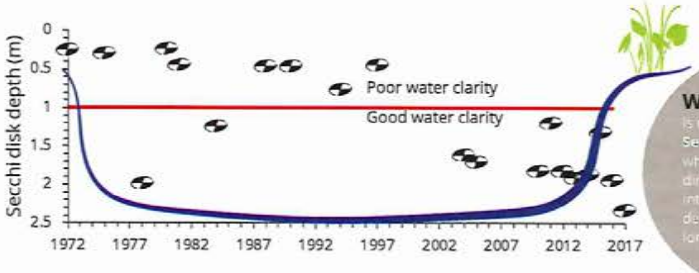
Points are growing season (Jun-Sep) averages. Thin lines are the min and max values for each year.



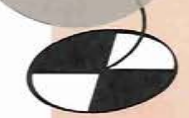
Phosphorus is a nutrient that plants and algae need for growth. It is often measured as total phosphorus (TP). Too much phosphorous can cause algae blooms.



Chlorophyll a is the main pigment in algae, so measuring chl-a can tell us how much algae there is. Too much chl-a means that there are too many nutrients in the water.



Water clarity is measured using a **Secchi Disk**, a black and white disk the size of a dinner plate. It is lowered into the water, and the depth at which it is no longer visible is recorded.



Rainwater runoff, the water that flows across yards, parking lots, and streets into stormdrains, is one of the main causes of pollution in urban areas. You can take simple actions to help protect Rice Marsh Lake.

Keep the curb clean
Sweep up leaves, grass clippings and fertilizer from driveways and streets.

Water with care
Grass requires 1-inch of water per week: about one hour of sprinkling per week if it has not rained.

Salt smart
The salt we use to melt ice can pollute our lakes and creeks. Use salt sparingly and always shovel first.

Reuse the rain
Collect and reuse rainwater with a rain barrel.

Build a raingarden
Raingardens soak up water and filter out pollution. Visit our website for help.

Summary table

	MPCA standard	1972 - 2016 max	1972 - 2016 min	1972 - 2016 average	2017 max	2017 min	2017 average
TP	<0.06 mg/l	0.72	0.026	0.15	0.144	0.039	0.059
Chl-a	<20 ug/l	242.4	2.7	43.1	28.5	6.23	13.62
Secchi	>1 m	3.2	0.1	1.36	2.85	1.4	2.33

What's happening

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JaKa, J. and Newman, R. 2014. Aquatic Plant Community of Lakes Ann, Lotus, Lucy, Mitchell, Susan, Riley and Staring within the Riley Purgatory Bluff Creek Watershed: Final Report 2009 – 2014. University of Minnesota.

Watershed study
BARR Engineering. 2016. Rice Marsh Lake and Lake Riley Use Attainability Analysis.

Alum Fact Sheet
RPBCWD. 2016. Alum Fact Sheet.

Carp management
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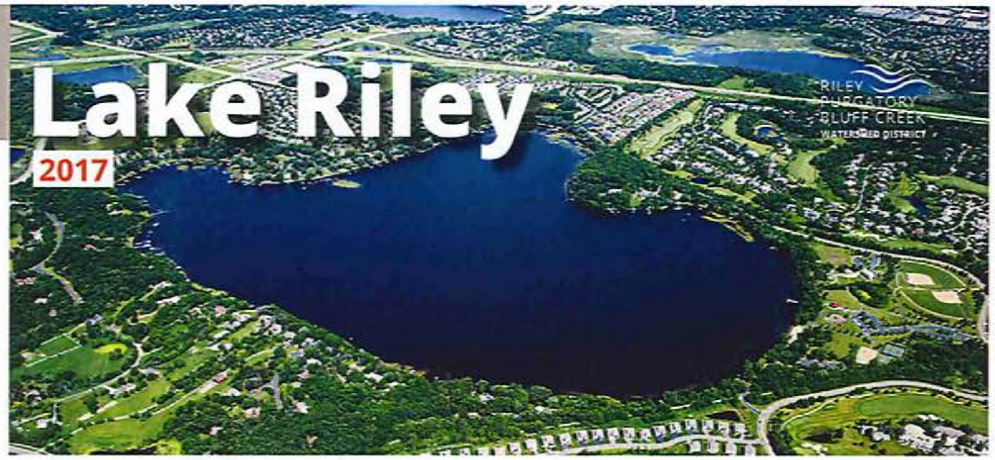


At 297 acres, and with an average depth of 23 ft, Lake Riley is one of the largest lakes in the Riley Purgatory Bluff Creek Watershed District. It is located on the boundary of the cities of Chanhassen and Eden Prairie and is a popular summer recreation stop.

CHARACTERISTICS

Size	297 acres
Volume	6230 acre-ft
Average depth	23 ft
Max depth	49 ft
Watershed size	1776 acres
Land draining directly into	818 acres
MPCA lake classification	Deep
Impairment listing	Mercury & Nutrients
Trophic status	Eutrophic
Common fish	Bluegill, Northern Pike, Yellow Perch, Yellow Bullhead
Invasive species	Curlyleaf Pondweed, Eurasian Watermilfoil, Common Carp

WATERSHED BOUNDARIES

Water that falls anywhere within the white border drains to Lake Riley.

How healthy is Lake Riley?

Water quality in Lake Riley decreased slightly in 2017, but remained below or near the clean water standards set by the Minnesota Pollution Control Agency (MPCA).

During the growing season (June - September), district staff visit Lake Riley every other week to collect water samples and take measurements. The samples are sent to a lab where they are tested for several compounds including total phosphorous (TP) and chlorophyll a (Chl-a). Staff also measure how clear the water is using a disk that is lowered into the water until it can no longer be seen. All three of these test help indicate if the water is clean.

Riley is classified as a "Deep Lake", which means that it is over 15 feet deep and light can not reach the bottom in most of the lake. To be considered healthy by the MPCA, it needs to be clear enough to see 1.4 meters down, and have very low TP and Chl-a levels.

The graphs on the next page show the trends over time. The red line on each graph marks the MPCA standard. The goal for each graph is for the average values (the dots) to be below the red line.

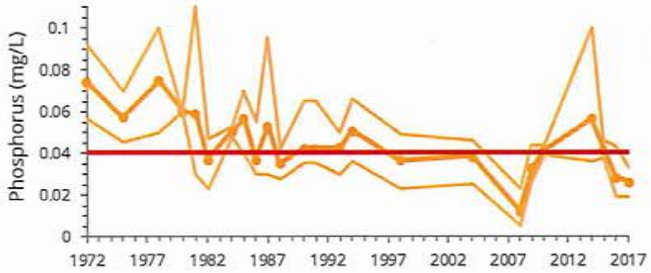
Lake Riley during different times of the year.

Top: Summer, 2017

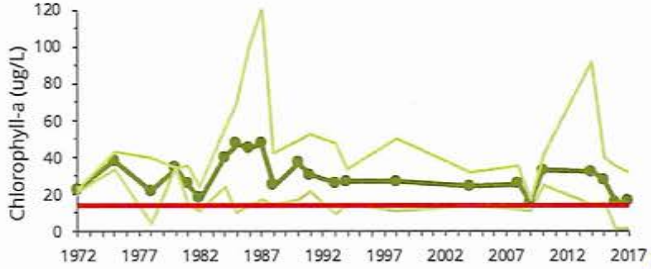
Bottom: Fall, 2017

Water quality graphs 1972 - 2017

Points are growing season (Jun-Sep) averages. Thin lines are the min and max values for each year.



Phosphorus is a nutrient that plants and algae need for growth. It is often measured as total phosphorus (TP). Too much phosphorus can cause algae blooms.



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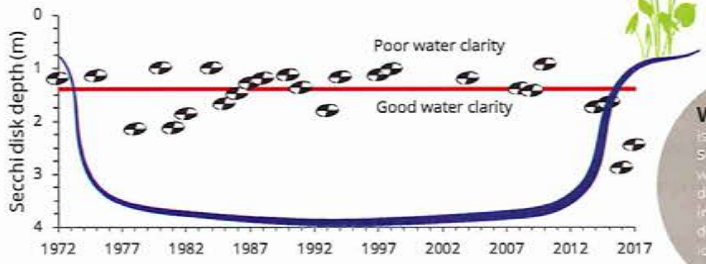

Water clarity is measured using a **Secchi Disk**, a black and white disk the size of a dinner plate. It is lowered into the water, and the depth at which it is no longer visible is recorded.

Summary table

	MPCA standard	1972 - 2016 max	1972 - 2016 min	1972 - 2016 average	2017 max	2017 min	2017 average
TP	<0.04 mg/l	0.11	0.005	0.043	0.033	0.019	0.026
Chl-a	<14 ug/l	120	1.0	28.6	32	1.0	15.64
Secchi	>1.4 m	6.0	0.5	1.6	5.25	1.4	2.5

Rainwater runoff, the water that flows across yards, parking lots, and streets into stormdrains, is one of the main causes of pollution in urban areas. You can take simple actions to help protect Lake Riley.

Keep the curb clean

Sweep up leaves, grass clippings and fertilizer from driveways and streets.

Water with care

Grass requires 1-inch of water per week: about one hour of sprinkling per week if it has not rained.

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DIVE DEEPER

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Aquatic plants
Blue Water Science. 2013 Aquatic plant surveys and water quality for Round Lake and two tributary ponds.

Watershed study
Barr Engineering. 2017. Purgatory Creek Watershed Use Attainability Analysis.

Invasive Species
Sorensen, Bajer, & Headrick. 2015. Development of Carp Control in the Purgatory Creek Chain of Lakes.

Alum Fact Sheet
RPBCWD. 2016. Alum Fact Sheet.

Located in Eden Prairie, Round Lake is a part of the Purgatory Creek Chain of Lakes. With a park and a trail system around the lake, it is a popular recreation spot.

CHARACTERISTICS

Size	30 acres
Volume	327 acre-ft
Average depth	11 ft
Max depth	37 ft
Watershed size	475 acres
Land draining directly into	105 acres
MPCA lake classification	Deep
Impairment listing	Mercury & Perfluorooctane
Trophic status	Eutrophic
Common fish	Bluegill, N. Pike, Yellow Bullhead, Yellow Perch
Invasive species	Curlyleaf Pondweed, Eurasian Watermilfoil, Common Carp

WATERSHED BOUNDARIES

Water that falls anywhere within the white border drains to Round Lake.

LAND USE in the Round Lake Watershed

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How healthy is Round Lake?

Round Lake has been monitored for over 40 years. In that time, it has often failed to meet the clean water standards set by the Minnesota Pollution Control Agency (MPCA). However, there have been significant improvements since 2012 when the city of Eden Prairie conducted an alum treatment, and in 2017 it met all standards. Read more about alum on our District website.

During the growing season (June - September), the city of Eden Prairie visits Round Lake every other week to collect water samples and take measurements. The samples are sent to a lab where they are tested for several compounds including total phosphorous (TP) and chlorophyll a (Chl-a). Staff also measure how clear the water is using a disk that is lowered into the water until it can no longer be seen. All three of these parameters help indicate whether the water is clean.

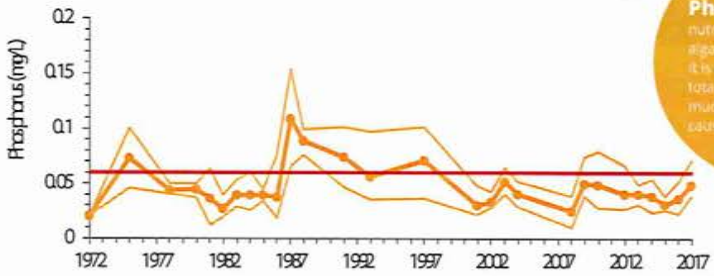
Round is classified as a "Deep Lake", which means that it is over 15 feet deep and light can not reach the bottom in most of the lake. To be considered healthy by the MPCA, deep lakes need to be clear enough to see 1.4 meters down, and have very low TP and Chl-a.

Round Lake Park is a popular spot to visit, play, and explore.

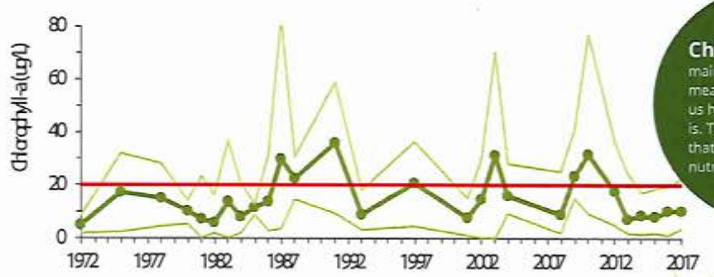
The park trail goes all the way around the lake.

Water quality graphs 1972 - 2017

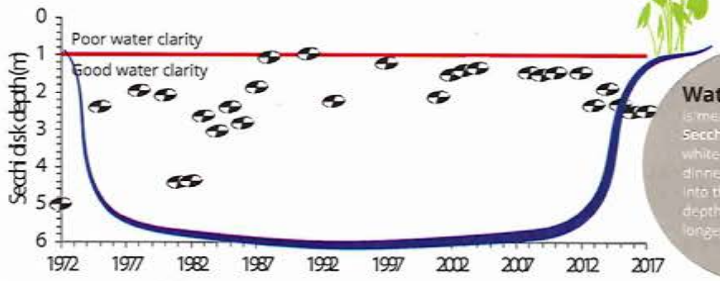
Points are growing season (Jun-Sep) averages. Thin lines are the min and max values for each year.



Phosphorus is a nutrient that plants and algae need for growth. It is often measured as total phosphorus (TP). Too much phosphorous can cause algae blooms.



Chlorophyll a is the main pigment in algae, so measuring chl-a can tell us how much algae there is. Too much chl-a means that there are too many nutrients in the water.



Water clarity is measured using a **Secchi Disk**, a black and white disk the size of a dinner plate. It is lowered into the water, and the depth at which it is no longer visible is recorded.

Summary table

	MPCA standard	1972 - 2016 max	1972 - 2016 min	1972 - 2016 average	2017 max	2017 min	2017 average
TP	<0.04 mg/l	0.154	0.01	0.045	0.07	0.038	0.048
Chl-a	<14 ug/l	83	0.2	14.79	22.4	3.6	**10.1**
Secchi	>1.4 m	6.2	0.5	2.2	3.11	1.37	**2.48**

Rainwater runoff, the water that flows across yards, parking lots, and streets into stormdrains, is one of the main causes of pollution in urban areas. You can take simple actions to help protect Round Lake.

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Freshwateer Scientific Services. 2017. Aquatic Plant Survey: Silver Lake.

Watershed study
BARR Engineering. 2017. Purgatory Creek Watershed Use Attainability Analysis.

Stormwater ponds
RPBCWD. 2013. Stormwater pond project.

Paleolimnology
Ramstack Hobbs J. M. and M. B. Edlund. 2015. Paleolimnological analysis of Silver Lake, Hennepin County, MN. St. Croix Watershed Research Station.

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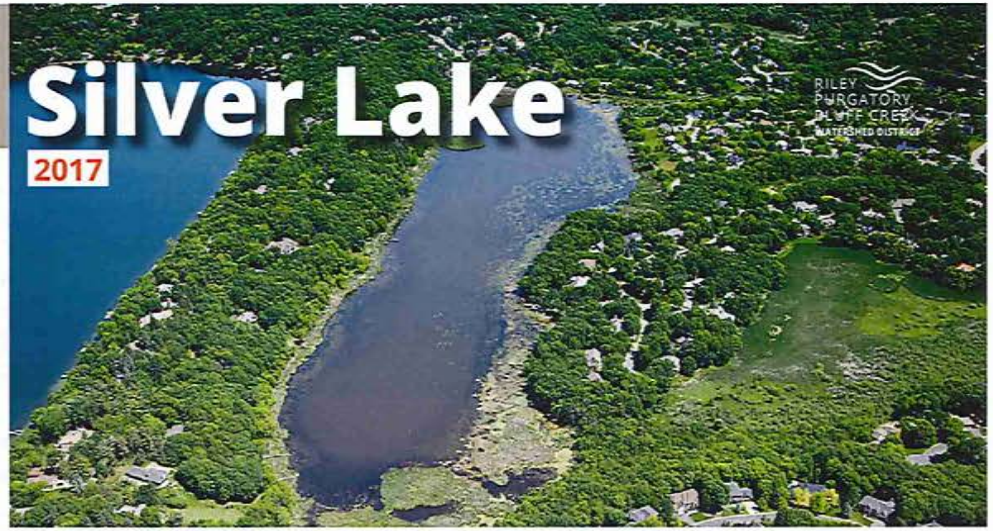
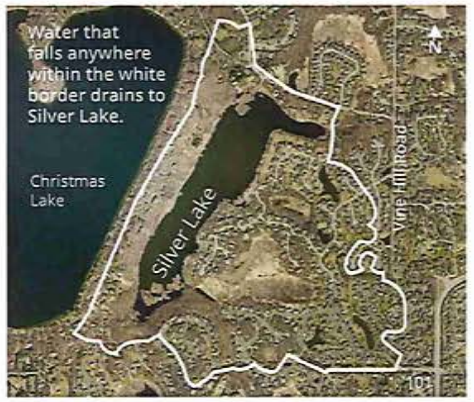


Located in Shorewood, Silver Lake sits at the edge of the watershed district. It is the only lake in the district that has wild rice, a rare plant to find in metro area lakes!

CHARACTERISTICS

Size	71 acres
Volume	190 acre-ft
Average depth	5 ft
Max depth	14 ft
Watershed size	407 acres
MPCA lake classification	Shallow
Impairment listing	Not Listed
Trophic status	Hypereutrophic
Common fish	Unknown
Invasive species	Curlyleaf Pondweed, Purple Loosestrife

WATERSHED BOUNDARIES



How healthy is Silver Lake?

Water quality in Silver Lake has increased from 2016 to 2017, now meeting two of three clean water standards set by the Minnesota Pollution Contral Agency (MPCA). The graphs on the next page show the trends over time. The red line on each graph marks the MPCA standard. The goal is for the averages (the dots) to fall below the red line.

During the growing season (June - September), district staff visit Silver Lake every other week to collect water samples and take measurements. The water samples are sent to a lab where they are tested for several compounds including total phosphorous (TP) and chlorophyll a (Chl-a). Staff also measure how clear the water is using a disk that is lowered into the water until it can no longer be seen.

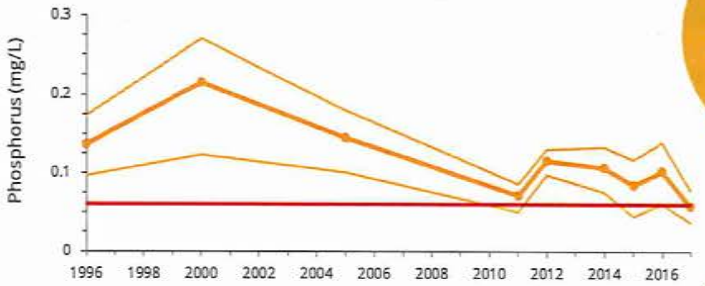
Silver is classified as a "Shallow Lake", which means that it is generally less than 15 feet deep and light can reach the bottom in most of the lake. To be considered healthy by the MPCA, shallow lakes need to be clear enough to see one meter down, and have low TP and Chl-a levels.

A small frog peeks out through the vegetation in Silver Lake.

Two swans taking off of Silver Lake.

Water quality graphs 1996 - 2017

Points are growing season (Jun-Sep) averages. Thin lines are the min and max values for each year.



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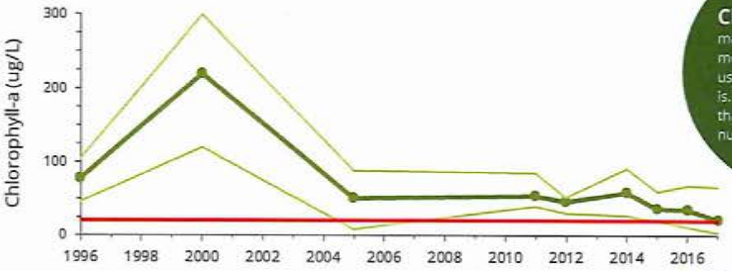

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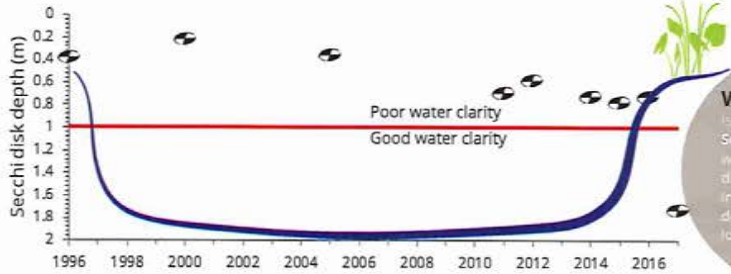

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Summary table

	MPCA standard	1996 - 2016 max	1996 - 2016 min	1996 - 2016 average	2017 max	2017 min	2017 average
TP	<0.06 mg/l	0.27	0.05	0.118	0.078	0.038	0.058
Chl-a	<20 ug/l	300	8	68	66.8	4.45	20.68
Secchi	>1 m	1.1	0.2	0.6	2.35	1.1	1.7

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JaKa, J. and Newman, R. 2014. Aquatic Plant Community of Lakes Ann, Lotus, Lucy, Mitchell, Susan, Riley and Staring within the RPBCWD: Final Report 2009 – 2014. University of Minnesota.

Assessments

BARR Engineering. 2017. Purgatory Creek Watershed Use Attainability Analysis.

RPBCWD & BARR Engineering. 2015. Creek Restoration Action Strategy.

Carp management

Sorensen P, Bajer P and M Headrick. 2015. Development and implementation of a sustainable strategy to control common carp in the Purgatory Creek chain of Lakes. University of Minnesota.

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and find out how you can get involved

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Chanhassen, MN
55317

CONTACT INFO
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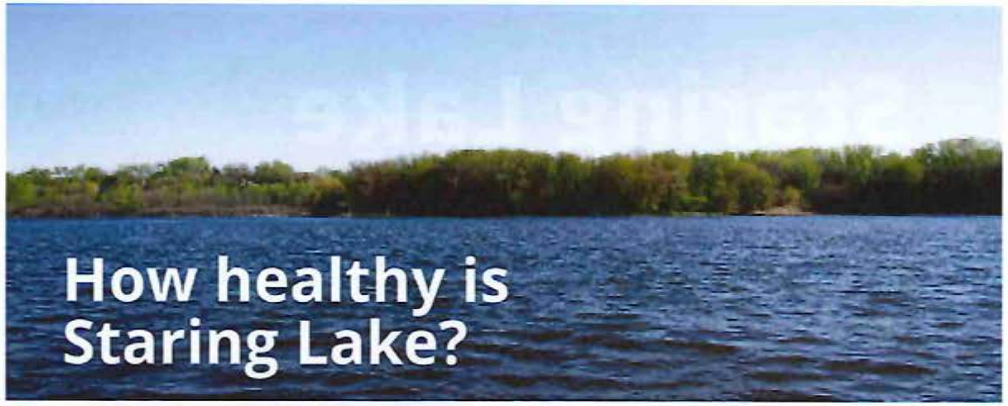
Staring Lake is located in Eden Prairie, west of Flying Cloud Drive and north of Pioneer Trail. Staring has a public boat ramp and a fishing pier. The Eden Prairie Outdoor Center is also located on its shores, off of Staring Lake Parkway.

CHARACTERISTICS

Size	166 acres
Volume	1,220 acre-ft
Average depth	7 ft
Max depth	16 ft
Watershed size	10,206 acres
Land draining directly into	314 acres
MPCA lake classification	Shallow
Impairment listing	Mercury & Nutrients
Trophic status	Hypereutrophic
Common fish	Bluegill, Black Crappie, Black Bullhead
Invasive species	Curlyleaf Pondweed, Eurasian Watermilfoil, Common Carp, Brittle Naiad

WATERSHED BOUNDARIES

LAND USE in the Staring Lake Watershed



How healthy is Staring Lake?

Staring Lake water quality improved from 2016 to 2017, currently meeting two of the three clean water standards set by the Minnesota Pollution Control Agency (MPCA). The graphs on the next page show the trends over time. The red line marks the MPCA standard. The goal is for the average values (the dots) to fall below the red line.

During the growing season (June - September), district staff visit Staring Lake every other week to collect water samples and take measurements. The samples are sent to a lab and tested for several compounds including total phosphorous (TP) and chlorophyll a (Chl-a). Staff also measure how clear the water is using a disk that is lowered into the water until it can no longer be seen. All three of these parameters help indicate whether the water is clean.

Staring is classified as a "Shallow Lake", which means that it is generally less than 15 feet deep and light can reach the bottom in most of the lake. This ample light means that shallow lakes often have a lot of aquatic plants, and are habitat to many types of fish and birds. To be considered healthy by the MPCA, shallow lakes need to be clear enough to see one meter down, and have low TP and Chl-a levels.

District staff collecting water samples and taking measurements on Staring Lake.

Curlyleaf pondweed is another invader that the district works to manage. It can form dense mats and competes with native plants.

Rainwater runoff, the water that flows across yards, parking lots, and streets into stormdrains, is one of the main causes of pollution in urban areas. You can take simple actions to help protect Staring Lake.

Keep the curb clean
Sweep up leaves, grass clippings and fertilizer from driveways and streets.

Water with care
Grass requires 1-inch of water per week: about one hour of sprinkling per week if it has not rained.

Salt smart
The salt we use to melt ice can pollute our lakes and creeks. Use salt sparingly and always shovel first.

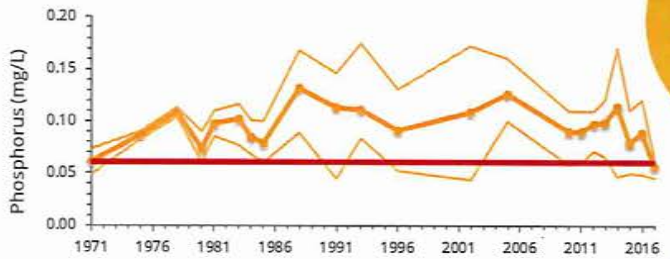
Reuse the rain
Collect and reuse rainwater with a rain barrel.

Build a raingarden
Raingardens soak up water and filter out pollution. Visit our website for help.

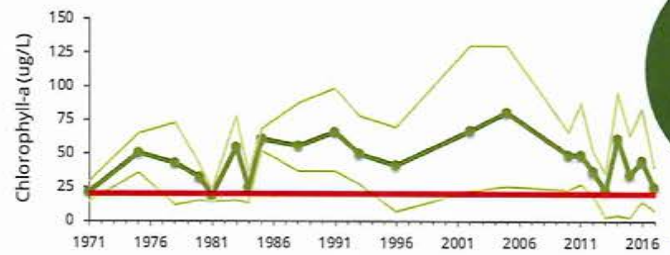
Water quality graphs 1971 - 2017

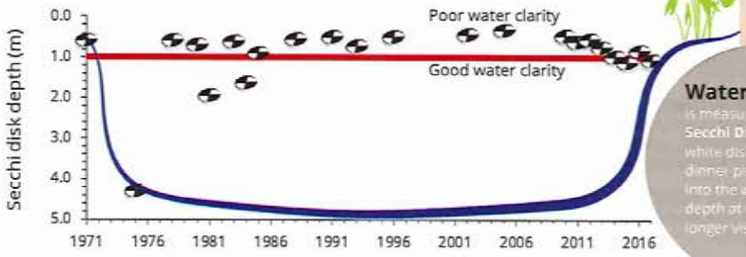
Points are growing season (Jun-Sep) averages. Thin lines are the min and max values for each year.

Phosphorus is a nutrient that plants and algae need for growth. It is often measured as total phosphorus (TP). Too much phosphorous can cause algae blooms.



Chlorophyll a is the main pigment in algae, so measuring chl-a can tell us how much algae there is. Too much chl-a means that there are too many nutrients in the water.





Water clarity is measured using a **Secchi Disk**, a black and white disk the size of a dinner plate. It is lowered into the water and the depth at which it is no longer visible is recorded.

Summary table

	MPCA standard	1971 - 2016 max	1971 - 2016 min	1971 - 2016 average	2017 max	2017 min	2017 average
TP	<0.06 mg/l	0.175	0.043	0.098	0.065	0.045	0.057
Chl-a	<20 ug/l	130	2.7	47.0	40.0	8.0	24.7
Secchi	>1 m	4.3	0.2	0.8	1.9	0.7	1.1

What's happening

WATERSHED MANAGEMENT PLAN

One of the most important projects the watershed worked on in 2017 was updating its Watershed Managment Plan.

This watershed management plan (also called the 10-Year Plan) guides the District's actions for the next 10 years.

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The draft plan was relased for public review in late 2017. After comments are addressed, the District will submit a final plan for approval in 2018. Check our website for updates on the process: rpbcwd.org

Thank you! To everyone who shared their thoughts, ideas, hopes and concerns. We truly appreciate you being a part of this process.

DIVE DEEPER

Interested in learning more? Explore the following reports on our website.

Aquatic plants
Dunne, M. and Newman, R. 2017. Aquatic Plant Community of Lakes Lucy, Mitchell, Susan, Riley and Staring: Annual Report for 2016. University of Minnesota.

JaKa, J. and Newman, R. 2014. Aquatic Plant Community of Lakes Ann, Lotus, Lucy, Mitchell, Susan, Riley and: Final Report 2009 – 2014. University of Minnesota.

Watershed study
Wenck Associates Inc. 2013. Lake Susan Use Attainability Analysis.

Stormwater ponds
RPBCWD. 2013. Stormwater pond project.

Carp management
Bajer P.G., Headrick,M., Miller B. D. and Sorensen P. W. 2014. Development and implementation of a sustainable strategy to control common carp in Riley Creek Chain of Lakes. University of Minnesota.

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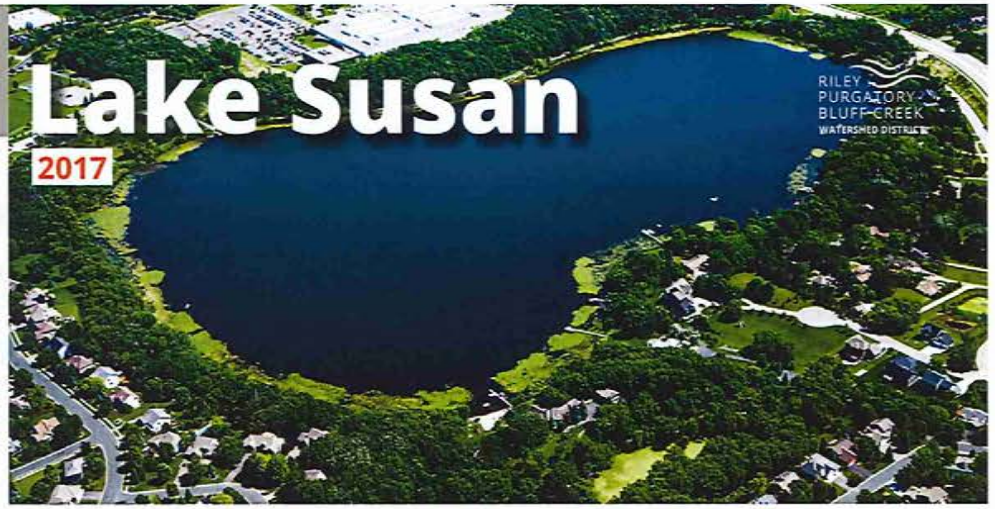
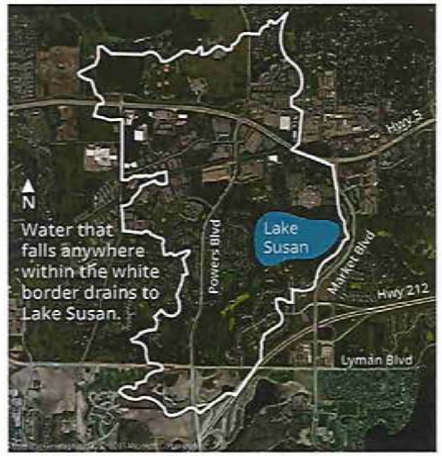


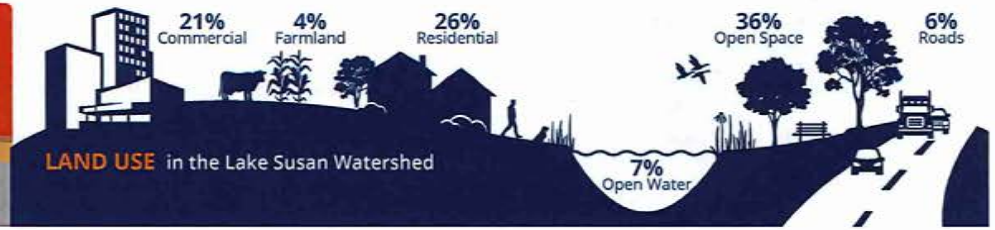
Located in Chanhassen, Lake Susan is a part of the Riley Creek Chain of Lakes. It is the third lake that Riley Creek flows through as it makes its way to the Minnesota River.

CHARACTERISTICS

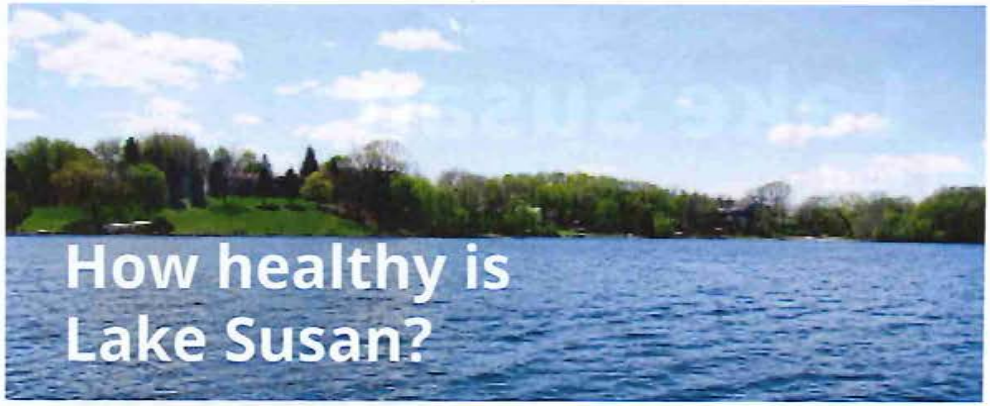
Size	88 acres
Volume	885 acre-ft
Average depth	10 ft
Max depth	17 ft
Watershed size	1281 acres
Land draining directly into	66 acres
MPCA lake classification	Shallow
Impairment listing	Mercury & Nutrients
Trophic status	Eutrophic
Common fish	Bluegill, Black Crappie, Northern Pike, Black Bullhead
Invasive species	Curlyleaf Pondweed, Eurasian Watermilfoil, Common Carp

WATERSHED BOUNDARIES





LAND USE in the Lake Susan Watershed



How healthy is Lake Susan?

For the past 40 years, Lake Susan water quality has consistently failed to meet the clean water standards set by the Minnesota Pollution Control Agency (MPCA), and 2017 kept with this trend. The graphs on the next page show the trends over time. The red line marks the MPCA standard. The goal is for the average values (the dots) to fall below the red line.

During the growing season (June - September), district staff visit Lake Susan every other week to collect water samples and take measurements. The water samples are sent to a lab where they are tested for several compounds including total phosphorous (TP) and chlorophyll a (Chl-a). Staff also measure how clear the water is using a disk that is lowered into the water until it can no longer be seen. All three of these parameters help indicate whether the water is clean. Find out more about each on the next page.

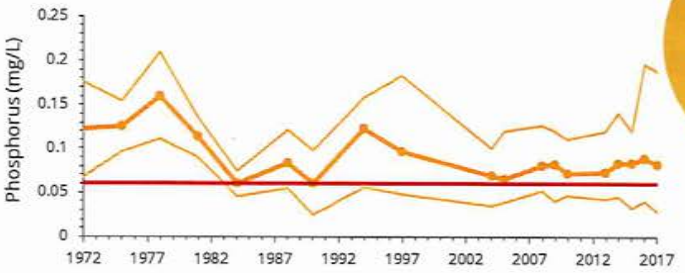
Susan is classified as a "Shallow Lake", which means that it is generally less than 15 feet deep and light can reach the bottom in most of the lake. To be considered healthy by the MPCA, shallow lakes need to be clear enough to see one meter down, and have low TP and Chl-a levels. These shallow lake standards are listed in the summary table.

A goose takes a swim in Lake Susan.

Staff collect water samples on Lake Susan.

Water quality graphs 1972 - 2017

Points are growing season (Jun-Sep) averages. Thin lines are the min and max values for each year.



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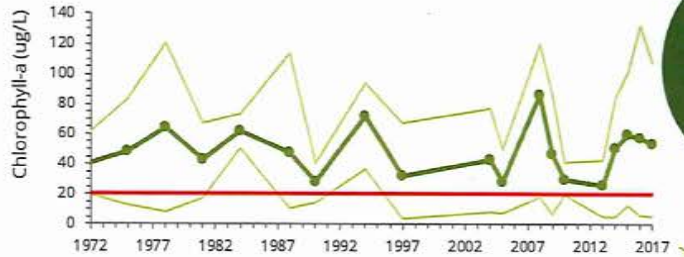

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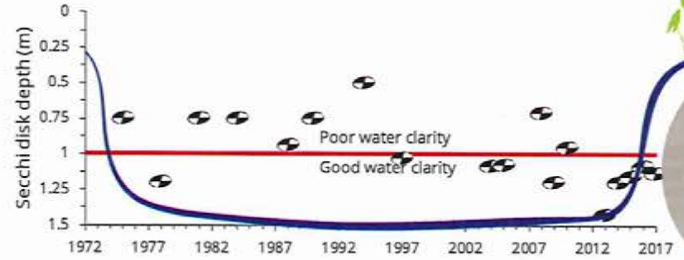

Water clarity is measured using a **Secchi Disk**, a black and white disk the size of a dinner plate. It is lowered into the water and the depth at which it is no longer visible is recorded.

Summary table

	MPCA standard	1972 - 2016 max	1972 - 2016 min	1972 - 2016 average	2017 max	2017 min	2017 average
TP	<0.06 mg/l	0.208	0.024	0.085	0.187	0.028	0.082
Chl-a	<20 ug/l	132	3.9	46.6	108	5.34	53.48
Secchi	>1 m	3.6	0.3	1	2.85	0.5	1.1

Rainwater runoff, the water that flows across yards, parking lots, and streets into stormdrains, is one of the main causes of pollution in urban areas. You can take simple actions to help protect Lake Susan.

Keep the curb clean
Sweep up leaves, grass clippings and fertilizer from driveways and streets.

Water with care
Grass requires 1-inch of water per week: about one hour of sprinkling per week if it has not rained.

Salt smart
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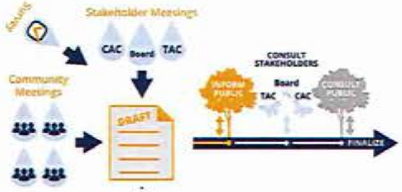

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YOU CAN HELP

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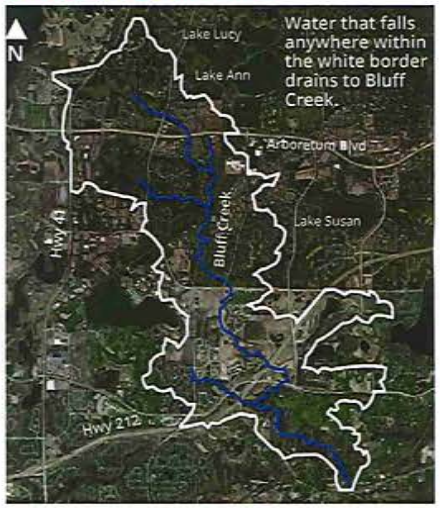
In the photo above, Bluff Creek winds its way south, past Chanhassen High School. Bluff is about seven miles long, and unlike Purgatory and Riley Creeks, does not connect any lakes on its way to the Minnesota River. It does however connect many wetlands and you can explore almost its entire length on trails.

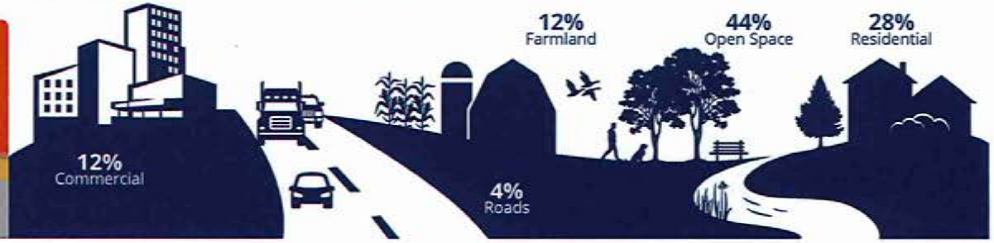
CHARACTERISTICS

Length	6.8 miles
Elevation change	232 ft
Watershed size	5.8 sq miles
# of cities in watershed	2
# of lakes connected	0
# of monitoring sites	5
# of parks	3
Impairment	Turbidity, Fish
Common fish	Brook Stickleback, Northern Fathead Minnow
Invasive species	Reed Canary Grass, Buckthorn

WATERSHED BOUNDARIES



LAND USE in the Bluff Creek Watershed



How healthy is Bluff Creek?

Keeping Bluff Creek healthy requires several tools and strategies. Implementing projects to stabilize the stream banks and restore creek reaches is one important strategy. Cleaning and slowing rainwater runoff before it reaches the creek is another. But before either of these can be done, we need to understand how the creek is doing and where it needs the most help.

The watershed district has been monitoring Bluff Creek since the 1970s. Recently, the district developed a new tool to assess the creek: the Creek Restoration Action Strategy (CRAS). The CRAS uses water quality data, as well as information on erosion and habitat, to rank which creek sections are doing well, and which are doing the poorly. Below, the three major types of data used in the assessment are described. On the next page, a creek map shows the results from 2017.

Water quality

District staff take samples at five sites during summer. They gather data on nutrient levels (phosphorus), algae, sediment, pH, and dissolved oxygen. These data let us know how clean the water is, and whether it is healthy for plants, animals, and people.

Erosion

Every year, staff walk along sections of the creek. They note sites with erosion, the severity, and whether any structures like houses or bridges are in danger. Erosion is also a problem because sediment eroding into the creek is a pollutant.

Habitat

Creeks are important habitat for insects, plants, fish, birds, and other animals. When staff check for erosion, they also assess the habitat. Reaches receive a score based on the quality of habitat they provide, and whether it needs to be restored.

Dive deeper

Interested in learning more? Explore the following reports on our website.

Assessment
RPBCWD & BARR Engineering. 2017. Creek Restoration Action Strategy.

Implementation plan
BARR Engineering. 2013. Bluff Creek Watershed: Total Maximum Daily Load Implementation Plan.

Stormwater ponds
RPBCWD. 2013. Stormwater Pond Project.

2017 ASSESSMENT RESULTS

Each section of Bluff Creek is coded with one of five colors based on how healthy it is. Blue is the best and red the worst. The areas most in need of help are scattered throughout the whole length of the creek. The reach in the south-west corner is particularly degraded, and the district is working with its partners to investigate potential projects to improve it.

Each year, Bluff Creek carries the average equivalent of

of **sediment** into the **Minnesota River Valley**
[Metropolitan Council]

What's happening

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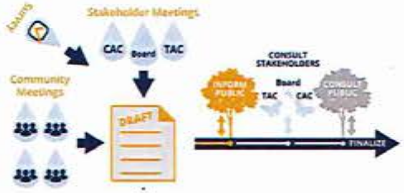

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YOU CAN HELP

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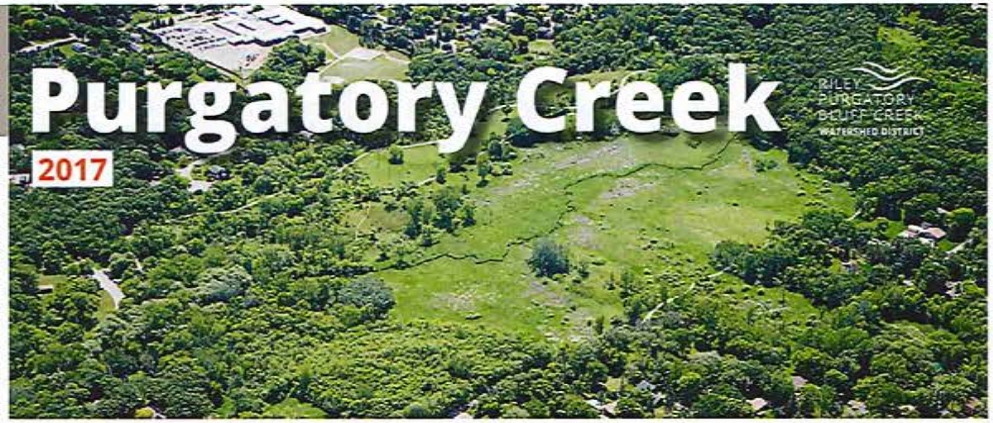
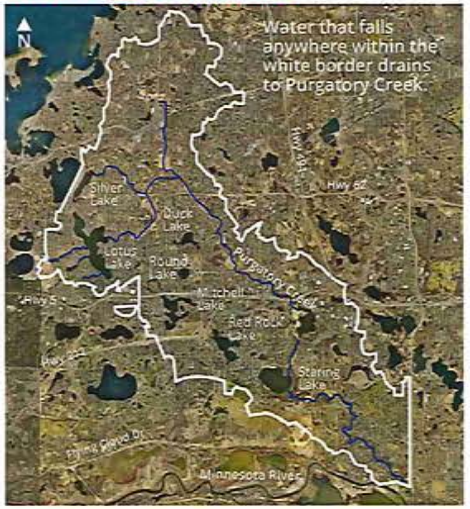


Purgatory Creek has three headwaters: Lotus Lake in Chanhassen, Silver Lake in Shorewood, and wetlands in Minnetonka. After these forks join, the creek flows through the Purgatory Recreation Area and Staring Lake before eventually reaching the Minnesota River.

CHARACTERISTICS

Length	12 miles
Elevation change	178 ft
Watershed size	30 sq miles
# of cities in watershed	4
# of lakes connected	8
# of monitoring sites	10
# of parks	27
Impairment	Not listed
Common fish	Bluegill, White Sucker, Black Crappie, Yellow Perch
Invasive species	Curlyleaf Pondweed, Eurasian Watermilfoil, Common Carp

WATERSHED BOUNDARIES



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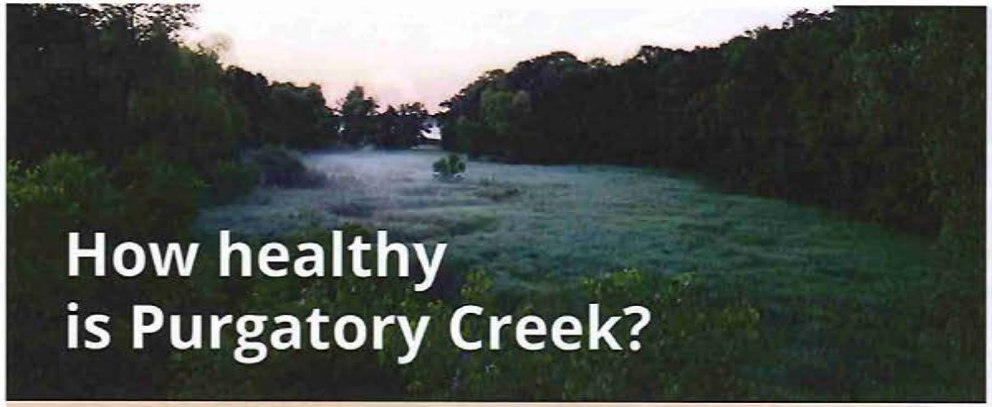

How healthy is Purgatory Creek?

Keeping Purgatory Creek healthy requires several tools and strategies. Conducting projects to stabilize the stream banks and restore stretches is one important strategy. Cleaning and slowing rainwater runoff before it reaches the creek is another. But before either of these can be done, we need to understand how the creek is doing and where it needs the most help.

The watershed district has been monitoring Purgatory Creek since the 1970s. Recently, the district developed a new tool to assess the creek: the Creek Restoration Action Strategy (CRAS). The CRAS uses water quality data, as well as information on erosion and habitat to rank which creek sections are doing the best and which are doing the poorest. Below, the three major types of data used in the assessment are described. On the next page, a creek map shows the results from 2017.

Water quality

District staff take samples at eight sites during summer. They gather information about nutrient levels (phosphorus), sediment, pH, and dissolved oxygen. These data let us know how clean the water is, and whether it is healthy for plants, animals, and people.

Erosion

Every year, staff walk along sections of the creek. They note sites with erosion, its severity, and whether any structures like houses or bridges are in danger. Erosion is also a problem because the sediment that erodes into the creek is a pollutant.

Habitat

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Stormwater ponds

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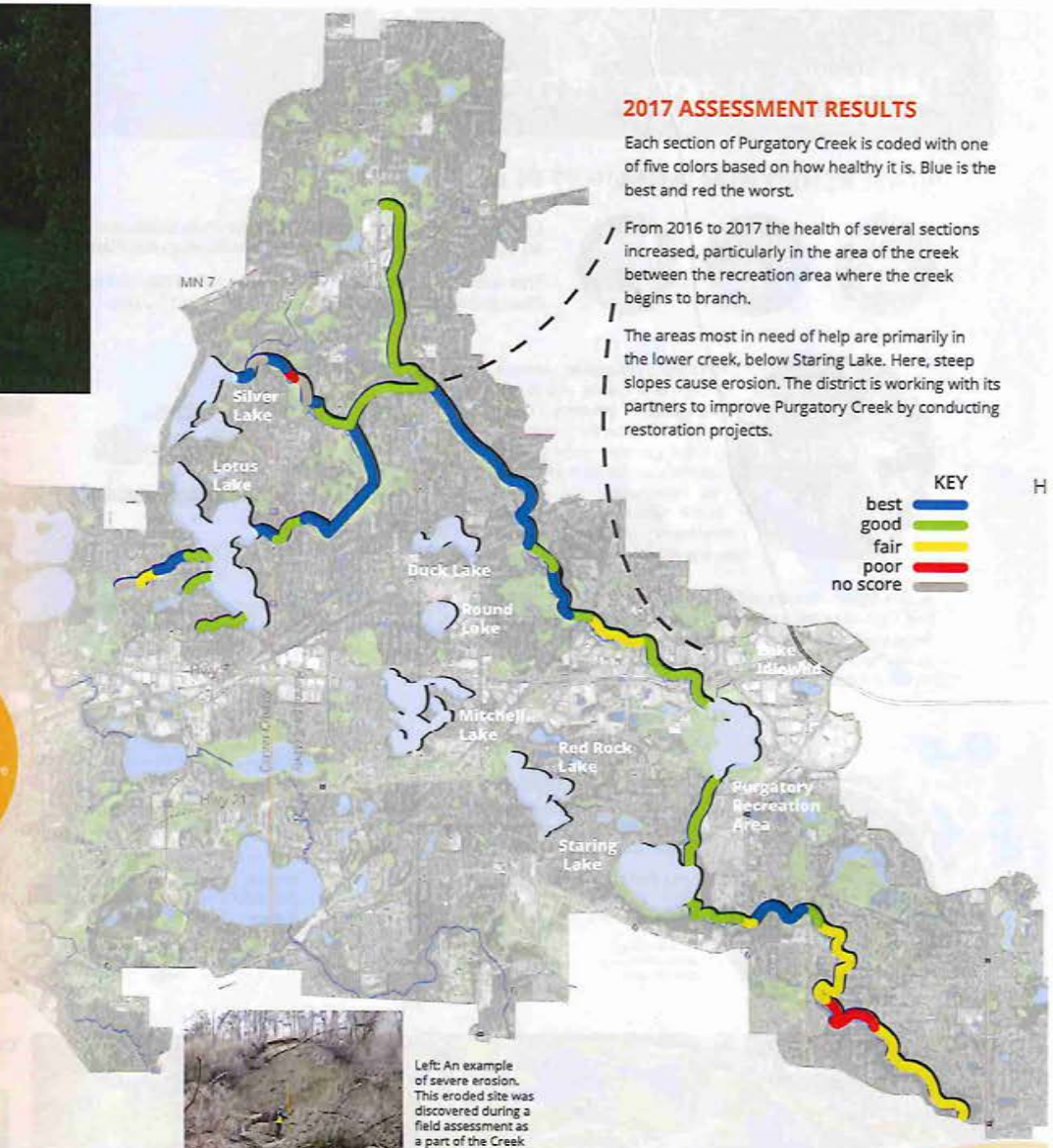
2017 ASSESSMENT RESULTS

Each section of Purgatory Creek is coded with one of five colors based on how healthy it is. Blue is the best and red the worst.

From 2016 to 2017 the health of several sections increased, particularly in the area of the creek between the recreation area where the creek begins to branch.

The areas most in need of help are primarily in the lower creek, below Staring Lake. Here, steep slopes cause erosion. The district is working with its partners to improve Purgatory Creek by conducting restoration projects.



Left: An example of severe erosion. This eroded site was discovered during a field assessment as a part of the Creek Restoration Action Strategy.

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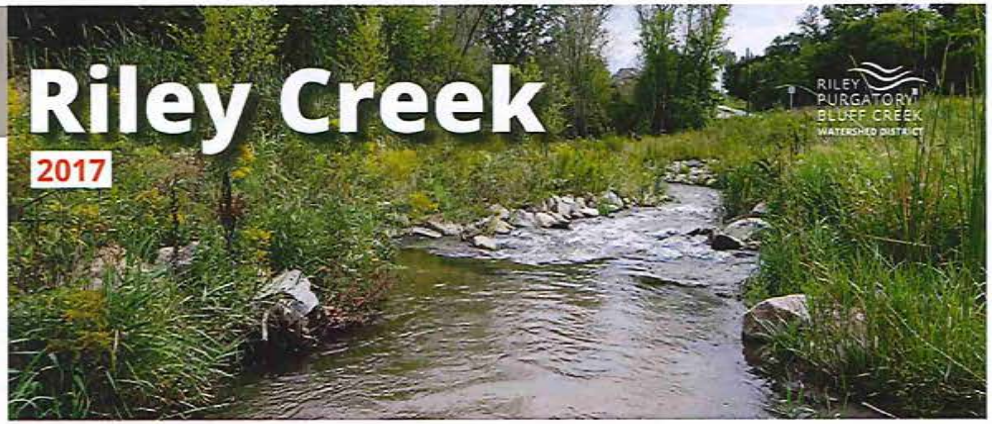
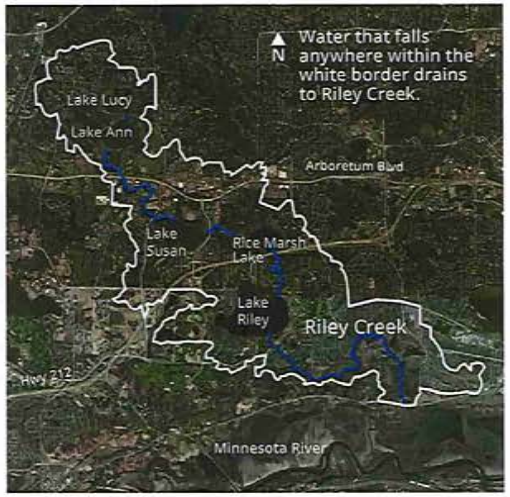


Riley Creek begins at lakes Lucy and Ann in Chanhassen and flows through three, down-stream lakes - Susan, Riley, Rice Marsh - before descending to the Minnesota River Valley. The creek has mild topography in the upper and middle portions of the watershed, but below Lake Riley the banks become steep.

CHARACTERISTICS

Length	9.6 miles
Elevation change	230 ft
Watershed size	10 sq miles
# of cities in watershed	2
# of lakes connected	5
# of monitoring sites	5
# of parks	11
Impairment	Turbidity
Common fish	Green Sunfish, Fathead Minnow, Bluntnose Minnow
Invasive species	Buckthorn, Common Carp

WATERSHED BOUNDARIES



How healthy is Riley Creek?

Keeping Riley Creek healthy requires several tools and strategies. Conducting projects to stabilize the stream banks and restore stretches is one important strategy. Cleaning and slowing rainwater runoff before it reaches the creek is another. But before either of these can be done, we need to understand how the creek is doing and where it needs the most help.

To this end, the watershed district as well as the Metropolitan Council have been monitoring Riley Creek water quality for almost 20 years. Recently, the district developed a new tool to assess the creek: the Creek Restoration Action Strategy (CRAS). The CRAS uses water quality data, as well as information on erosion and habitat to rank which creek sections are doing the best, and which are doing the poorest. Below, the three major types of data used in the assessment are described. On the next page, a creek map shows the results from 2017.

Water quality

District staff take samples at five sites during summer. They gather information about nutrient levels (phosphorus), sediment, pH, and dissolved oxygen. These data let us know how clean the water is, and whether it is healthy for plants, animals, and people.

Erosion

Every year, staff walk along sections of the creek. They note sites with erosion, its severity, and whether any structures like houses or bridges are in danger. Erosion is also a problem because the sediment that erodes into the creek is a pollutant.

Habitat

Creeks are important habitat for insects, plants, fish, birds, and other animals. When staff check for erosion, they also assess the habitat. Reaches receive a score based on the quality of habitat they provide, and whether it needs to be restored.

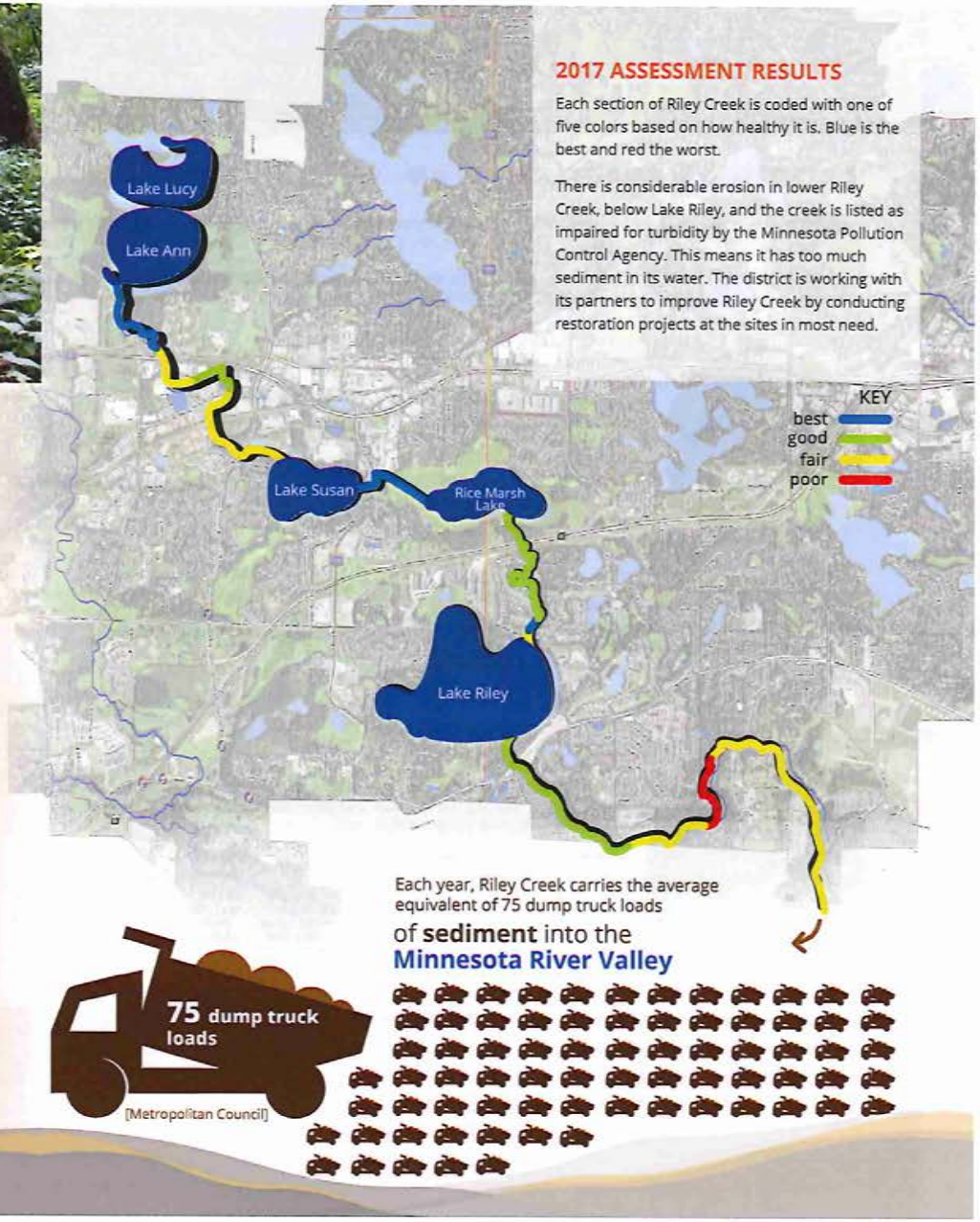
Dive deeper

Interested in learning more? Explore the following reports on our website.

Stormwater ponds
RPBCWD. 2013. Stormwater pond project.

Restoration prioritization
RPBCWD & BARR Engineering. 2017. Creek Restoration Action Strategy.

Carp management
Bajer P.G., Headrick,M., Miller B. D. and Sorensen P. W. 2014. Development and implementation of a sustainable strategy to control common carp in Riley Creek Chain of Lakes. University of Minnesota.



2017 ASSESSMENT RESULTS

Each section of Riley Creek is coded with one of five colors based on how healthy it is. Blue is the best and red the worst.

There is considerable erosion in lower Riley Creek, below Lake Riley, and the creek is listed as impaired for turbidity by the Minnesota Pollution Control Agency. This means it has too much sediment in its water. The district is working with its partners to improve Riley Creek by conducting restoration projects at the sites in most need.

Each year, Riley Creek carries the average equivalent of 75 dump truck loads of **sediment** into the **Minnesota River Valley**

[Metropolitan Council]

MEETING MINUTES

Riley-Purgatory-Bluff Creek Watershed District

January 4, 2018, Board of Managers Workshop and Monthly Meeting

PRESENT:

Managers:	Richard Chadwick, Secretary	
	Jill Crafton, Treasurer	
	Dick Ward	
	Leslie Yetka, President	
Staff:	Claire Bleser, District Administrator	
	Zach Dickhausen, Water Resources Technician	
	Jessica Henderson, RPBCWD Intern	
	Terry Jeffery, Project and Permit Coordinator	
	Michelle Jordan, Community Outreach Coordinator	
	Joshua Maxwell, Water Resources Coordinator	
	Louis Smith, Attorney (Smith Partners)	
	Scott Sobiech, Engineer (Barr Engineering Company)	
Other attendees:	Pete Iversen, CAC; Eden Prairie Resident	Darren Lazen, Landform
	Mark Kjolhaug, Kjolhaug Env.	Andi Moffatt, WSB
	Larry Koch, Chanhassen Resident	Paul Oehme, City of Chanhassen
	Greg Krauska, Chanhassen Resident*	David Ziegler, CAC; Eden Prairie Resident
	*Indicates attendance only at Monthly Meeting	

1. **Workshop**

President Yetka called to order the Wednesday, January 3, 2018, Board of Managers Workshop at 6:10 p.m. in the District Office, 18681 Lake Drive East, Chanhassen, MN 55317.

Mr. Jeffery reported that staff met with the District TAC and talked about the proposed rules updates and, particularly, wetland protection. Mr. Jeffery stated that tonight's workshop discussion would focus on wetland protection and proposed changes to the District's Rule J.

Mr. Jeffery stated that staff has been discussing the issue of volume and finding a way to address flows in order to achieve the intended benefit. He said that staff would like to know if the Board wants staff to investigate further and come back to the Board with more information. He provided two examples of recent permit applications received by the District that highlight the difficulties with the permitting process and the issues clarifying who is the Local Governmental Unit and determining who has what authority. Mr. Jeffery suggested that the Board consider directing staff to send a letter to the cities asking them to weigh in with their perspective regarding the Wetland Conservation Act.

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The Board discussed the points raised by Mr. Jeffery and asked what staff would investigate further regarding volume. Engineer Sobiech responded that staff would look at taking a design approach rather than an event-based approach and would look at models in order to create a flow duration curve.

Mr. Jeffery added that staff seeks authorization to run different models under different development scenarios to see if such an approach is tenable. He said that the idea here is to put some hours into investigating this approach and then bringing the information first to the TAC and then the Board.

Manager Chadwick asked where the funds would come from in the District's budget. Administrator Bleser responded that this work could be put into the monthly Engineering Services fee and that staff could discuss this idea with the Engineer. Manager Chadwick asked if staff has a cost estimate for this work. Engineer Sobiech stated that staff is considering looking at three different types of projects: residential, commercial, and perhaps a road project. He said that if a viable approach is found through that investigation and staff meets with TAC then he thinks a ballpark cost estimate is $8,000.

Manager Ward commented that he thinks the District should take its time to get the rules updates right and that the work described by Mr. Jeffery and Engineer Sobiech is part of that process. Mr. Jeffery said that staff could bring back to the Board in February a letter of proposal. There was discussion on whether to wait until February to move forward. Mr. Jeffery said that it would be beneficial to first send out a general letter to the cities asking for comments about the Wetland Conservation Act and WCA capabilities here with the District.

The Board indicated consent for staff to move ahead with sending such a letter to the cities in the watershed district and for staff to bring more information to present to the Board at its February meeting. Mr. Jeffery added that hopefully there will be a TAC meeting held prior to the February Board meeting.

Manager Yetka adjourned the meeting at 6:45 p.m.

2. Regular Monthly Meeting

President Yetka called to order the Wednesday, January 3, 2018, Board of Managers Meeting at 7:02 p.m. in the District Office, 18681 Lake Drive East, Chanhassen, MN 55317. She noted that Manager Pedersen is not present at tonight's meeting and is not participating, although she is listening via phone.

President Yetka reported that at the December monthly meeting the Board moved into closed session to discuss a performance evaluation of the firm providing the District with accounting services. She reported that once the Board returned to open session, the Board took two actions: 1. To authorize the Administrator to retain Redpath & Company to provide transitional accounting services to the District; and 2.To authorize the Administrator to look into payroll services from Redpath & Company.

3. Approval of the Agenda

Administrator Bleser noted that item 9a is approval of the October financial report in addition to the November financial report as listed on the agenda. She also requested the addition of 10b – Update on Office Assistant position.

Manager Crafton moved to approve the agenda as amended. Manager Chadwick seconded the motion. Upon a vote, the motion carried 4-0 [Manager Pedersen absent from vote.]

4. Matters of General Public Interest

President Yetka read aloud the procedures for this portion of the meeting and opened the floor for matters of

general public interest.

Mr. David Ziegler, Eden Prairie resident, announced that he has handed out to the managers information about SMART goals. He talked about SMART goals. He said that it seems like the District could do better about setting goals and timeframes for goals. Mr. Ziegler provided the example of phosphorous loading and said that the District could identify how much phosphorous loading will be reduced for each lake.

Mr. Larry Koch, Chanhassen resident, asked the managers to reconsider its process of taking verbal comments only during this portion of the Board's meetings. He said that he would like to be able to comment as items come up during the meetings. He commented that in the minutes from last month's meeting he didn't see any discussion of the terms of the lease of office space to MAWD. Mr. Koch pointed out several of his concerns, such as confidentiality, that he said should be addressed in the terms of the lease. Mr. Koch raised the idea of seeking out data already available or using drones to collect additional flow and volume data during peak flow events in the District's streams. He suggested that the Board request receiving recommendations from the District Engineer and Mr. Jeffery about ways to improve the CRAS process. Mr. Koch requested from the Board an update on the Lotus Lake alum project. Mr. Koch asked whether the District's revenues information in the financial report includes all of the revenues due to the District from property taxes in 2017. He pointed out that the expenditures for the 10-year plan is over budget and he would like the Board to give him an idea of what the additional costs will be and where the funds will come from. Mr. Koch asked the Board to give him a rough idea of the amount of funds the District has that are committed versus not committed. He suggested that regarding the proposed District rule changes, if staff has a recommendation to the Board, then staff should make the recommendation and provide a cost and time estimate so that the Board and public understand what the work would entail. He said that staff could even write up proposed resolutions of action that the Board could review and consider for action.

Administrator Bleser and President Yetka responded to questions and comments raised in the Matters of Public Interest.

5. Reading and Approval of Minutes

a. December 6, 2017, RPBCWD Board of Managers Monthly Meeting

Manager Crafton noted that staff members Josh Maxwell and Zach Dickhausen were left off of the attendee list. She requested several spelling corrections and a correction of an upcoming event date listed as 1/6 but should have been listed as 1/3. President Yetka requested several spelling corrections.

Manager Ward moved to approve the minutes as amended. Manager Crafton seconded the motion. Upon a vote, the motion carried 4-0 [Manager Pedersen absent from vote].

6. 2018 Organizational Actions

a. Election of Officers

Manager Chadwick moved to appoint the current slate of officers to continue as the 2018 slate of officers. Manager Crafton seconded the motion. Upon a vote, the motion carried 4-0 [Manager Pedersen absent from vote].

Manager Chadwick moved to appoint himself and Manager Crafton to the Governance Committee and Manager Pedersen and Manager Ward to the Personnel Committee. Manager Crafton seconded the motion. Upon a vote, the motion carried 4-0 [Manager Pedersen absent from vote].

b. Designation of Official Publication

Manager Chadwick moved to continue with the same designated official publications as 2017: Sun Sailor, Sun Current, Chaska Herald, Chanhassen Villager, and Eden Prairie News. Manager Ward seconded the motion. Upon a vote, the motion carried 4-0 [Manager Pedersen absent from vote].

c. Appointment of Technical Advisory Committee

Manager Crafton moved to appoint the TAC members as listed in the meeting packet: Matt Clark, Robert Bean, Jr., Leslie Stovring/Dave Modrow, Tom Dietrich, Steve Segar, Vanessa Strong, Allison Fauske, Karen Galles, Paul Moline, Mellissa Jenny, Kate Drewry, Jenny Skancke, Mike Wanous, Steve Christopher, Joe Mulchay, Linda Loomis, and Chris Zadak. Manager Ward seconded the motion. Administrator Bleser noted that sometimes during the year a TAC member will be replaced with another individual, which is an action taken by the organization the member represents. Upon a vote, the motion carried 4-0 [Manager Pedersen absent from vote].

d. 2018 Meeting Calendar

President Yetka noted that the July meeting date isn't listed in the meeting packet but staff recommends July 11. Manager Ward moved to accept the 2018 meeting calendar including the July 11 meeting. Manager Crafton seconded the motion. Upon a vote, the motion carried 4-0 [Manager Pedersen absent from vote].

e. Designation of Bank

Manager Ward moved to designate Wells Fargo and Klein Bank as the District's official banks. Manager Crafton seconded the motion. Upon a vote, the motion carried 4-0 [Manager Pedersen absent from vote].

f. Designation of Depository for Permit Financial Assurances

Manager Ward moved to designate Smith Partners LLC as the District's official depository for permit financial assurances. Manager Crafton seconded the motion. Upon a vote, the motion carried 4-0 [Manager Pedersen absent from vote].

7. Consent Agenda

Manager Chadwick requested that Consent Agenda item 7a – Accept Staff Report – be removed. President Yetka added it as Discussion item 10c. President Yetka read aloud the Consent Agenda: 7b - Accept Engineer's Report (with Attached Inspection Report); 7c – Approve Task Order 6e: 2018 Watershed Outlet Monitoring Program Station Servicing. Manager Crafton moved to approve the Consent Agenda as amended. Manager Ward seconded the motion. Manager Ward requested that in the future staff would include in the inspection report not only the site address but also a description of what type of property it is such as residential or commercial. Upon a vote, the motion carried 4-0 [Manager Pedersen absent from vote].

8. Citizen Advisory Committee (CAC)

Mr. Zielger reported that the CAC spent most of its meeting reviewing what was learned at the MAWD annual meeting.

9. Action Items

a. Accept October and November Treasurer's Reports

Administrator Bleser reported that staff and Manager Crafton have worked with the accountant to make the necessary changes but a few more need to be made to the November report. Manager Crafton moved

to accept the October and November Treasurer's reports. Manager Ward seconded the motion. Upon a vote, the motion carried 4-0 [Manager Pedersen absent from vote]. Manager Chadwick asked if Repath & Company can provide the Board with an overview of the accounting procedures and standards that it will use. There was discussion.

b. Approve Paying of Bills

Manager Crafton moved to pay the bills. Manager Ward seconded the motion. Upon a vote, the motion carried 4-0 [Manager Pedersen absent from vote].

c. Update on Avienda Wetland Conservation Act Application and Seeking Board Direction on Next Steps

Mr. Jeffery summarized the Board's December discussion of this topic. He updated the Board on the City of Chanhassen's action in December to approve the wetland replacement plan for the Avienda project. Mr. Jeffery went into detail about the wetland banking plan and the question of whether those wetland banks are certain to replace the loss of function of wetland value. He also address the sequencing flexibility and the discussion point of whether or not the sequencing flexibility was appropriately applied. President Yetka clarified that the District has 30 days, from the date of the City of Chanhassen's decision, to file an appeal.

The Board discussed the points raised by Mr. Jeffery. Manager Chadwick asked to hear from the City of Chanhassen representative present at the meeting before the Board makes any decisions. Mr. Paul Oehme, City of Chanhassen Public Works Director and City Engineer, spoke about how the City staff and council value the city's wetlands and the process the city went through on this project. He responded to Board questions.

Mr. Mark Kjolhaug of Kjolhaug Environmental Services Company and Mr. Darren Lazen of Landform spoke of the lengthy and in-depth process gone through with this project regarding the wetland planning and mitigation. They responded to comments.

The Board discussed the idea of submitting an appeal to BWSR. Manager Crafton spoke in favor of an appeal and Managers Chadwick and Ward raised points against submitting an appeal.

Administrator Bleser suggested that the District send a letter to the Minnesota Board of Water and Soil Resources stating the District's concerns with the nebulousness of the Wetland Conservation Act and seeing if BWSR would consider looking at the WCA in terms of its intent.

Manager Chadwick moved that the Board does not appeal the City of Chanhassen's action. Manager Ward seconded the motion. Upon a vote, the motion carried 3-1 [Manager Crafton voted against motion; Manager Pedersen absent from vote].

Manager Chadwick moved to direct staff work with District Counsel to develop a letter from the District, and perhaps in conjunction with other Districts, raising the point that there is a tension between the WCA and the purpose of the Watershed Districts and their charge to protect their watersheds. The letter could ask BWSR to work with the state legislature and perhaps MAWD to look at and reduce those tensions. Manager Ward seconded the motion. Upon a vote, the motion carried 4-0 [Manager Pedersen absent from vote].

Manager Ward pointed out that it wasn't in any motion but it is the District's understanding that the District will work with the City of Chanhassen on identifying possible wetland projects that could be funded by the $300,000 from the developer of Avienda to be used toward a local wetland project.

Attorney Smith noted that the idea of a letter to BWSR about the WCA has merits but that changing legislature it is a monumental and lengthy task. He said that his experience also tells him that for metro area watersheds, the task really is to proactively identify the wetland complexes that either need preservation or present opportunities for restoration. Attorney Smith said that if the District could partner up with entities, such as the City of Chanhassen, on wetland projects then the District will feel more satisfaction and feel it sooner than waiting for the legislature.

10. Discussion Items

a. Upcoming Meetings

President Yetka read aloud the list of upcoming meetings.

b. Update on Office Assistant Position

Administrator Bleser reported that staff extended by a couple of weeks the deadline to accept applications. She said that the District has received applications and she will come back to the Board at its February meeting with an update.

c. Staff Report

Manager Chadwick provided comments about the January 3rd staff report and requested that in the future staff identify publications to which staff is submitting information for publication. Manager Crafton moved to accept the staff report. Manager Ward seconded the motion. Upon a vote, the motion carried 4-0 [Manager Pedersen absent from vote].

11. Upcoming Events

- CAC Monthly Meeting and Annual Orientation, Monday, January 22, 5:30 p.m., District Office, 18681 Lake Drive East, Chanhassen. Orientation begins at 5:30 p.m. and regular meeting will follow.
- Board of Managers Workshop, Meet & Greet, and Regular Monthly Meeting, Wednesday, February 7. Workshop will start at 5:30 p.m., Board Meet & Greet will begin at 6:30 p.m., Monthly Board Meeting will begin at 7:00 p.m., District Office, 18681 Lake Drive East, Chanhassen

12. Adjourn

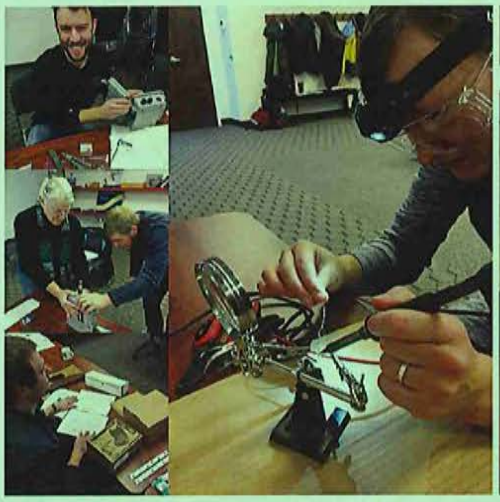
Manager Chadwick moved to adjourn the meeting. Manager Crafton seconded the motion. The meeting adjourned at 9:21 p.m. Upon a vote, the motion carried 4-0 [Manager Pedersen absent from vote].

Respectfully submitted,

_____

Richard Chadwick, Secretary

RPBCWD Staff Report
February 7, 2018



Building monitoring equipment

Learning about volunteer management

Administrative

10-Year Plan

Timeline

November 15 – release of the plan out for comments done
December 6 – 6:00pm Informational session done
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 7 – Public Hearing
April 4 – release for 90 day

Administrator Bleser met with the president and vice-president for the Lake Riley Improvement Association to discuss and answer questions about the the draft management plan on January 12th.

Administration

The interview committee has reviewed application and has scheduled interviews with 6 candidates February 6-7. This is one of two rounds of interviews.

Aquatic Invasive Species

Upcoming conferences:

Aquatic Invaders Summit III: An Exploration of Local Collaboration, Innovation and Opportunity
Feb 28-Mar 1, 2018 | Earle Brown Heritage Center | 6155 Earle Brown Dr. | Minneapolis, MN
If you are interested in attending, please let Claire know.

Upper Midwest Invasive Species Conference (Request for abstract are due April 11-2018)
October 15-18 | Mayo Civic Center | Rochester, MN

Annual Report
Staff has begun working on the staff report. We will be presenting to the board at the February meeting.

Audit
Administrator Bleser is working with the Auditor on the audit.

Budget
No changes

Data Requests and research extensions
None

Grants
Chanhassen Town Center Grant was submitted for final payment to the Board of Soil and Water Resources. The Metropolitan Council WOMP grant report was also submitted for final payment. Staff continues to work on the Community Resiliency Grant for the Minnesota Pollution Control Agency. Lake Susan Park Pond, Scenic Heights, Metropolitan council grants (Chanhassen High School, Fire Station 2) all have had a progress report/update submitted to respective agency.

Administrator Bleser attended a watershed based funding meeting hosted by the Board of Soil and Water Resources. BWSR presented on a watershed-based pilot program funding that would be applied in the Metro area. The funding will be used to implement management plans developed under the Metropolitan Surface Water Management Act. It must be based upon accountability and measurable progress being made on elements of the management plan. Funds will be split by counties with Hennepin receiving $1,018,000 and Carver $749,200. LGUs must collectively decide between two options for distribution of FY2018/2019 funds:

1. By June 30, 2018 create collaborative "prioritized-Targeted-Measurable" (PTM Implementation Plan and submit budget request workplan to BWSR; or
2. Opt into the Metro Competitive Grant Process.

The collaborative PTM Implementation Plan is written, BWSR-approved document that includes 1) a description of partnership of entities and the decision manking process used to develop the plan; 2) the time frame of the plan; 3) implementation actions; 4) responsible party; and 5)budget.

Carver County WMO, CCSWCD, LMRWD, MCWD and RPBCWD met twice to discuss a collaborative process. We identified splitting the funds by 50%watershed size and 50% tax capacity across the county.

50/50 split	
Carver County Watershed Management Organization	$517,979
Buffalo Creek Watershed District	Not eligible - do not have a water management plan
Lower Minnesota River Watershed District	$25,472
Minnehaha Creek Watershed District	$93,879
Riley-Purgatory-Bluff Creek Watershed District	$111,870
Total	**$749,200**

We also discussed projects that we would use funds for. The District identified the wetland restoration and flood mitigation site at 101 and Pioneer Trail as a good project. We had identified this project in our proposed 10-year plan for 2019.

The District with watershed organization for Hennepin County. With a 50/50 split similar the Carver County, the District would be allocated $73,170. Hennepin County will be convening another meeting later in February to further discuss.

MAWD

The Executive Director for MAWD has moved into our office. The MAWD board has asked Administrator Bleser to be chair of the MAWD Summer Tour. This year the District as well as as Lower Minnesota River Watershed District and Carver County Water Management Organization will be hosting the Summer Tour. The Tour will be focusing on the multifaceted approach in managing a big river and a multifaceted approach in managing a small watersheds. Planning outline a two-day tour with a professional development workshop following. The tour will also be used to outreach to our local decision makers. The barge tour will be on the Minnesota River on wednesday evening (June 20). The bus tour which will highlight management projects in CCWMO and RPBCWD will be on thursday. Preliminary stops include a community reuse system all the way to internal management of our lakes.

Permitting

This past month, there was one permit issued administratively. Permit #2018-003 was issued for the construction of a single family residence at 19475 Waterford Place in Shorewood. The

project provides a twenty foot buffer to meet the stormwater requirements as well as the wetland buffer requirements.

There are currently eleven (11) additional applications in various stages of review. Staff has also met with four other development teams this month to discuss potential upcoming projects.

Staff Jeffery and Engineer Sobiech participated in a teleconference with representatives of Children's Learning Adventure in Chanhassen. The stormwater practices are not functioning per the design approved with the permit. They will need to design a retrofit to meet District requirements and submit a new application. The District still holds a cash escrow in the amount of $290,500.

Citizens Advisory Committee

January meeting

The Citizens Advisory Committee met Monday, January 29th, for their regular monthly meeting. One of the newly appointed members, Lori Tritz, was in attendance. Draft minutes are included in the board packet.

2nd-round applications

Five additional applications were received for the 2018 CAC. These are included in the board packet with a summary map. New applicants were invited to the February 7th Meet & Greet with the board, 6:30 pm.

Technical Advisory Committee

No meetings have been scheduled yet but we anticipate in having one later in February.

Programs and Projects

District-Wide

Cost-share program

The 2017 program was summarized for the annual report. Applications for 2018 projects have been opened. The district is co-hosting a Lotus Lake watershed best practices community meeting with the Lotus Lake Conservation Alliance (LLCA) and the city of Chanhassen. The cost-share program will be promoted at this meeting. In advance of the meeting, staff sent invite postcards (see below) to the entire Lotus Lake subwatershed (~1500). Email list promotions were taken on by the LLCA. Staff created a plan for the event, including a presentation and small-group discussion time. Unfortunately, due to low numbers, and potential conflict with regional caucuses, the event will need to be rescheduled from its original, Feb 6th, date. Once a new date is selected it will be communicated broadly.

MPCA Community Resiliency Grant

Staff is still working on compiling final report.

Rules Update

Staff have been evaluating the possibility of using a regulatory mechanism to address the impact of flow on channel erosion. Engineer Sobiech is evaluating if a relatively simple modeling exercise can address this concern. Currently non-degradation only looks at phosphorus and total suspended solids and ignores the impacts that increased flow volumes and rates have on channel stability and sediment loads. Staff Jeffery and Engineer Sobiech are intending to bring their findings before the TAC on February 28th to get their input. The results of this TAC meeting will be brought before the Board of Managers at the March 7, 2018 meeting. Depending upon the complexity of comments received, staff anticipates requesting distribution of rules for agency review at either the March 7, 2018 meeting or the April 4, 2018 meeting.

Total Maximum Daily Load

No new updates.

Data Collection (J. Maxwell)

Rice Marsh Aeration

Thin ice signs were placed in late December. After functioning extremely well in December and January, one aeration pump went down at the end of this month. Staff has an additional pump which will be replaced in early February.

Winter Field Season

Staff has spent most time this month prepping the water resources report. Winter sampling has occured on the Purgatory Chain of Lakes early this January.

Carp Management

The barrier was pulled in early December. Carp management data is being compiled and analyzed for both the District annual report and for required reporting to the DNR.

During the end of October, staff tagged 11 common carp in Staring Lake and two common carp were tagged and released in both the Upper and Lower Purgatory Creek Recreational Area. Staff tracked the fish in mid January and the carp were spread out. Due to the lack of fish in Staring, staff doesn't think commercial seining would be worth doing. The Upper Purgatory Creek Recreational Area had the highest concentration of carp, but is to shallow to effectively seine.

Creek Restoration Action Strategy

Staff Maxwell was accepted to present the CRAS at the 2018 Upper Midwest Stream Resources Symposium in Dubuque, Iowa. The presentation was placed in the session titled *Tools and Techniques in Stream Restoration*, beginning Monday, February 26th at 3:30pm.

Creek walks were completed on Purgatory Creek (Lotus Ravine 2 - Powers Boulevard to Lotus Lake, Middle Lotus Ravine - Kerber Pond to Lotus Lake, and South Lotus Ravine - Santa Fe Trail to Lotus Lake) and Riley Creek (R3 - Rice Marsh Lake to Lake Riley). Upon updating

these stream sections, staff will have completed nearly all of the major data gaps that remained in the CRAS. The results are being summarized and are posted in the annual report. Staff will be replacing "lost" bank pins at our regular stream monitoring sites with an additional placement of pins on the southside of Silver Lake to assess erosion rates.

Barr Engineering and District staff completed an updated edition of the CRAS in June (located on website) and submitted the CRAS to the Center for Watershed Protection for publication. Additionally, staff have been working on a final creek walk summary book to have on hand to easily reference stream section data.

University of Minnesota Grant
30 January 2018
Ray Newman, University of Minnesota
Riley Purgatory Bluff Creek Watershed District (RPBCWD) Aquatic Plant progress report for January 2018.

Efforts in late December and January were focused on completing and checking data entry, submitting vegetation management plan monitoring reports to the MN DNR and analysis of results from 2017.
Plans for January and February include completing data analysis and the final report, as well as developing plans for future research.

WOMP Station - Metropolitan Council
Staff visited the WOMP stations twice this month.

Education and Outreach (M. Jordan)

Volunteer program
The volunteer program is being summarized for the annual report.

Service Learners
Several service learners from the University of Minnesota will be volunteering with the district during spring term. One of the students is doing an "artist in residency" as a photographer. They will be capturing photos around the district of resources, activities, and events.

Adopt a Dock Program
The program has been summarized for the annual report.

Master Water Stewards Program
The 2017 program was summarized in the annual report. The current cohort is beginning the process of identifying ideas for their capstone projects. The Freshwater Society, in partnership with the Metropolitan Council is developing a continuing education class for certified stewards. The working title is "Water Conservation Advisor." The existing Master Water Stewards

program focuses primarily on stormwater; the Water Conservation Advisor class would teach stewards about issues and best practices for conserving water, and how to help their communities take steps to become efficient in their water use-age. Staff attended a meeting on January 29th to help identify the needs and opportunities that partner organizations see for this program.

Citizen Advisory Committee
See CAC section above.

Volunteer impact training
The district hosted, and staff attended, a 2-day training on all aspects of creating and sustaining a robust volunteer program, January 25th and 26th. Topics ranged from creating meaningful and impactful volunteer experiences, to risk management and program evaluation. There were many components of the training that can be directly applied to the district's existing program.

Communication program
Annual Communication
The majority of the 2000 copies of the annual communication have been distributed to the community. The primary distribution points have been local libraries, community centers, senior centers, and city centers. Staff have reserved a small number of copies for distribution at the district office and late winter/early spring events.

Lakes and Creeks Water Quality Report
Draft completed. Updated fact sheet drafts are included in the board packet.

Website & Newsletter
Staff continue to work in the website update. The next newsletter will go out in March.

Youth Outreach
Earth Day Mini-Grants
The district is again offering mini-grants to educators for Earth Day/Month activities that incorporate water resource topics. Past projects included visiting a nature center for an aquatic program, create terrariums to study the water cycle, and planting native flowers to conserve water. Application deadline is March 23rd. Educators, or students with a mentor, can receive up to $250 to support their projects.

Staring Outdoor Center partnership
Staff Jordan and intern Henderson participated in the outdoor center's winter lake study program January 22nd and 30th. About 150 4th grade students from local elementary schools learned about the ecology and health of Staring Lake through hands-on activities. The watershed district representatives hosted an on-the-ice station. Students helped to take water samples, test them for chloride pollution, and measure dissolved oxygen. They then used these data in small and large group report-outs to draw conclusions about how healthy the lake was. Students also learned practices that they can do to help protect Staring and other water bodies.

Continuing education program

Winter & Turf Maintenance Training

Staff co-presented with a representative of Nine Mile Creek Watershed District to the Minnesota Educational Facilities Management Professionals Association on January 9th. The presentation focused on the environmental impacts of using salt to melt ice, practical steps to help, and resources for more training and education. Around 40 individuals attended.Dates have been set for this year's maintenance trainings: Smart Salting Level 2, April 17th; Turf maintenance, March 22nd; Parking Lots and Sidewalks, August 23rd.

Local leaders program

Summer Tour

The primary local leaders event for 2017 will be a summer tour. The tour is in conjunction with the Minnesota Association of Watershed Districts tour.

Businesses and professionals program

Professional luncheon series

Staff are planning a series of three workshop/talks for the year, each targeted to a different sector of the professional community: builders, realtors, and property managers. The goal is to better connect with these sectors of the business community while educating them about water resource topics that are pertinent to them. Dates will be set shortly.

50th Anniversary

The entire staff team has begun preliminary planning for next year's 50th Anniversary. There will be a series of events throughout the year to invite the community to explore its watershed and get to know the watershed district.

Bluff Creek One Water

Chanhassen High School

Cooperative agreements were communicated to both Chanhassen High School and City of Chanhassen for final review. Staff has included a summary of bidding documents to go out for bids on this project pending board approval at the february meeting.

Bluff Creek Tributary Restoration

Staff and engineering will meet in early February to discuss updates on the Bluff Creek Tributary restoration. We discussed permitting needs, easements, scheduling a stakeholder meeting and developing cooperative agreement with Chanhassen.

Riley Creek One Water

Lake Susan Park Pond

Cooperative agreements is being finalized and will be shortly be sent to Chanhassen for final review. Staff has included a summary of bidding documents to go out for bids on this project pending board approval at the february meeting.

Riley Creek
Design work continues. Administrator Bleser and Water Resources Engineer Modrow have been in discussion in developing a cooperative agreement for the project. Staff and engineering will meet in early february to discuss updates on the Lower Riley Creek restoration. We discussed permitting needs, easements, scheduling a stakeholder meeting and developing cooperative agreement with Eden Prairie.

Lake Riley CLP Treatment
No new updates. The District will be hosting a summit with the City of Chanhassen and Eden Prairie as well as consultants and agencies that have worked with the District on internal management of our water resources. The Summit will be on February 13th at 9am.

Lake Riley Water Quality Project (Alum)
See Lake Riley CLP Treatment.

Lake Susan CLP Treatment
See Lake Riley CLP Treatment.

Purgatory Creek One Water

Fire Station 2
Final touches to the system and commissioning/testing will occur in the spring – probably April as weather permits.

Purgatory Recreational Area
See Lake Riley CLP Treatment.

Purgatory Creek at 101
No new updates.

Mitchell Lake Plant Management
See Lake Riley CLP Treatment.

Red Rock Lake Plant Management
See Lake Riley CLP Treatment.

Scenic Heights School Forest
Project kick-off and pre-con meeting has been scheduled for February 6th. In the meeting, staff, city staff and school staff and contractor will be discussing timeline and restriction dates on the restoration. The meeting will also engage the school district in developing a community engagement piece.

Staring Lake Plant Management
See Lake Riley CLP Treatment.

Professional Workgroups and Continuing Education

Enviro DIY
Limnotech led District staff as well as Pelican River Watershed District and Lower Minnesota River Watershed District in a do it yourself workshop in building Enviro DIY units on January 11. These units are an innovative monitoring equipment that has been widely developed by the Stroud Water Research Center in Pennsylvania. The units are low cost and are able to gather near real time data. Not all water quality parameters can be tested through this method but as technology enhances other environmental variables might be added to our current units. The units that we built include conductivity, turbidity, water level sensors, and water temperature. Continuous data allows us to capture what is happening during precipitation events any time of the week and the data is extremely useful for updating the Districts models. The district will be purchasing at least three units to be placed on our creeks at different locations where more information would be helpful to fill data gaps. An additional unit may be purchased for monitoring lake levels as two of our Level Troll 500 sensors went down this year.

The District will be deploying these sensors not only for strictly data collection purposes, but also to support youth education. One sensor will be deployed at the Staring Lake Nature Center to support the water resource curriculum and ongoing partnership there. Two others will be deployed for a similar purpose, with potential locations in the pond at the Scenic Heights School of Forest, and a pond at St. Hubert's School (the District has a multi-year educational partnership).

Visual Harvesting Workshop
Staff Jordan and Bleser attended a free visual harvesting workshop hosted by the University of Minnesota on January 18th. Visual harvesting is a communication tool that translates speaking content into visuals. 50% processing power of the brain is dedicated to visual input. 75% of neurons are dedicated to visual sense. Content with visuals get 94% more total views. Visuals are also processed by our brains 600,000 times faster than text. An average person reads only 20% of text on a regular web page. Retention of each individuals is 80% of what you see, 20% of what you read and 10% of what you hear. Visual recordings can understand the essence of the communication, enhance the dialogue, explore ideas and improve communication.

Volunteer impact training
The district hosted, and staff attended, a 2-day training on all aspects of creating and sustaining a robust volunteer program January 25th and 26th. Topics ranged from creating meaningful and impactful volunteer experiences, to risk management and program evaluation. There were many components of the training that can be directly applied to the district's existing program.

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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 January 2018 Activities for February 7, 2018, Board Meeting
Date: January 31, 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 January 2018.

General Services

a. Participated in a January 5th meeting with Administrator Bleser, Permit Coordinator Jeffry, and Counsel Smith to discuss project cooperative agreements, 10-year plan, compressive wetland management, and District capital projects.

b. Met with Permit Coordinator Jeffery and Counsel Welch on January 10th to discuss the potential options for enhanced wetland protection in the District. Some ideas discussed included more involvement in the PUD process, development of a comprehensive wetland management plan, wetland conservation act, and modifications to the regulatory program.

c. Participated in a January 30th meeting with Administrator Bleser, Staff Maxwell, staff Dickenhausen to review the 2017 monitoring data from the Lake Susan Spent Lime system and identify potential operations, data collection, and system modifications to enhance performance.

d. Participated in January 3, 2018 regular Board meeting.

e. Prepared Engineer's Report for engineering services performed during January 2018.

f. Regular communication and coordination with Administrator Bleser and Permit Coordinator Jeffery discussing status of various District capital projects, potential 2018/2019 studies, BWSR pilot program for Clean Water Funds, 10-year plan update, and upcoming agenda.

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

Permitting Program

a. *Permit 2015-010: Children's Learning Adventure:* This project involved construction of a children's learning center in the northwest quadrant of Galpin Blvd. and Highway 5 in Chanhassen. Anticipated in a January 16th conference call with developer to discuss potential site modification needed to demonstrate compliance with the RPBCWD rules because the infiltration BMPs are not functioning as designed.

b. *Permit 2015-050: Arbor Glen:* This project involves construction of an 18 lot residential subdivision at 9170 Great Plains Blvd in Chanhassen. Provided Permit Coordinator Jeffery

feedback on applicants proposed modifications. Discuss submittal requirements with applicant's engineer to support site modifications.

c. Meet with the Westwood consultants to discuss the regulatory implications of their concept ideas for the potential develop of the property to eh west of Lake Ann. The concept shown was very early in the idea process but appeared to project the wetlands on the property.

d. Performed erosion control inspections of active sites during the week of January 16th (see attached inspection report).

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

Data Management/Sampling/Equipment Assistance

a. Uploaded and verified November 2017 Susan Pond Inlet and Outlet data.

Task Order 6: WOMP Station Monitoring

Purgatory Creek Monitoring Station at Pioneer Trail

a. Set up folders and datalogger files for 2018.

b. Clean up and drop off DTS-12 turbidity sensor at MCES lab for annual calibration.

c. File management –organize 2017 lab sheets

Purgatory Creek Monitoring Station at Valley View Rd

a. Data QA/QC and prep for entry into EQuIS database.

b. Set up folders and datalogger files for 2018.

c. File management – organize 2017 lab sheets.

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

a. No work occurred this month. Inspections on plant materials are expected in the spring as part of the vegetation maintenance on the project.

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

a. Worked on 90% design and 100% design plans, which includes incorporating feedback from the city of Chanhassen and design updates to pond level monitoring system, iron enhanced sand filter design optimization, water treatment building structural design, and landscape restoration plan development.

b. Prepared technical specifications including front-end documents and coordination of review with RPBCWD legal counsel.

c. Prepared a design basis memo with key design decisions and reasoning included.

d. Coordinated with District Counsel and Administrator Bleser on preparing a joint bid package for the Chanhassen High School Stormwater Reuse project and the Lake Susan Park Pond Watershed Treatment and Stormwater Reuse project. Because of the prevailing wage requirements tied to the Clean Water Funding associated with the Lake Susan Park Pond project separate bid packages were developed.

Task Order 14b: Lower Riley Creek Final Design

a. Continued 60% design, including the iterative process of determining stable channel parameters, modeling, and balancing cut and fill volumes and determining the placement of specific bank protection measures.

b. Completed a Draft EAW and provided to Administrator Bleser for review prior to submittal to regulators.

c. Completed an inventory of significant and heritage trees within the project corridor, as required for a City of Eden Prairie permit. The location of the trees is helping to guide where grading is feasible while maximizing the number of valuable trees saved.

d. Completed a site visit with a contractor to discuss access and staging for construction. The discussion confirmed that the proposed access routes and staging areas are feasible. It also provided additional ideas for alternative access routes and provided insight into their initial thoughts on means and methods to construct the project, with consideration to the control of water and stabilizing tall, steep slopes.

e. Worked on draft USACE and DNR permit applications.

Task Order 16: Watershed Management Plan Refresh

a. Met with Administrator Bleser on several occasions to assist with compiling, reviewing and developing responses to the 100+ public and agency comments received on the 60-day review draft of the District 10-year plan.

b. Began revising the 10-year plan text, tables and figures in response to comments.

Task Order 19: Chanhassen High School Stormwater Reuse Design

a. Revised the project design including modifications to the pipe intakes, obtaining quotes and coordination with TuffShed for the revised water treatment shelter, and incorporation of bid alternates.

b. Updates to construction and bidding documents. This includes revisions to the plans, specs, and front-end documents. RPBCWD legal counsel has initially viewed front-end documents.

c. Coordinated with District Counsel and Administrator Bleser on preparing a joint bid package for the Chanhassen High School Stormwater Reuse project and the Lake Susan Park Pond Watershed Treatment and Stormwater Reuse project. Based on further review by RPBCWD legal counsel, it was decided to bid the projects separately. Assuming Board authorization to solicit bids is provided at the February 7th meeting, rebidding will occur in February/March 2018 at the same time as the Lake Susan Park project.

Task Order 20: Hyland Lake UAA Update

a. Completed report edits based on stakeholder comments

b. Distributed finalized report to stakeholders.

Task Order 21B: Bluff Creek Stabilization Project

a. Developed design drawing revisions in support of 90% design

b. Developed preliminary MPARS and Corps of Engineers Permits

c. Drafted project design memorandum and RPBCWD draft permit language

d. Completed hydraulic modeling for proposed design verification

Task Order 22: Groundwater Assessment

a. Finalized report based on Board and Administrator feedback.

b. Report complete and delivered.

Task Order 23: Scenic Heights School Forest Restoration

a. The contract was signed by the contractor (Wetland Habitat Restorations) and President Yetka. The Notice to Proceed will be issued shortly.

b. Communicated with various stakeholders to identify a preconstruction meeting date and agenda. The preconstruction meeting is scheduled for February 6, 2018. Staff from the School District, Three Rivers Parks District, Minnetonka Parks and Recreation, and the DNR School Forest Program will be provided a timeline update as invasive plant clearing is set to begin in the next few weeks. Coordinated outreach and education efforts will also be discussed.

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

a. Reviewed unit prices from bids for recent projects and pricing information from third party vendors, and developed preliminary opinions of probable cost for each alternative evaluated.

b. Prepared the draft Preliminary Engineering report that documents water quality benefits, site impacts, opinion of probable cost, anticipated regulatory approvals, and next steps.

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BARR

To: RPBCWD Board of Managers

From: Dave Melmer

Subject: January 16, 2018—Erosion Inspection

Date: January 31, 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 January 16, 2018.

Site Inspections

2015-008	**3520 Meadow Lane** Demo existing single family dwelling and construct new single family dwelling. Site BMP's are adequate. Silt fence is down in some areas on west side--will not affect site runoff. Site cleanup and house painting complete. Some landscaping observed on north side. Deck installation underway. (January-2018)	**2018-01-16**
2015-014	**12420 Sunnybrook Road** The project is a 3.07 acre, 7-lot single family residential development. Site has been surveyed. No construction has started.	**2018-01-16**
2015-016	**Blossom Hill** Subdividing 6.5 acre lot into 12 single family lots. Site is snow covered. Visible BMP's look good.	**2018-01-16**
2015-035	**LaMettry's Chanhassen** Construction of two commercial buildings as an extension of the Audubon Motorplex site. Building complete. Parking lot on north lot is paved. North slope grading and landscaping is complete. South area landscaping and sodding complete. Site is stable. Inlet protection still in place.(January-2018)	**2018-01-16**

2015-036	**Saville West Subdivision**	**2018-01-16**
	Construction of a 5-lot single family home subdivision.	
	Construction complete at 5320 Spring Ln. House site. Rock entrance installed. Silt fence perimeter control in place. BMP's look good. Foundation back filled. Landscaping not complete. Site snow covered. Silt fence installed on southwest and west side of development. Lots to south have been brushed/cleared.	
2015-050	**Arbor Glen Chanhassen**	**2018-01-16**
	Construction of a 18-lot single family home subdivision.	
	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. No observed activity onsite since last inspection. January-2018	
2015-056	**Oster Property**	**2018-01-16**
	Removal of existing cabin and construction a 1 single-family home riparian to Lake Riley.	
	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. Vegetation (grass) still sparse in areas. (November-2017). Homeowner stated they are getting bids for final landscaping. Site is snow covered-will recheck after spring snowmelt.	
2015-058	**Prairie Center Clinic Addition**	**2018-01-16**
	13,000 SF, 2-story addition to the existing Park Nicollet facility	
	Construction complete on building. Some BMP's have been removed for landscaping. Vegetation is established. Parking lot top coat complete. Landscaping complete. Site is stable. BMP's are still in place--silt fence. (January/2018) site is snow covered.	
2016-004	**Round Lake Park Improvements**	**2018-01-16**
	Reconfiguration of existing parking lots, trails, ballfields and installation of additional park amenities.	
	BMP's look good. Site construction complete. Vegetation is growing. All temporary BMP's have been removed with exception of BMP's at infiltration areas and silt fence on east side. Infiltration basins have been graded spray-tac'd--vegetation is growing. January-2018 (site is snow covered)	

2016-015	**18321 Heathcote Lane** Construct a single-family home on an existing single-family home parcel. Silt fences installed/in good condition. Driveway installed. BMP's look good. House construction complete . (January-2018)	**2018-01-16**
2016-021	**Cedar Hills Park** Construction of a new park that includes a parking lot, trail, basketball court, playground area, bridge over Riley Creek, and other park amenities. Construction complete. BMP's look good. Vegetation has sprouted and is growing. Some regrading and seeding has occurred in some areas. Site snow cover-January, 2018.	**2018-01-16**
2016-026	**Foxwood Development** Construction of a 46 lot, single family home development with associated mass grading and utility and infrastructure installation. Multiple house construction has begun-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 removed in areas. Additional silt fences have been installed across site. Bare soils were spray-tac'd vegetation sprouting before freeze. Site is snow covered (January)	**2018-01-16**
2016-030	**IDI Distribution Building Expansion** Expansion of existing building and northern parking lot. Parking on north side installed/curb and gutter installed. BMP's look good. (January-2018) Building addition complete. All bare soils have been spray-tac'd.	**2018-01-16**
2016-037	**Prestige Day Care** Construction of a day care building, play areas, parking lot, and associated site infrastructure. Construction complete. Sod installed-all landscaping complete. All bare soils have been spray-tac'd. BMP's still in place. (January-2018)	**2018-01-16**

2016-039	**Powers Ridge Senior Apartments**	**2018-01-16**
	Construction of a 76-unit, three-story building with underground parking garage, hydraulic elevator and contemporary amenities	
	Construction complete. BMP's are good. Landscaping and sod installation complete. Bare soils coved with matting. Wetland signage installed. (January)	
2016-040	**18995 Minnetonka Blvd**	**2018-01-16**
	Construction of a single family home including a driveway and timber wall and installation of a well.	
	Construction of house continues. Silt fence in place. Slopes with vegetation mats have growth. Southwest corner has more BMP's to control sediment erosion. BMP's installed are adequate. Earthwork near front has been completed--entire site has been covered with straw and snow covered. Driveway installed. January-2018.	
2016-041	**Chanhassen West Water Treatment Plant**	**2018-01-16**
	Construction of a water treatment plant with site access road and parking lot, associated site infrastructure, and exterior landscaping.	
	Silt fences installed on site. Construction continues. Rock entrance good. BMP's look good. Street cleanup conducted regularly. January-2018.	
2016-042	**18663 St. Mellion Place--Eden Prairie (Bear Path)**	**2018-01-16**
	Single family home construction.	
	Construction halted for winter. BMP's are good. Silt fence in one small area is at 40% of height. Site grading and sod installation has occurred on a large portion of site. New silt fence installed where needed. Site is snow covered-January, 2018.	
2016-043	**Bongards Redevelopment**	**2018-01-16**
	Construction of an 8,000 square foot building expansion, parking lot addition, and associated site infrastructure.	
	BMP's are adequate. Parking lot base installed-- catch basins installed and protected--pavement installation still needs to be completed. (January-2018)	

2016-044	**Dell Rd & Riley Creek Repair Project**	**2018-01-16**
	Repair streambank erosion and construct a stilling basin and storm sewer will be constructed to reduce future erosion. Vegetation was growing appears to have died off. Rip-rap was recently 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 removed. Representative was contacted in September and is aware of site condition. Snow covered-January-2018.	
2016-045	**MCES Blue Lake Interceptor Rehab**	**2018-01-16**
	Complete in-place lining of four maintenance access holes and approximately 800 linear feet of regional sanitary sewer interceptor facilities. Construction complete. Silt fences installed/bio-logs in place. Bare soils covered with spray-tac. No vegetation growth observed. Site is snow covered. (January-2018)	
2016-047	**9507 Sky Lane Eden Prairie**	**2018-01-16**
	Construction of a single-family home on an existing single-family home parcel. Construction complete/landscaping needs to be completed. Silt fences down in some areas but secondary containment is good. Catch basin protection at road needs to be maintained -- it's not installed-- just laying over CB. (street side CB). Catch basin between properties has been protected. Runoff from bare soils going around and offsite from this property-- south property is landscaped. Minor tracking to street. Site representative was notified after August inspection-no corrective action taken except for landscaping of 9527 Sky Lane. Same conditions exist. Landscaping around house is complete--soil grading has occurred-no sod installed to date. Site Representative is aware of conditions. Wetland buffer signage has been installed. January-2018.	
2017-001	**Kopesky 2nd Addition**	**2018-01-16**
	8-lot single family residential subdivision Site has been cleared and perimeter control--silt fence has been installed. No earthwork to date. Rock entrance installed. Heavy equipment onsite. Site is snow covered. January-2018.	

2017-002	**7012 Dakota Ave**	**2018-01-16**
	Single family home demolition and construction of a new single family home.	
	Construction complete. Majority of landscaping is complete. Corrective Action has been addressed. Sod has been installed. Area near street and city water shut off that needs bare soils covered. Site representative was notified-November. No activity on this area as of January-2018 inspection.	
2017-003	**18761 Heathcote Dr Building Addition**	**2018-01-16**
	Single family home remodel and addition.	
	House construction complete. Pool installation complete. Landscaping continues--sod and shrubs installed. Temporary BMP's have not been removed. January-2018. Site snow covered.	
2017-009	**Emerson Chanhassen East Renovation**	**2018-01-16**
	Construction of a new entrance/addition, improvements to handicap accessible parking, and improvements to sidewalks within the project area.	
	Construction continues. BMP's installed. Rock entrance in place. Landscaping earthwork underway. West infiltration basin installed and complete-BMP are good. Bare soils onsite covered with matting and bio-logged. January-2018	
2017-010	**Riley Lake Park Renovations**	**2018-01-16**
	The project proposes the construction of a new parking lot, entrance road, boat launch, bituminous trails, storage building pad, and small seating and picnic areas.	
	Construction complete. BMP's installed and look good. Grading and landscaping in is complete. Vegetation growing in some areas. Soils have been spray-tac'd. Vegetation is sparse. Site is snow covered.	
2017-011	**Galpin Blvd Watermain Improvements**	**2018-01-16**
	The proposed project will make improvements to the watermain along Galpin Blvd. and Lake Lucy Road.	
	Construction complete. Soils covered with erosion control mats-some growth observed to date. Silt fences still installed in some areas. Some areas have had additional matting laid down. January-2018.	

2017-023	**Eden Prairie Assembly of God**	**2018-01-16**
	Construction of a 14,794 square foot building addition and an infiltration basin.	
	Construction has begun. Perimeter control silt fence and rock entrance installed. BMP's look good.	
2017-025	**735 Pleasantview Road**	**2018-01-16**
	Construction of a new single family home.	
	Construction complete. Landscaping complete with exception of small infiltration basin. All temporary BMP's have been removed. Site is snow covered.	
2017-026	**6135 Ridge Road**	**2018-01-16**
	Construction of a new single family home.	
	Construction continues. Foundation in and rock entrance installed. BMP's look good.	
2017-027	**7500 Chanhassen Road**	**2018-01-16**
	Construction of a new single family home.	
	Construction continues. Silt fences and bio-logs installed. Erosion on west side went offsite-- cleaned up and more logs installed. Additional silt fence and bio-logs installed -additional BMP's look good. Some site grading conducted in early November. Site is snow covered.	
2017-029	**Tweet Pediatric Dentistry**	**2018-01-16**
	Construction of a new dental facility approximately 5,700 square feet in size and all appurtenant infrastructure.	
	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. Site grading and landscaping is continues - bare soils have not been covered-snow covered.	
2017-032	**11193 Bluestem Lane**	**2018-01-16**
	Purgatory Creek streambank project.	
	Site is snow covered--will inspect after spring snowmelt. Construction complete. All exposed soils on slope were covered and stabilized. Bio-logs installed at toe of slope.	

2017-034	**Park Road Overlay Chanhassen**	**2018-01-16**
	This project involves a mill and overlay of Park Road between Audubon Road and Powers Boulevard. The project will also replace the existing Riley Creek Crossing.	
	Work complete at creek crossing and Park Rd. Culvert. BMP's installed are good. -inlet protection installed. Road overlay still needs to be completed.	
2017-036	**Minnetonka HS Upper Field Access Road**	**2018-01-16**
	Construction of 480 foot impervious access road and 190 feet of retaining wall on the Minnetonka High School property.	
	Construction complete. Corrective Action items have been addressed. Vegetation has sprouted and is growing--sparse in many areas--will need to be addressed in spring-2018. Snow covered-January.	
2017-038	**West Park**	**2018-01-16**
	82 Unit Multifamily Housing Development	
	Construction continues. Earthwork/grading underway/street installation complete. Rock entrance installed on south side. Perimeter control installed. Catch basin protection installed but removed for winter. BMP's look good. Minor tracking observed. Many areas of exposed soils have been blown with straw. Site is snow covered. January-2018	
2017-047	**Fawn Hill**	**2018-01-16**
	10-lot single family home development.	
	Earthwork completed/roadway installed. Perimeter silt fence install. Exposed soils blown with straw. Slight tracking to street . BMP's to date look good.	
2017-052	**Old Excelsior Senior Living**	**2018-01-16**
	This project is the demolition of two existing buildings to facilitate the construction of a new senior living building.	
	Earthwork and construction continues. Perimeter control installed. Rock entrance installed. Large spoils pile is not covered. Site representative stated that they are regularly working it.	

2017-053	**Mastercraft**	**2018-01-16**
	Demolition of an existing building and the construction of a new building, including bituminous parking improvements.	
	Construction continues. Perimeter control installed. Inlet protection installed. Bio-logs in place. BMP's look good.	
2017-056	**Covington Rd Culvert Replacement**	**2018-01-16**
	Replacement of a failing 36-inch corrugated metal pipe at Purgatory Creek and Covington Road.	
	Construction complete. Vegetation matting installed. Wetland buffer signage installed on downstream side of Covington. Installed BMP's look good. Site is snow covered.	

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.

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: 2018-004

Received complete: January 11, 2018

Applicant: City of Chanhassen – Attn: Paul Oehme

Consultant: Katie Wolohan, Barr Engineering

Project: Lake Susan Park Pond Watershed Treatment and Stormwater Reuse Enhancement – The project will provide water quality treatment to the water discharging from Lake Susan Park pond into Riley Creek using an iron-enhanced sand filter and stormwater reuse through the existing irrigation system on the ballfield at Lake Susan Park. The project will also stabilize the outfall from the pond into Riley Creek.

Location: 903 Lake Drive, Chanhassen, MN

Reviewer: Terry Jeffery, Permit Coordinator

Rules: Applicable rules checked

X	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
X	Rule F: Shoreline/Streambank Stabilization		Rule L: Permit Fees
	Rule G: Waterbody Crossings		Rule M: Financial Assurances

Rule Conformance Summary

Rule	Issue		Conforms to RBPCWD Rules?	Comments
B	**Floodplain Management**		Yes	
C	**Erosion Control Plan**		Yes	
D	**Wetland and Creek Buffers**		See Comment	See condition D1
F	**Streambank Stabilization**		Yes	
J	**Stormwater Management**	Rate	Yes	
		Volume	Yes	
		Water Quality	Yes	
		Low Floor Elev.	Yes	
		Maintenance	See Comment	See condition J1
L	**Permit Fee**		NA	Governmental Entity
M	**Financial Assurance**		NA	Governmental Entity

Project Description

The project will provide water quality treatment to the water discharging from Lake Susan Park pond into Riley Creek using an iron-enhanced sand filter (IESF and stormwater reuse through the existing irrigation system on the ballfield at Lake Susan Park. The project will also stabilize the outfall from the pond into Riley Creek. The project will be completed as a cooperative effort between the RPBCWD and the City of Chanhassen. Because the project is designed as a water quality project, the stormwater treatment provided exceeds the treatment required for the small amount of infrastructure to be constructed as part of the project.

The IESF is designed to be separated from the pond to avoid many of the common issues with filter benches such as clogging resulting from floatable debris being deposited onto the bench. Instead, water will be distributed onto the bench via the pump being used for the irrigation reuse system.

The pump will be designed to handle the larger flow pressure required for the irrigation system as well as the lower pressure needed for the filtration bench. The bench location was selected to minimize impacts to upland vegetation and to maximize future park improvement opportunities.

To prevent contamination of the potable water supply, the irrigation system will be disconnected from the municipal water supply. The existing municipal supply line will be capped in-place to facilitate reconnection in the event it is needed in the future. The storage volume and stable pond level make it unlikely that there will be inadequate water available even under drought conditions.

The project site information is summarized below:

1. Total Site Area: 25.8 acres
2. Existing Site Impervious Area: 2.3 acres
3. Existing Impervious Area Disturbed: 0.006 acres (255 square feet)
4. New Site Impervious Area: 0.0036 acres (155 square feet)
5. Increase in total Site Impervious Area: (there will be a small decrease (0.0009 ac) in impervious surface as the disturbance of the 255 square feet is for its removal.)
6. Volume of excavation/fill: -237 cubic yards (removed for bench)
7. Total Disturbed Area: 0.91 acres (39,450 square feet)

Exhibits:

1. Permit Application dated January 11, 2018.
2. Technical Memorandum dated January 9, 2018
3. Design Plan Sheets (∑15 Sheets G01 – S02) dated 10/11/2017 (revised 1/8/18).
4. MIDS Calculator file received January 10, 2018.

5. Correspondence with City of Chanhassen regarding WCA jurisdictional status of the pond dated October 26, 2017
6. P8 Model output received January 10, 2018.
7. Soil boring logs advanced October 12, 2017.

Rule Specific Permit Conditions

Rule B: Floodplain Management and Drainage Alterations

Construction of the iron-enhanced sand filtration system and placement of riprap at the outlet structure will occur below the 100-year flood elevation of Lake Susan Park Pond and Riley Creek (elevation 887.9), triggering Rule B.

Eroded banks of Riley Creek will be graded back at a 3:1 slope, resulting in 8.9 cubic yards of excavation below the 100-year flood elevation. Approximately 8.9 cubic yards of riprap will then be placed below the 100-year flood elevation of Riley Creek to provide erosion protection at an outlet structure between Lake Susan Park Pond and Riley Creek, resulting in no net change in floodplain storage.

The project will construct a small embankment between elevations 884.4 and 885.5 by placing 24 cubic yards of net fil below the 100-year flood elevation. Compensatory storage for this impact will be provided by the construction of the iron-enhanced sand filtration system which will result in 261 cubic yards of net excavation between elevations 884.4 and 885.5. Thus adding 237 cubic yards of floodplain storage (i.e., a net increase of floodplain storage), thus meeting the Rule B, Subsection 3.2 criteria. Plan sheets C-03A and C-04 clearly demonstrate that the intake location and water source for the irrigation is a surface water feature. The location of the intake is approximately 3.75 feet from the bottom of the bottom and 2.5 feet below the surface. The intake is designed with a screen to limit the likelihood of that fish or other macro-fauna will be captured and injured as a result of the project. Discharges to Riley Creek have only minor decreases in rates and will maintain similar hydrologic conditions. Given all this, the project will not have an adverse impact to groundwater hydrology, stream base flow, or aquatic riparian habitat.

The project includes construction of a 9'x12' treatment building at elevation 893, which is 5.1 feet above the 100-year flood elevation and conforming to Rule B Subsection 3.1. The treatment building would be located approximately 267 feet from the centerline of Riley Creek, thus meeting Rule B Subsection 3.4.

The proposed project conforms to RPBCWD Rule B.

Rule C: Erosion and Sediment Control

Because the project will disturb 0.91 acres of land, 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 Barr Engineering includes installation of silt fence, sediment control log, a woodchip construction entrance, placement of a minimum of 6 inches of topsoil, decompaction of areas compacted during construction, protection of natural topography, and retention of native topsoil onsite. The plans note that the party responsible for day to day maintenance of temporary and permanent erosion prevention and sediment control measures will be identified upon award of contract. To conform to the RPBCWD Rule C requirements the following revision is needed:

C1. The applicant must provide the name and contact information of the individual responsible for erosion prevention and sediment control at the site. RPBCWD must be notified if the responsible party changes during the permit term.

Rule D: Wetland and Creek Buffers

The project is adjacent to both Riley Creek and Lake Susan Park Pond. The City of Chanhassen, as the local government unit (LGU) responsible for the administration of the Wetland Conservation Act (WCA), has determined that the pond is not wetland under the WCA. This determination is based upon the pond being excavated in an upland area solely for stormwater management. As such, the buffer requirement only applies to Riley Creek.

The image below is an excerpt from sheet L-01 which shows the buffer area as the existing wooded area and outlined in red. This area provides a 50-foot average buffer width a minimum width of 46 feet. The buffer area is to be planted with MN State Native Seed Mix 35-641: Mesic Wet Prairie. The project calls for the removal of existing structures within the buffer area and no structures or impervious surfaces are to be added. This is compliant with section 3.2 of Rule D. The plan indicates markers to be placed at intervals less than 200 feet apart as well as at major deflection points. This is compliant with section 3.3 of Rule D.

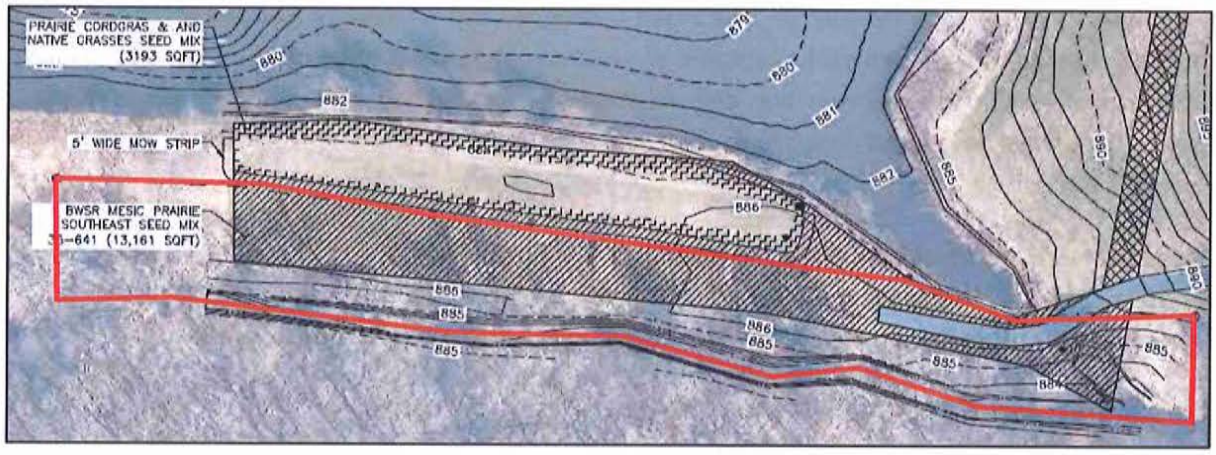


Figure 1. Creek buffer for Riley Creek shown in diagonal hatching.

The plan set calls for construction activities to be performed so that the potential to transfer invasive species is minimized to the maximum extent practicable. The cooperative agreement is being drafted and will include required buffer maintenance activities. The proposed project is compliant with Rule D.

D1. The applicant must enter into a maintenance agreement with the District which stipulates buffer maintenance activities consistent with District requirements.

Rule F: Shoreline and Streambank Stabilization

As part of the project, the severely undercut reach of Riley Creek at the pond outfall will be stabilized, triggering Rule F. Twenty-five feet of the bank at this location is several under cut, establishing the need for stabilization required by subsection 3.1 of the rule. If not addressed at this time, the area will continue to erode, delivering sediment to Riley Creek and Lake Susan. Rip-rap is planned to be used in this location.

Modeling indicates that the flow velocities and average shear stress during the 100-year event in this downstream of the flared end section shown in Figure 3 are 5.2 feet per second (fps) and 2.5 pounds per square foot (lb/ft^2), respectively. This shear stress significantly exceeds the shear stress that can be sustained by the native soils in the area and the shear stress that vegetation alone can withstand (0.02-0.25 lb/ft^2 and 0.7-1.7 lb/ft^2, respectively). These data show that neither bioengineering nor a combination of bioengineering and riprap will achieve streambank stabilization at the Lake Susan Park Pond outlet to Riley Creek and that the use of riprap is necessary.

The applicant is proposing to install MnDOT Class III riprap. The applicant proposes to use stone riprap having an average size of 9 inches, with a geotextile (MnDOT 3733) and transitional layer of 6 inches of granular bedding consistent with Rule F, Subsections 3.3b and 3.3d. Notes on the plan sheet prohibit the use of limestone or dolomite consistent with Rule F, Subsections 3.3b. The proposed riprap can withstand shear stress of 3.8 lb/ft^2, which is consistent with the erosion intensity for the flow in Riley Creek at this location (Rule F, Subsection 3.2 and Subsection 3.3b).

Riprap will extend no higher than the top of bank, and the finished stabilized slope of the Riley Creek shoreline will be 3:1 as indicated on plan Sheet C-09. As indicated above, the grading required prior to the placement of riprap will result in a net cut, meaning that the project will slightly increase the cross-sectional area of the Riley Creek channel. Stage increases upstream or downstream of the riprap will not result due to the increase in cross sectional area as shown on sheet C-09 and the nominal change in hydrologic conditions summarized in the Rule J discussion. The natural alignment of Riley Creek will not be altered by placement of riprap. The plan set calls for construction activities to be performed so that the potential to transfer invasive species is minimized to the maximum extent practicable.

Figure 2 Existing Condition at Lake Susan Pond Outlet to Riley Creek.

The proposed streambank stabilization complies with RPBCWD Rule F.

Rule J: Stormwater Management

Because the project will disturb 0.91-acre of land surface area, approval under the RPBCWD Stormwater Management Rule is required. The proposed activities will result in a net decrease in impervious surface. The proposed treatment building will add 155 square feet of impervious surface. However, the removal of the concrete pads located in the decommissioned archery range will remove 255 square feet of existing impervious surface. As stated previously, this is a net decrease in impervious surface. Therefore, under the paragraph 2.3 redevelopment framework, the RPBCWD stormwater management criteria apply only to the disturbed area and additional impervious surface on the site.

The Applicant is proposing a water reuse system to provide the required rate control, volume abstraction and water quality management on the site. Pretreatment of stormwater is provided by Lake Susan Park Pond (an existing constructed stormwater pond) prior to water being conveyed to the water reuse system and IESF.

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 PC-SWMM 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. The proposed project is in conformance with RPBCWD Rule J, Subsection 3.1.a.

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
Existing Pond	1.9	1.7	101.5	101.0	407.9	407.8	18.0	17.9

Volume Abstraction

Subsection 3.1.b of Rule J requires the abstraction onsite of 1.1 inches of runoff from all new impervious surface of the parcel. An abstraction volume of 14 cubic feet is required from the 0.0036 acres (155 square feet) of new impervious area on the project for volume retention. The Applicant proposed a water reuse system to meet the required volume abstraction of 14 cubic feet. The system will result in a volume reduction of 4,783 cubic feet. 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	14	4,783

Two soil borings for the site were provided to determine soils on the site. These borings indicated predominantly clay soils (Hydrologic Soil Group D) on the site. The MN Stormwater Manual indicates an infiltration rate of 0.06 inches per hour for clay soils. The irrigation application rate used in the design computations is reasonable for clay soils and was selected based on the irrigation application rate currently used successfully by the site's irrigation system. The proposed project is in conformance with RPBCWD 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. An Iron Enhanced Sand Filter (IESF) and a water reuse system will be employed to achieve the required TP and TSS removals. MIDS calculator and P8 models were used to estimate the TP and TSS removals. A P8 Model was used to simulate the entire watershed tributary to Lake Susan Park Pond under existing and proposed conditions. The difference in the results of the model analysis represents the anticipated removals by the IESF.

Computation of Pollutant Removals for the IESF Based on P8 Output [1] (P8 Model BMP 3.37 (Lake Susan Park Pond))				
	Removal over 4 Years		Annual Removals	
	TSS (lbs)	TP (lbs)	TSS (lbs)	TP (lbs)
Existing Condition	22,755	299.2	5,688	74.847
Proposed Condition	15,904	204.4	3,975	51.1
Difference = Reduction by IESF	6,851	94.8	1,713	23.7

[1]This table is included to illustrate what the modeled efficacy of the Iron Enhanced Sand Filter is for educational purposes.

A second spreadsheet approach was used to account for seasonal variations in filtration efficiencies and pumping to the proposed filter. Assuming the pumping would only occur during warm weather conditions the TP removal was estimated to range between 23 and 25 pounds per year with an average removal of 28.8 pounds per year.

Pollutant of Interest	Regulated Site Loading (lbs/yr)	Required Load Removal (lbs/yr)[1]	IESF Load Reduction (lbs/yr)[2]	Reuse Load Reduction (lbs/yr)[3]	Provided Load Reduction (lbs/yr)
Total Suspended Solids (TSS)	76.5	68.9 (90%)	1713	37	1750 (>100%)[4]
Total Phosphorus (TP)	0.4209	0.253 (60%)	28.8	0.2047	29 (>100%)[4]

[1]Required load reduction is calculated based on the removal criteria in Rule J, Subsection 3.1c and the new impervious area site load.

[2]See output and IESF treatment calculation spreadsheet attachment E. The phosphorus removal with the IESF is expected to vary with climatic conditions and filtration rate of the filter while ranging between 23-35 lbs/yr.

[3]See MIDS output in attachment C. The TP reduction is the combination of particulate and dissolved P.

[4]Provided removals are greater than the watershed load because more stormwater is routed to the BMPs than is generated by the disturbed and reconstructed areas of the project.

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 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

The low floor elevations of the structures and the adjacent stormwater management feature are summarized in the following table.

Location Riparian to Stormwater Facility	Low Floor Elevation of Building (feet)	100-year Event Flood Elevation of Adjacent Stormwater Facility (feet)	Freeboard (feet)
Treatment Shelter	893.0	887.9 (Existing Pond)	5.1

The proposed improvements are compliant with Rule J, Subsection 3.6.

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.

RPBCWD plans to enter a cooperative agreement with the City of Chanhassen to construct the project. Either in the cooperative agreement or by independent maintenance agreement, maintenance in perpetuity of the stormwater-management facilities must be provided.

J1. Chanhassen must enter into a maintenance agreement with the RPBCWD.

J2. Because the proposed stormwater reuse system requires consistent use at a specified rate to meet District requirements, performance monitoring for the site will be required to ensure that the project is able to meet the RPBCWD volume abstraction requirement as has been proposed. In accordance with Rule J, Subsection 2.6 performance monitoring, and as a stipulation of issuing a permit for this project, a report on reuse volume must be submitted to the RPBCWD on a yearly basis.

Applicable General Requirements:

1. 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.
2. Applicant must provide the name and contact information of the individual responsible for erosion and sediment control for the project.

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 and 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 submit enter into a cooperative agreement with the RPBCWD for the ongoing operations and maintenance of the water reuse system, IESF and buffer areas.

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.
2. Because the proposed stormwater reuse system requires consistent use at a specified rate to meet District requirements, performance monitoring for the site will be required to ensure that the project is able to meet the RPBCWD volume abstraction requirement as has been proposed. In accordance with Rule J, Subsection 2.6 performance monitoring, and as a stipulation of issuing a permit for this project, a report on reuse volume must be submitted to the RPBCWD on a yearly basis.

Board Action

It was moved by Manager _____, seconded by Manager _____ to approve permit application No. 2018-004 with the conditions recommended by staff.

Permit Location Map

903 LAKE DRIVE
CHANHASSEN
Permit 2018-001
Riley Purgatory Bluff Creek
Watershed District

N

Feet

0 1,000

RETURN PERMIT APPLICATION TO:

Riley Purgatory Bluff Creek Watershed District
18681 Lake Drive East
Chanhassen, MN 55317
Phone: 952-607-6512
www.RPBCWD.org

TO BE COMPLETED BY THE DISTRICT

PERMIT NUMBER:
AMOUNT RECEIVED: $ DATE:
RECEIVED FROM:
DATE APPROVED:
PERMIT EXPIRATION DATE:

1. Name of primary property owner: **Paul Oehme**

Mailing Address: **7700 Market Boulevard Chanhassen, Minnesota 55317 United States**

Email Address: **poehme@ci.chanhassen.mn.us** Phone: **952-227-1169** Fax:

2. Property Owner Representative Information (not required) (licensed contractor, architect, engineer, etc...)

Business Name: **Barr Engineering Co** Representative name: **Katie Wolohan**

Business Address: **4300 MarketPointe Drive Suite 200 Minneapolis, Minnesota 55435 United States**

Email Address: **kwolohan@barr.com** Phone: **952-842-3594** Fax:

3. Project Address: **903 Lake Drive Chanhassen, Minnesota 55317 United States**

PID: **251910030, 251910040**

Project Name: **Lake Susan Park Pond Watershed Treatment and Stormwater Reuse Enhancement**

Project Description: **The project includes providing water quality treatment at Lake Susan Park Pond through use of an iron enhanced sand filter and stormwater reuse through irrigation of an adjacent ball field (see Sheet C-02 of attached plans). It includes erosion protection the outlet of Lake Susan Park Pond to Riley Creek and installing an iron enhanced sand filtration system westward from the outlet. The filtration system is located along the south side of Lake Susan Park Pond, in an area inside the current shoreline edge of the pond to minimize impacts to upland vegetation and provide more bounce and filtration capacity in the pond. The iron enhanced sand filter will be set at an elevation that is 0.5 feet below the current normal water level of the pond.**

4. Size of project parcel (square feet or acres): **25.8**

Area of disturbance (square feet): **0.91** Volume of excavation/fill (cubic yards): **-237**

Area of existing impervious surface: **255** Area of proposed impervious surfaces: **155**

Length of shoreline effected (feet): **0** Waterbody: **Lake Susan Park Pond/Riley Creek**

5. Type of permit(s) being applied for: **Rule B - Floodplain Management and Drainage Alterations Rule C - Erosion and Sediment Control Rule D - Wetland, Lake, and Creek Buffers Rule F - Shoreline and Streambank Stabilization Rule J - Stormwater Management**

6. NPDES/SDS General Stormwater Permit Number:

7. Waterbody receiving runoff from site: **Lake Susan Park Pond/Riley Creek**

8. Project Timeline: Start Date: **February 19, 2018** Completion Date: **December 21, 2018**

Permits have been applied for:

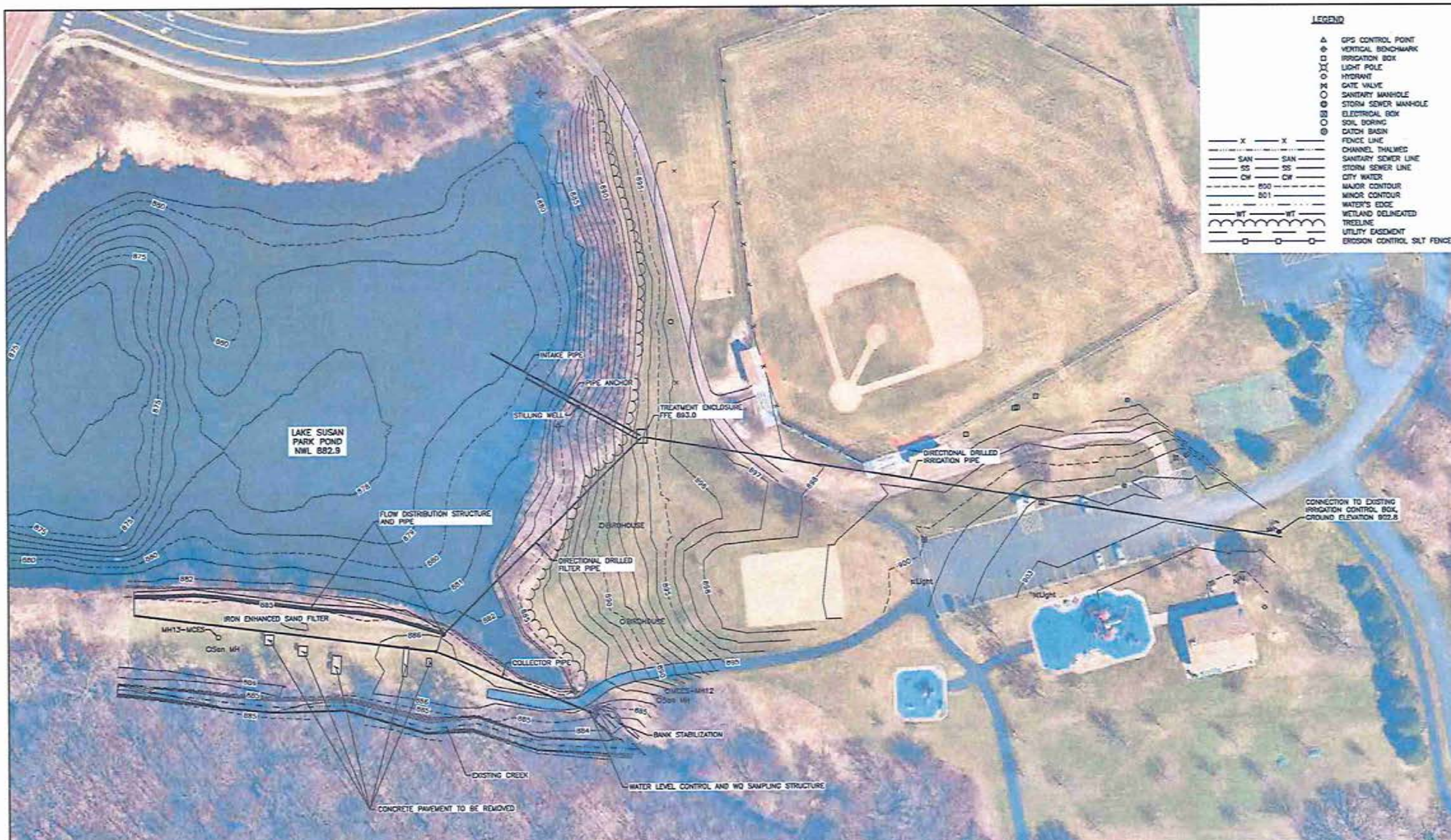
Permits have been received: **None received**

Submittal Requirements
Complete applications must be submitted and received 30 business days prior to the regular Board of Managers meeting, generally the first Wednesday of each month (check website for exact meeting days). Applicants must submit a paper copy and an electronic copy of all required information as specified by District's Rules (see website for complete rules or contact the District office for a copy).

Applicant Signature
"I understand that, as the permittee, I am legally accountable to ensure compliance with the terms and conditions of the permit. I understand that I am not authorized to begin the project until I have received the permit. If the project is modified, I will obtain approval by the Riley Purgatory Bluff Creek Watershed District before I continue with the project. I authorize the District, and its agents, employees, officers, and contractors, to enter the project site to perform any inspections of work authorized by the permit or any applicable law."

"I certify that I have thoroughly read and understand the information in this application."

Signature of Each Property Owner Date 1/11/18


LEGEND
GPS CONTROL POINT
VERTICAL BENCHMARK
IRRIGATION BOX
LIGHT POLE
HYDRANT
GATE VALVE
SANITARY MANHOLE
STORM SEWER MANHOLE
ELECTRICAL BOX
SOIL BORING
CATCH BASIN
FENCE LINE
CHANNEL THALWEG
SANITARY SEWER LINE
STORM SEWER LINE
CITY WATER
MAJOR CONTOUR
MINOR CONTOUR
WATER'S EDGE
WETLAND DELINEATED
TREELINE
UTILITY EASEMENT
EROSION CONTROL SILT FENCE
LAKE SUSAN PARK POND NWL 882.9
INTAKE PIPE
PIPE ANCHOR
STILLING WELL
TREATMENT ENCLOSURE FFE 893.0
DIRECTIONAL DRILLED IRRIGATION PIPE
CONNECTION TO EXISTING IRRIGATION CONTROL BOX, GROUND ELEVATION 902.8
FLOW DISTRIBUTION STRUCTURE AND PIPE
DIRECTIONAL DRILLED FILTER PIPE
IRON ENHANCED SAND FILTER
COLLECTOR PIPE
BANK STABILIZATION
EXISTING CREEK
WATER LEVEL CONTROL AND WQ SAMPLING STRUCTURE
CONCRETE PAVEMENT TO BE REMOVED

1 PLAN VIEW

0 40 80 SCALE IN FEET

RELEASED FOR 90% DESIGN REVIEW

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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.

PRINTED NAME ______
SIGNATURE ______
DATE ______ LICENSE # ______

CLIENT	10/20	12/01	01/12				
BID							
CONSTRUCTION							
RELEASED TO/FOR	A	B	C	0	1	2	3
	DATE RELEASED						

BARR
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
Suite 200
MINNEAPOLIS, MN 55435
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

Scale	AS SHOWN
Date	10/11/2017
Drawn	GGN
Checked	
Designed	BARR
Approved	

RPBCWD
EDEN PRAIRIE, MINNESOTA

LAKE SUSAN WATERSHED TREATMENT
CHANHASSEN, MINNESOTA

PROPOSED SITE PLAN OVERALL

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-02
REV. No. C

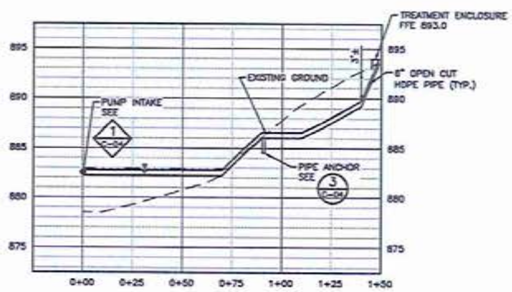
CADD USER: Greg Nelson FILE: M:\DESIGN\23270053.14\23270053.14_LSP_C-02.DWG PLOT SCALE: 1:2 PLOT DATE: 1/8/2018 1:07 PM


INTAKE PIPE ALIGNMENT SEE
0+00(A1)
PIPE ANCHOR
1+00(A1)
STILLING WELL SEE
TREATMENT ENCLOSURE FFE 893.0
IRRIGATION PIPE ALIGNMENT SEE
PROTECT EXISTING STORM SEWER AT CROSSING, APPROX. ELEVATION 888.8
1+00(A3)
2+00(A3)
3+00(A3)
4+00(A3)
5+00(A3)
5+62(A3)
EXISTING IRRIGATION CONTROL BOX
3" HDPE DIRECTIONAL DRILLED TO EXISTING IRRIGATION CONTROL BOX, GROUND ELEVATION 902.5 SEE PLAN
LAKE SUSAN PARK POND NWL 882.9
LEGEND
GPS CONTROL POINT
VERTICAL BENCHMARK
IRRIGATION BOX
LIGHT POLE
HYDRANT
GATE VALVE
SANITARY MANHOLE
STORM SEWER MANHOLE
ELECTRICAL BOX
SOIL BORING
CATCH BASIN
FENCE LINE
CHANNEL THALWEG
SANITARY SEWER LINE
STORM SEWER LINE
CITY WATER
MAJOR CONTOUR
MINOR CONTOUR
WATER'S EDGE
WETLAND DELINEATED
TREELINE
UTILITY EASEMENT
EROSION CONTROL SILT FENCE

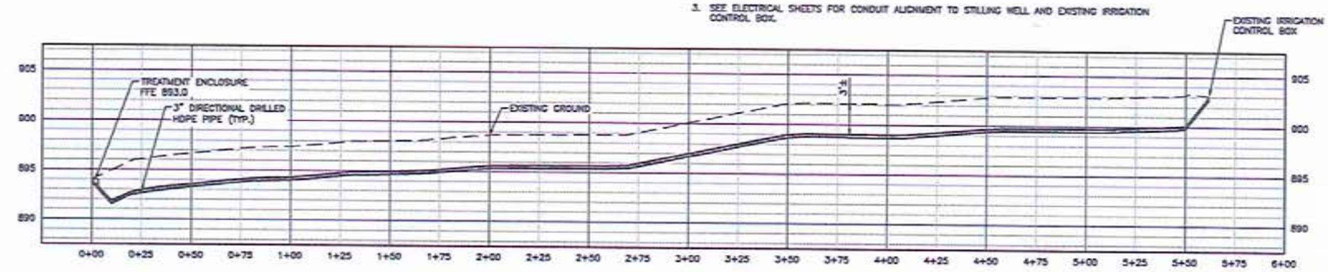
(1) PLAN: PIPE LAYOUT
0 30 60 SCALE IN FEET

NOTES:

1. USE SOLVENT WELD PVC FOR PIPE UNDER BUILDING SLAB. TRANSITION FROM HDPE WITH HDPE/PVC TRANSITION COUPLING 2 FEET OUTSIDE OF BUILDING SLAB.
2. INSTALL SCREEN FLUSH SUPPLY PIPE IN TRENCH BETWEEN TREATMENT ENCLOSURE AND PIPE ANCHOR BESIDE INTAKE PIPE.
3. SEE ELECTRICAL SHEETS FOR CONDUIT ALIGNMENT TO STILLING WELL AND EXISTING IRRIGATION CONTROL BOX.



(2) PROFILE: INTAKE PIPE (A1)
0 30 60 HORIZONTAL SCALE IN FEET
0 6 12 VERTICAL SCALE IN FEET



(3) PROFILE: IRRIGATION PIPE (A3)
0 30 60 HORIZONTAL SCALE IN FEET
0 6 12 VERTICAL SCALE IN FEET

RELEASED FOR 90% DESIGN REVIEW

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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.
PRINTED NAME
SIGNATURE
DATE LICENSE #

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION — A B C 0 1 2 3 — DATE RELEASED

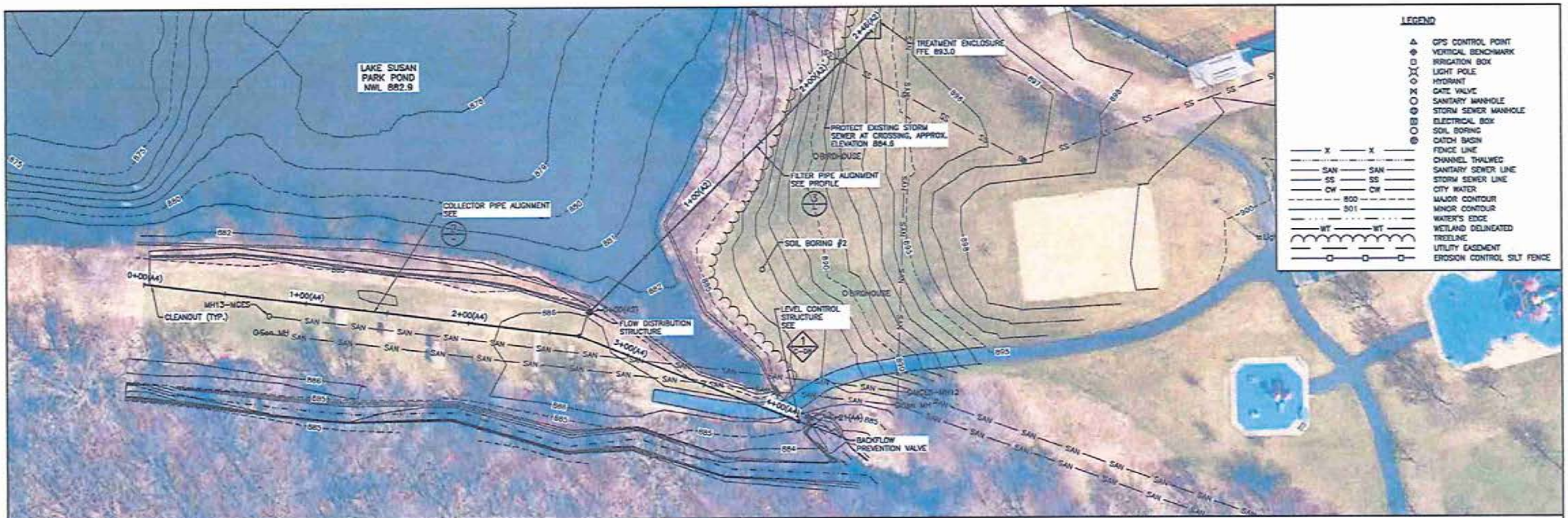
BARR
Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435 Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277

Scale: AS SHOWN
Date: 10/11/2017
Drawn: CGN
Checked:
Designed: BARR
Approved:

RPBCWD
EDEN PRAIRIE, MINNESOTA

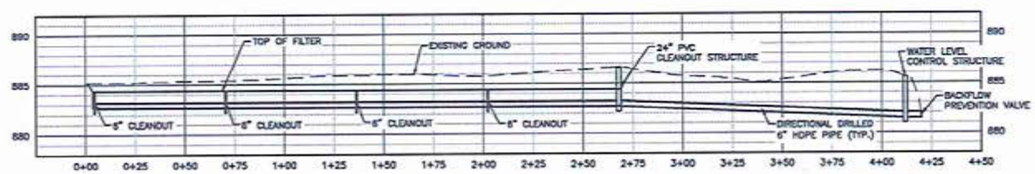
LAKE SUSAN WATERSHED TREATMENT
CHANHASSEN, MINNESOTA
PIPE LAYOUT
PLAN AND PROFILE

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-03A
REV. No. C


LAKE SUSAN PARK POND NWL 882.9
COLLECTOR PIPE ALIGNMENT SEE
TREATMENT ENCLOSURE FFE 893.0
PROTECT EXISTING STORM SEWER AT CROSSING, APPROX. ELEVATION 884.5
FILTER PIPE ALIGNMENT SEE PROFILE
SOIL BORING #2
LEVEL CONTROL STRUCTURE SEE
FLOW DISTRIBUTION STRUCTURE
BACKFLOW PREVENTION VALVE
CLEANOUT (TYP.)
MH13-MCES
BIRDHOUSE
0+00(A4)
1+00(A4)
2+00(A4)
3+00(A4)
4+00(A4)
1+00(A2)
2+00(A2)
LEGEND
GPS CONTROL POINT
VERTICAL BENCHMARK
IRRIGATION BOX
LIGHT POLE
HYDRANT
GATE VALVE
SANITARY MANHOLE
STORM SEWER MANHOLE
ELECTRICAL BOX
SOIL BORING
CATCH BASIN
FENCE LINE
CHANNEL THALWEG
SANITARY SEWER LINE
STORM SEWER LINE
CITY WATER
MAJOR CONTOUR
MINOR CONTOUR
WATER'S EDGE
WETLAND DELINEATED
TREELINE
UTILITY EASEMENT
EROSION CONTROL SILT FENCE

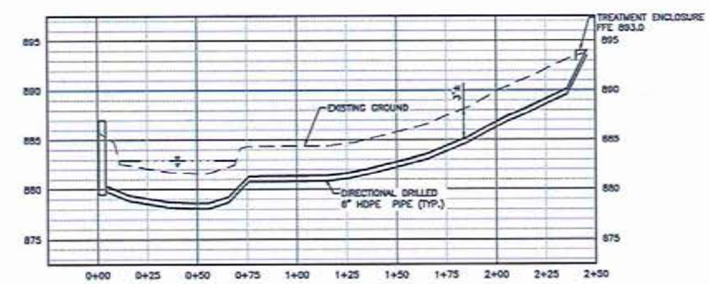
① PLAN: PIPE LAYOUT

0 30 60 SCALE IN FEET


TOP OF FILTER
EXISTING GROUND
24" PVC CLEANOUT STRUCTURE
WATER LEVEL CONTROL STRUCTURE
BACKFLOW PREVENTION VALVE
6" CLEANOUT
DIRECTIONAL DRILLED 6" HDPE PIPE (TYP.)
890
885
880
0+00
0+25
0+50
0+75
1+00
1+25
1+50
1+75
2+00
2+25
2+50
2+75
3+00
3+25
3+50
3+75
4+00
4+25
4+50

② PROFILE: COLLECTOR PIPE (A4)

0 30 60 HORIZONTAL SCALE IN FEET 0 6 12 VERTICAL SCALE IN FEET



③ PROFILE: FILTER PIPE (A2)

0 30 60 HORIZONTAL SCALE IN FEET 0 6 12 VERTICAL SCALE IN FEET

RELEASED FOR 90% DESIGN REVIEW

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION

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.

PRINTED NAME
SIGNATURE
DATE LICENSE #

CLIENT / BID / CONSTRUCTION — RELEASED TO/FOR — A B C 0 1 2 3 — DATE RELEASED

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Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435 Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com

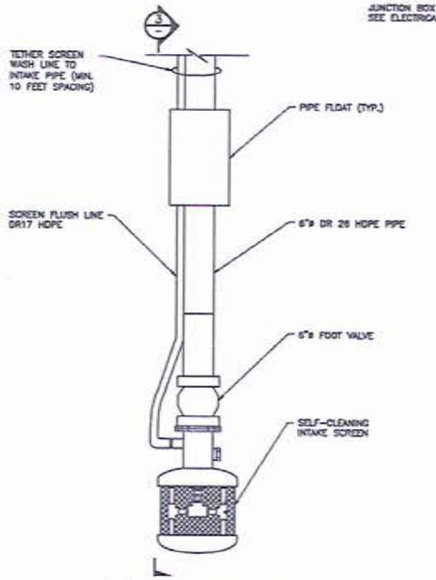
Scale	AS SHOWN
Date	10/11/2017
Drawn	GGN
Checked	
Designed	BARR
Approved	

RPBCWD
EDEN PRAIRIE, MINNESOTA

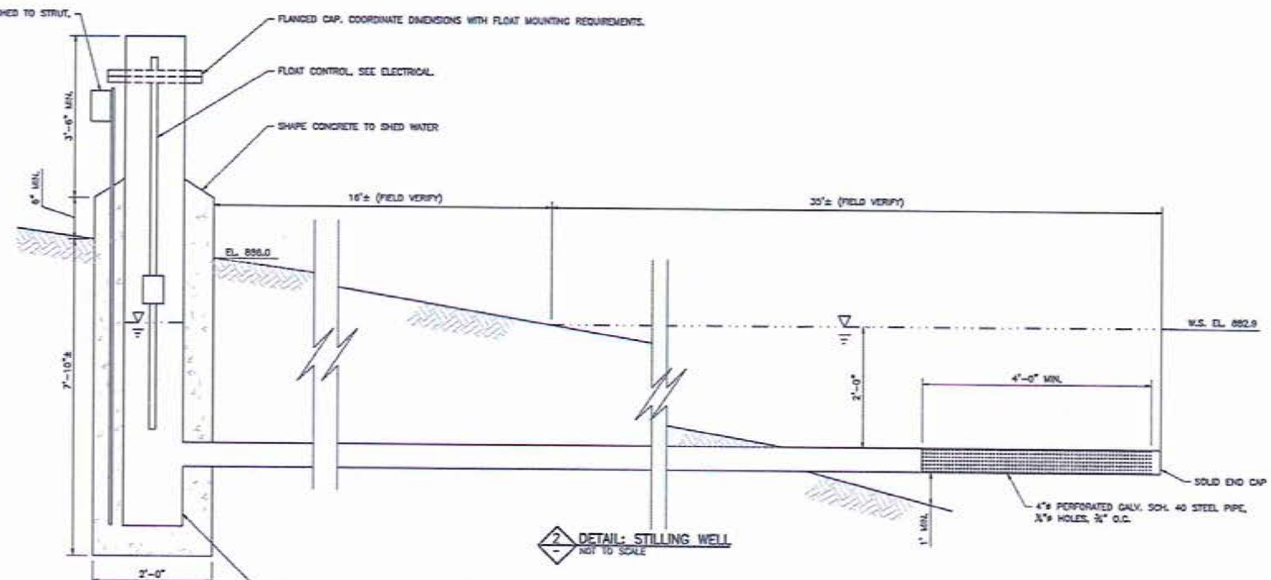
LAKE SUSAN WATERSHED TREATMENT
CHANHASSEN, MINNESOTA

PIPE LAYOUT
PLAN AND PROFILE

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-03B
REV. No. C



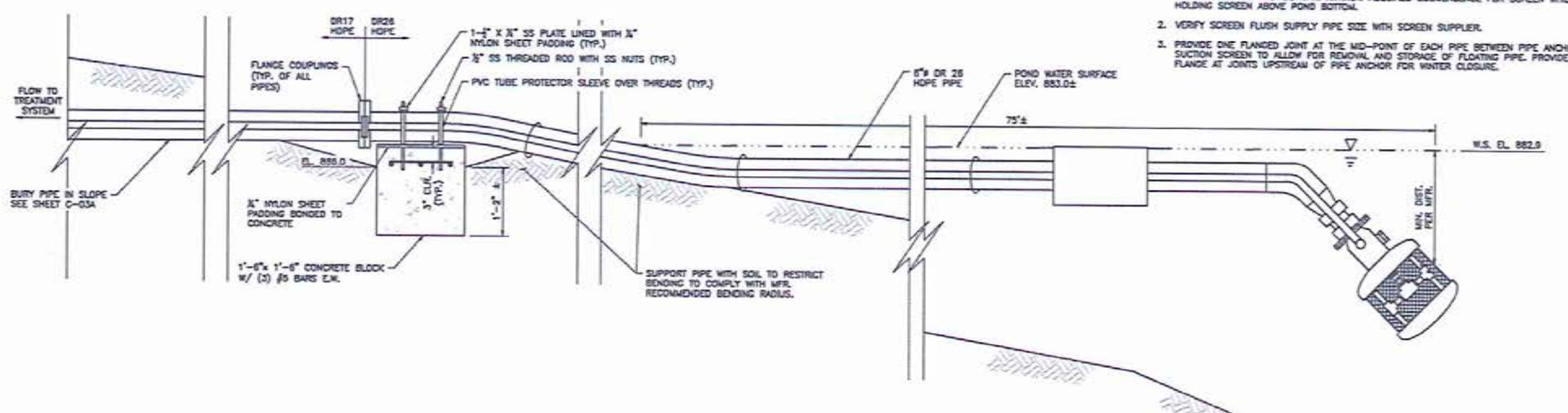
1 DETAIL: PUMP INTAKE
NOT TO SCALE


JUNCTION BOX ATTACHED TO STRUT, SEE ELECTRICAL.
FLANGED CAP. COORDINATE DIMENSIONS WITH FLOAT MOUNTING REQUIREMENTS.
FLOAT CONTROL, SEE ELECTRICAL.
SHAPE CONCRETE TO SHED WATER
3'-6" MIN.
6" MIN.
7'-10"±
2'-0"
16'± (FIELD VERIFY)
35'± (FIELD VERIFY)
EL. 886.0
W.S. EL. 882.9
2'-0"
4'-0" MIN.
1' MIN.
SOLID END CAP
4"ø PERFORATED GALV. SCH. 40 STEEL PIPE, ⅜"ø HOLES, ¾" O.C.
12"ø SCH 40 GALV. (INSIDE & OUTSIDE) STEEL PIPE

2 DETAIL: STILLING WELL
NOT TO SCALE

NOTES:

1. FIELD VERIFY ALIGNMENT OF PIPE AND WATER DEPTH AT INTAKE SCREEN. ADJUST ALIGNMENT AS REQUIRED TO PROVIDE MFR. MINIMUM REQUIRED SUBMERGENCE FOR SCREEN WHILE HOLDING SCREEN ABOVE POND BOTTOM.
2. VERIFY SCREEN FLUSH SUPPLY PIPE SIZE WITH SCREEN SUPPLIER.
3. PROVIDE ONE FLANGED JOINT AT THE MID-POINT OF EACH PIPE BETWEEN PIPE ANCHOR AND SUCTION SCREEN TO ALLOW FOR REMOVAL AND STORAGE OF FLOATING PIPE. PROVIDE BLIND FLANGE AT JOINTS UPSTREAM OF PIPE ANCHOR FOR WINTER CLOSURE.


FLOW TO TREATMENT SYSTEM
BURY PIPE IN SLOPE SEE SHEET C-03A
DR17 HDPE
DR26 HDPE
FLANGE COUPLINGS (TYP. OF ALL PIPES)
1-½" X ⅜" SS PLATE LINED WITH ⅜" NYLON SHEET PADDING (TYP.)
½" SS THREADED ROD WITH SS NUTS (TYP.)
PVC TUBE PROTECTOR SLEEVE OVER THREADS (TYP.)
EL. 886.0
⅜" NYLON SHEET PADDING BONDED TO CONCRETE
3" CLR. (TYP.)
1'-3"
1'-6"x 1'-6" CONCRETE BLOCK W/ (3) #5 BARS E.W.
SUPPORT PIPE WITH SOIL TO RESTRICT BENDING TO COMPLY WITH MFR. RECOMMENDED BENDING RADIUS.
6"ø DR 26 HDPE PIPE
POND WATER SURFACE ELEV. 883.0±
75'±
W.S. EL. 882.9
MIN. DIST. PER MFR.

3 SECTION: PUMP INTAKE
NOT TO SCALE

RELEASED FOR 90% DESIGN REVIEW

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DATE 12/01/2017 LICENSE #

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Scale	AS SHOWN
Date	10/19/2017
Drawn	AMP
Checked	KMB
Designed	AMP
Approved	AMP

RPBCWD
EDEN PRAIRIE, MINNESOTA

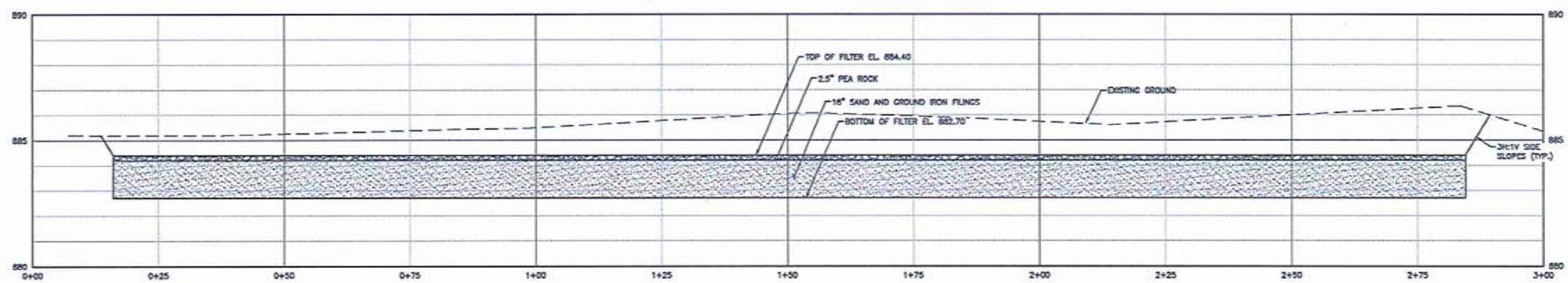
LAKE SUSAN WATERSHED TREATMENT
CHANHASSEN, MINNESOTA
STILLING WELL AND INTAKE PIPING
PLANS, SECTIONS, AND DETAILS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-04
REV. No. C


LAKE SUSAN POND
NWL 882.9
FLOW DISTRIBUTION PIPE
SEE SHEET C-08
6" HDPE FILTER PIPE
PLAN AND PROFILE
SEE SHEET C-03B
IRON ENHANCED SAND FILTER (6,000-SF)
COLLECTOR PIPE PLAN AND PROFILE
SEE SHEET C-03B
6"ø CLEANOUT
6"ø CLEANOUT
6"ø CLEANOUT
6"ø CLEANOUT
GRADING EXTENTS (TYP.)
24"ø
CLEANOUT
STRUCTURE
SEE

1 PLAN: IRON ENHANCED SAND FILTER

0 10 20
SCALE IN FEET



2 SECTION: IRON ENHANCED SAND FILTER (TYP.)

0 10 20 HORIZONTAL SCALE IN FEET — 0 1 2 3 4 VERTICAL SCALE IN FEET

RELEASED FOR 90% DESIGN REVIEW

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PRINTED NAME ____
SIGNATURE ____
DATE ____ LICENSE # ____

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Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277

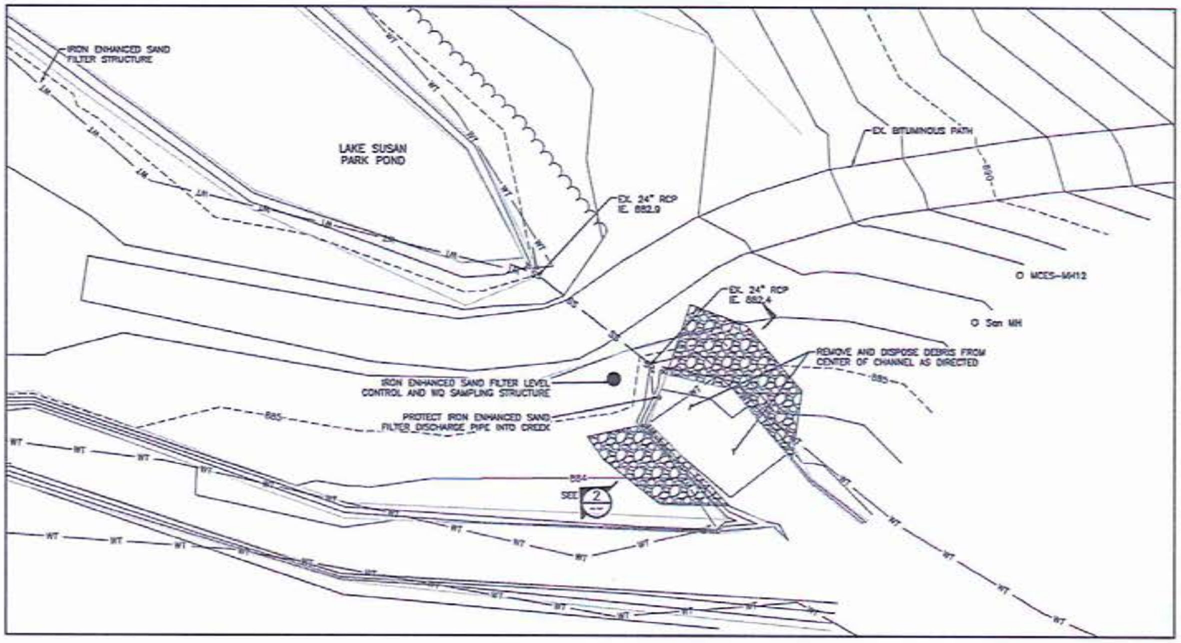
Scale	AS SHOWN
Date	10/20/2017
Drawn	CGN
Checked	
Designed	GJW/CGN
Approved	

RPBCWD
EDEN PRAIRIE, MINNESOTA

LAKE SUSAN WATERSHED TREATMENT
CHANHASSEN, MINNESOTA

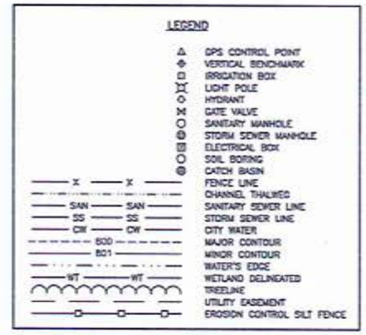
IRON ENHANCED SAND FILTER PLANS, SECTIONS, AND DETAILS

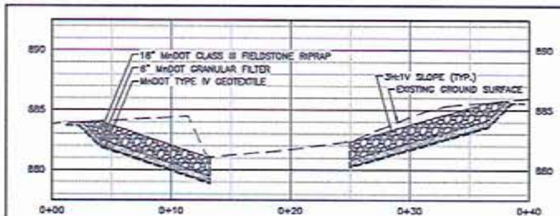
BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-07
REV. No. C


IRON ENHANCED SAND FILTER STRUCTURE
LAKE SUSAN PARK POND
EX. 24" RCP IE. 882.9
EX. BITUMINOUS PATH
EX. 24" RCP IE. 882.4
MCES-MH12
San MH
REMOVE AND DISPOSE DEBRIS FROM CENTER OF CHANNEL AS DIRECTED
IRON ENHANCED SAND FILTER LEVEL CONTROL AND WQ SAMPLING STRUCTURE
PROTECT IRON ENHANCED SAND FILTER DISCHARGE PIPE INTO CREEK
SEE 2

1 PLAN: BANK STABILIZATION

0 10 20 SCALE IN FEET


LEGEND
GPS CONTROL POINT
VERTICAL BENCHMARK
IRRIGATION BOX
LIGHT POLE
HYDRANT
GATE VALVE
SANITARY MANHOLE
STORM SEWER MANHOLE
ELECTRICAL BOX
SOIL BORING
CATCH BASIN
FENCE LINE
CHANNEL THALWEG
SANITARY SEWER LINE
STORM SEWER LINE
CITY WATER
MAJOR CONTOUR
MINOR CONTOUR
WATER'S EDGE
WETLAND DELINEATED
TREELINE
UTILITY EASEMENT
EROSION CONTROL SILT FENCE



NOTE:

1. FIELDSTONE RIPRAP REQUIRED, LIMESTONE OR DOLOMITE MATERIALS WILL NOT BE SUBSTITUTED.

2 SECTION: RIPRAP AND FILTER

0 5 10 SCALE IN FEET

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DATE ______ LICENSE # ______

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Scale	AS SHOWN
Date	10/11/2017
Drawn	GGN
Checked	
Designed	BARR
Approved	

RPBCWD

EDEN PRAIRIE, MINNESOTA

LAKE SUSAN WATERSHED TREATMENT

CHANHASSEN, MINNESOTA

RILEY CREEK BANK STABILIZATION

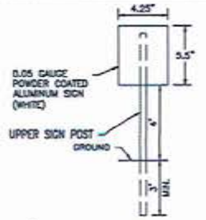
PLANS, SECTIONS, AND DETAILS

BARR PROJECT No. 23/27-0053.14

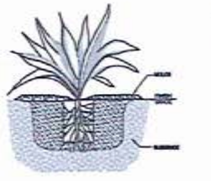
CLIENT PROJECT No.

DWG. No. C-09

REV. No. C



DETAIL: BUFFER SIGN INSTALLATION
NOT TO SCALE



DETAIL: HERBACEOUS PLUG
NOT TO SCALE

HERBACEOUS PLUG PLANTING NOTES:
1. PREPARE SOIL WITH COMPOST AMENDMENT PER PLAN
2. PROVIDE AND INSTALL PLANTS PER SCHEDULE.
3. EXCAVATE HOLE 3 TIMES WIDTH OF ROOTBALL.
4. BREAK BOTTOM OF ROOTBALL TO LOOSEN ROOTS.
5. PLANT THROUGH MULCH ALIGNING ROOTBALL TOP EVEN WITH SOIL – DO NOT PLANT TOO DEEP OR TOO SHALLOW. FIRM SOIL TO ENSURE GOOD CONTACT WITH ROOTS.
6. APPLY 3" DEPTH SHREDDED HARDWOOD MULCH TO ENTIRE PLANTING AREA (SOIL PREPARED AS PER SPECIFICATIONS).
7. NO MULCH TO BE IN CONTACT WITH PLANT.
8. WATER THOROUGHLY AFTER PLANTING.
9. HERBACEOUS PLANTS SHALL BE GUARANTEED FOR 60 DAYS FROM TIME OF OWNER ACCEPTANCE. CONTRACTOR TO WATER AS NECESSARY TO MAINTAIN IN A HEALTHY CONDITION. AT THE END OF THIS PERIOD ANY DEAD PLANTS SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.

PLAN: LANDSCAPE RESTORATION
0 40 80
SCALE IN FEET

MN/DOT GENERAL PURPOSE COMMERCIAL TURF SEED MIX 25-131. SEED AT A RATE OF 220 LBS/ACRE. SEED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3876

BWSR WET PRAIRIE SEED MIX 34-262. SEED GRASSES AT A RATE OF 6.50 LBS/AC, SEED SEDGES AND RUSHES AT A RATE OF .20 LBS/AC, SEED FORBS AT A RATE OF 1.50 LBS/AC, AND COVER CROP AT 10 LBS/AC. SEED IN ACCORDANCE TO MN/DOT STANDARD SPECIFICATION 3876

BWSR MESIC PRAIRIE SOUTHEAST SEED MIX 35-641. SEED GRASSES AT A RATE OF 7.70 LBS/AC, SEED FORBS AT A RATE OF 1.60 LBS/AC, AND COVER CROP AT 10 LBS/AC. SEED IN ACCORDANCE TO MN/DOT STANDARD SPECIFICATION 3876

PRAIRIE CORDGRASS AND NATIVE GRASSES SEED MIX, SEE PLANTING SCHEDULE BELOW.

LEGEND

- GPS CONTROL POINT
- VERTICAL BENCHMARK
- IRRIGATION BOX
- LIGHT POLE
- HYDRANT
- GATE VALVE
- SANITARY MANHOLE
- STORM SEWER MANHOLE
- ELECTRICAL BOX
- SOIL BORING
- CATCH BASIN
- X — X — FENCE LINE
- CHANNEL THALWEG
- SAN — SAN — SANITARY SEWER LINE
- SS — SS — STORM SEWER LINE
- CW — CW — CITY WATER
- 800 — MAJOR CONTOUR
- 801 — MINOR CONTOUR
- WATER'S EDGE
- WT — WT — WETLAND DELINEATED
- TREELINE
- UTILITY EASEMENT
- EROSION CONTROL SILT FENCE
- MET COUNCIL EASEMENT/BUFFER
- MET COUNCIL BUFFER/EASMENT POINT

PLANTING SCHEDULE

Common Name	Scientific Name	Quant.	Spacing	Size
Grasses				
Prairie Cordgrass	*Spartina pectinata*	354	3' o.c.	Plugs

Native Grasses Seed Mix - Seeding Rate = 10lbs/ac		
Common Name	Scientific Name	Percent of Mix
Little Bluestem	*Schizachyrium scoparium*	25
Side Oats Grama	*Bouteloua curtipendula*	50
Nodding Wild Rye	*Elymus trachycaulus*	25

SEEDING NOTES:
1. ANY EXOTIC INVASIVE PLANTS AND WEEDS WITHIN THE SEEDING AREAS SHALL BE SPRAYED WITH HERBICIDE 14 DAYS PRIOR TO SEEDING. SIGNAGE INDICATING THE USE OF HERBICIDES MUST BE POSTED ON SITE.
2. ALL HERBICIDE APPLICATION SHALL BE APPLIED BY A LICENSED APPLICATOR WITHIN THE STATE OF MINNESOTA.
3. SEED IN ACCORDANCE WITH THE SPECIFICATIONS.
4. COVER CROP IS TO BE SEEDED WITHIN ALL AREAS SEEDED WITH HIGH DIVERSITY SEED MIX
5. AFTER SEEDING, TYPE 8 MULCH MATERIAL SHALL BE DISC-ANCHORED OVER ENTIRE SEEDING AREA IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3882.
6. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION. IN THE CASE OF ANY DISCREPANCIES BETWEEN THIS DETAIL, PLANS, OR SPECIFICATIONS, THE SPECIFICATIONS SHALL GOVERN.

SEEDING ESTABLISHMENT NOTES:
1. SEEDING AREAS SHALL BE FREE OF DEAD OR DYING PATCHES LARGER THAN ONE SQUARE FOOT FOR ENTIRETY OF WARRANTY OF PLANTING WORK. SEE SPECIFICATION 32-93-00 HERBACEOUS PLANT ESTABLISHMENT.
2. CONTRACTOR WILL BE RESPONSIBLE FOR WATERING PLANTS (REGARDLESS OF NOTIFICATION) DURING A ONE YEAR WARRANTY PERIOD. WATERING WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
3. ONCE A MONTH (MAY THROUGH OCTOBER) DURING WARRANTY PERIOD CONTRACTOR SHALL INSPECT FOR INVASIVE WEED ENCROACHMENT, DEAD PLANTS AND EROSION PROBLEMS.
4. UPON DISCOVERY OF INVASIVE SPECIES DURING SCHEDULED INSPECTIONS CONDUCT HERBICIDE AND/OR MANUAL TREATMENTS FOR WEED CONTROL.

BUFFER SIGN NOTES:
1. BUFFER WILL BE INDICATED BY PERMANENT, FREE-STANDING MARKERS AT THE UPLAND EDGE, IN MATERIAL CONFORMITY WITH A DESIGN AND TEXT PROVIDED BY THE DISTRICT.
2. A MARKER WILL BE PLACED AT EACH END OF BUFFER, WITH ADDITIONAL MARKERS AT AN INTERVAL OF NO MORE THAN 200 FEET, AS SHOWN ON LANDSCAPE PLAN.
3. BOLTS SHALL BE TAMPER PROOF.
4. POSTS SHALL BE PAINTED GREEN, 3LB/FT
5. CONTRACTOR TO OBTAIN SIGN DESIGN FROM BARR PRIOR TO MAKING SIGNS.

RELEASED FOR 90% DESIGN REVIEW

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PRINTED NAME ___
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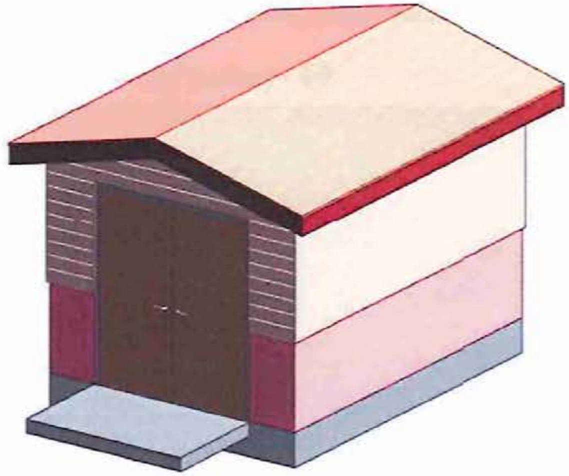
Scale	AS SHOWN
Date	01/08/2018
Drawn	WMB
Checked	
Designed	BARR
Approved	

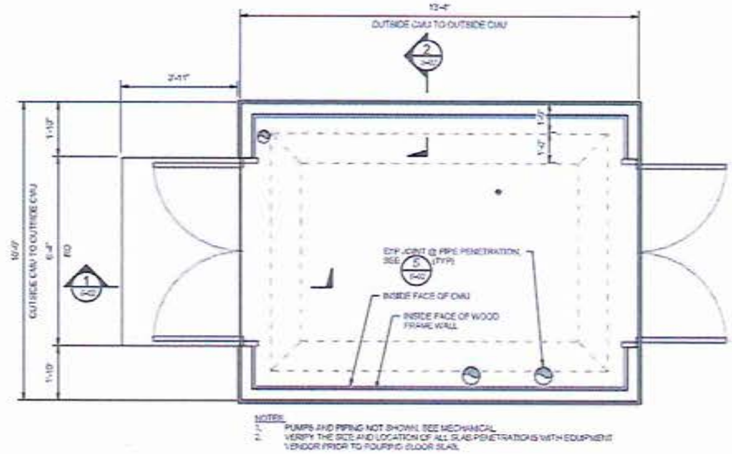
RPBCWD
EDEN PRAIRIE, MINNESOTA

LAKE SUSAN WATERSHED TREATMENT
CHANHASSEN, MINNESOTA
LANDSCAPE RESTORATION PLAN

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. L-01
REV. No. A

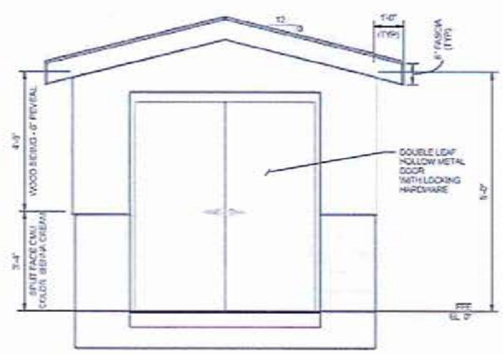


(1) ISOMETRIC: PUMP STATION



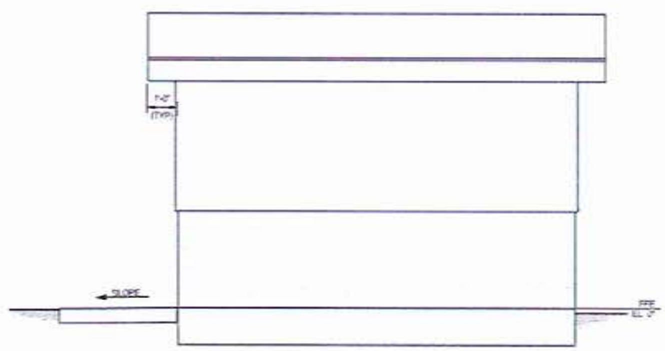
NOTES:
1. PUMPS AND PIPING NOT SHOWN, SEE MECHANICAL.
2. VERIFY THE SIZE AND LOCATION OF ALL SLAB PENETRATIONS WITH EQUIPMENT VENDOR PRIOR TO POURING FLOOR SLAB.

(2) PLAN: PUMP STATION
1/2" = 1'-0"



NOTE: CMU AND SIDING SIZE AND COLOR TO MATCH EXISTING BALLFIELD DUGOUT.

(3) ELEVATION: PUMP STATION



(4) ELEVATION: PUMP STATION

GENERAL STRUCTURAL NOTES

1. THESE NOTES ARE COMPLEMENTARY TO THE SPECIFICATIONS AND DRAWINGS AND REPRESENT MINIMUM REQUIREMENTS. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
   a. CONCRETE SPECIFICATION SECTION: 03 20 00 (CONCRETE REINFORCEMENT), 03 30 00 (CAST-IN-PLACE CONCRETE)
   b. CMU SPECIFICATION SECTION: 04 05 13 (MORTAR), 04 05 16 (GROUT), 04 20 00 (BLOCK)
   c. WOOD BUILDING SPECIFICATION SECTION: 13 34 19 (WOOD FRAME BUILDING SYSTEM)
   d. METAL DOORS: 08 11 13 (HOLLOW METAL DOORS AND FRAMES), 08 70 00 (DOOR HARDWARE)
2. DO NOT SCALE DRAWINGS.
3. THE STRUCTURAL DRAWINGS REPRESENT THE FINISHED STRUCTURE AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION.
4. PERFORM WORK IN COMPLIANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES AND REGULATIONS.
5. 2006 INTERNATIONAL BUILDING CODE AND REFERENCED STANDARDS WITH 2007 MINNESOTA BUILDING CODE AMENDMENTS.
6. DESIGN LOADS:
   a. DEAD LOAD:
      i. COLLATERAL LOAD = 10 PSF
   b. SNOW LOAD:
      i. GROUND SNOW (Pg) = 50 PSF
      ii. FLAT ROOF SNOW (Pf) = 38 PSF
      iii. EXPOSURE FACTOR (Ce) = 0.9
      iv. IMPORTANCE FACTOR (I) = 1
      v. THERMAL FACTOR (Ct) = 1.2 (UNHEATED)
   c. WIND LOAD:
      i. ULTIMATE DESIGN WIND SPEED (3-SECOND GUST) (VULT) = 115 MPH
      ii. NOMINAL DESIGN WIND SPEED (VASD) = 90 MPH
      iii. RISK CATEGORY = II
      iv. EXPOSURE CATEGORY = C
7. GEOTECHNICAL INFORMATION:
   a. BARR ENGINEERING COMPANY, BORING LOGS B-01-17 AND B-02-17 OBTAINED BY STS ON 10/12/2017.
8. SURVEY:
   a. EXISTING TOPOGRAPHY SHOWN BASED ON SELECTED SURVEYS PERFORMED BY:
      i. BARR ENGINEERING COMPANY, DATED 09/01/2017
   b. DATUM SUMMARY:
      i. VERTICAL DATUM - NORTH AMERICAN VERTICAL DATUM (NAVD88)
      ii. HORIZONTAL DATUM - NAD83 (2011)
      iii. REFERENCE - HASSEN MNDOT
      iv. COORDINATE SYSTEM - CARVER COUNTY
9. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 4,500 PSI
10. REINFORCING BARS: ASTM A615, A706, OR A996 (TYPE R), A970, GRADE 60
11. CONCRETE MASONRY UNITS:
   a. MORTAR TYPE: S
   b. GROUT COMPRESSIVE STRENGTH: 3,000 PSI
   c. CMU: ASTM C90, SPLIT FACE
   d. CMU F'm: 2,000 PSI
   e. REINFORCING STEEL: ASTM A615, 60 KSI

RELEASED FOR
90% DESIGN REVIEW

NO.	BY	CHK	DATE	REVISION DESCRIPTION
C	SWO	BJS	1/8/18	90% DRAFT
B	SWO	BJS	11/22/17	60% DRAFT
A	SWO	BJS	10/20/17	PRELIMINARY DRAFT FOR CLIENT REVIEW

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

Scale	AS SHOWN
Date	OCT 2017
Drawn	SWO
Checked	KMR
Designed	BJS
Approved	BJS

RPBCWD
EDEN PRAIRIE, MINNESOTA

LAKE SUSAN WATERSHED TREATMENT
CHANHASSEN, MINNESOTA

PUMP STATION
ISOMETRIC, PLAN AND ELEVATIONS

BARR PROJECT NO. 23/10-1010.00
DWG. NO. S-01
REV. NO. C

resourceful. naturally.
engineering and environmental consultants

BARR

Memorandum

To: Riley-Purgatory-Bluff Creek Watershed District Board of Managers
From: Barr Engineering
Subject: Chanhassen High School Stormwater Reuse Project – Request Board Authorization to Solicit Bids for Construction
Date: 1/31/2018
Project: 23/27-0053.14 019
c: Claire Bleser – RPBCWD Administrator

In 2016, the RPBCWD completed a feasibility study for the reuse for stormwater from an existing stormwater pond at the Chanhassen High School site. The project proposes to draw stormwater from an existing stormwater pond on site and use in an existing irrigation system that irrigates the site's athletic fields and select landscaped areas around the school. The goal of this project is to reduce runoff volumes and pollutant loads to Bluff Creek, an impaired water, located immediately downstream from the site. In October 2016, RPBCWD staff secured a $200,000 stormwater management grant from the Metropolitan Council. In October 2016, the RPBCWD Board of Managers authorized final design and preparation of construction documents for the reuse system recommended in the feasibility study.

The project was originally bid in May 2017; however, all bids came in extremely high and the project was not awarded. Enclosed are the 100 percent draft design plans for the Chanhassen High School Stormwater Reuse system, reflecting revisions made to the design to help improve the likelihood of obtaining lower bids from contractors. The design of the proposed system includes, but not limited to, construction of a small pump station and water treatment system and shelter, installation of the necessary piping and valves to connect to the existing irrigation mainline, installation of electrical and control lines to coordinate the pond water level monitoring with the existing irrigation control system and, erosion control, and site restoration.

The engineer's opinion of probable construction cost based on the 100 percent design is $220,000. The opinion of probable cost provided is made on the basis of Barr Engineering's experience and qualifications and represents our best judgment as experienced and qualified professionals familiar with the project. Because we have no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor's methods of determining prices, or over competitive bidding or market conditions, Barr Engineering cannot and does not guarantee that proposals, bids, or actual costs will not vary from the opinion of probable cost presented.

It is requested that the RPBCWD Board of Managers authorize Barr Engineering Co. to solicit of bids for the construction of the stormwater reuse system at Chanhassen High School, pending review of the final contract documents by the RPBCWD legal counsel. If the Board of Managers

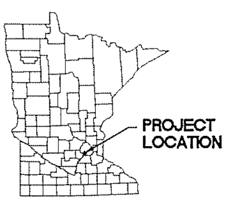
authorizes solicitation of bids to construct the reuse system, the following is the tentative schedule for the project:

- Front end documents and 100% specifications (2/7/2018) – for RPBCWD attorney review & submittal to Chanhassen High School
- Advertisement to bid submitted (2/12/2018)
- Bid package final/bidding begins (2/20/2018)
- Pre-bid meeting (3/9/2018)
- Bid opening (3/20/2018)
- Bidder recommendation to RPBCWD Managers for consideration at 4/4/2018 meeting
- Notice of Award (early-April)
- Notice to Proceed (late-April)
- Construction (June 18, 2018 through August 17, 2018) – Approved by Chanhassen High School

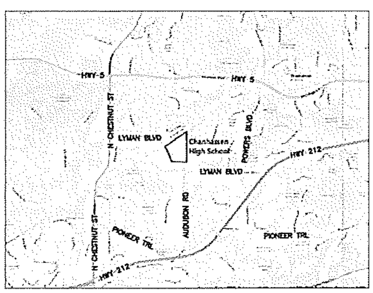
Attachments

- Drawings (100% draft) for the Chanhassen High School stormwater reuse system
- Technical specifications table of contents

CHANHASSEN HIGH SCHOOL STORMWATER REUSE PROJECT
RILEY-PURGATORY-BLUFF CREEK WATERSHED DISTRICT
CARVER COUNTY, MINNESOTA



LOCATION MAP
NOT TO SCALE



VICINITY MAP
NOT TO SCALE

LOCATION:

CHANHASSEN HIGH SCHOOL
2200 LYMAN BLVD
CHANHASSEN, MN 55317

SHEET INDEX

WARNING
HIGH-PRESSURE PIPELINE(S)
EXCAVATION AND/OR CONSTRUCTION PROHIBITED WITHOUT COMPLIANCE WITH STATE ONE-CALL, AND WITHOUT WRITTEN PERMISSION FROM MAGELLAN PIPELINE COMPANY, LP.
A MAGELLAN REPRESENTATIVE MUST BE PRESENT DURING WORK AROUND PIPELINE(S)

GOPHER STATE ONE CALL
GOPHER STATE ONE CALL:
CALL BEFORE YOU DIG.
1-800-252-1166

NOTES:

1. TOPOGRAPHIC SURVEY PERFORMED BY BARR ENGINEERING CO. ON DEC. 2, 2016 AND JAN. 23, 2017.
2. HIGH RESOLUTION ORTHOIMAGERY FOR CARVER COUNTY, MINNESOTA BY MINNESOTA GEOSPATIAL INFORMATION CENTER, TAKEN APRIL, 2016.
3. ALL UTILITIES SHOWN ARE CONSIDERED LEVEL D, UNLESS OTHERWISE NOTED, IN ACCORDANCE WITH ASCE STANDARD CI/ASCE38-02.
4. CONTRACTOR SHALL FIELD-LOCATE ALL SITE UTILITIES PRIVATE AND PUBLIC PRIOR TO STARTING THE WORK. ALL UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE. ANY UTILITIES DAMAGED BY CONTRACTOR SHALL BE REPAIRED TO THE SATISFACTION OF UTILITY OWNER.
5. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

COORDINATE SYSTEM:

HORIZONTAL DATUM – CARVER COUNTY, NAD83 (2011) REF. VRS
VERTICAL DATUM – NAVD88 REF. VRS.

PROJECT ENGINEER CONTACT:

JENNIFER KOEHLER
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435
952-832-2750
JKOEHLER@BARR.COM

DISTRICT ENGINEER CONTACT:

SCOTT SOBIECH
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435
952-832-2755
SSOBIECH@BARR.COM

DISTRICT ADMINISTRATOR (OWNER) CONTACT:

CLAIRE BLESER
18681 LAKE DRIVE EAST
CHANHASSEN, MN 55317
952-294-5976
CBLESER@RPBCWD.ORG

PROPERTY OWNER'S REPRESENTATIVE CONTACT:

MICHAEL MCLAUGHLIN
11 PEAVEY ROAD
CHASKA, MN 55318
952-556-6294
MCLAUGHLINM@DISTRICT112.ORG

CITY CONTACT:

PAUL OEHME
7700 MARKET BOULEVARD
CHANHASSEN, MN 55317
952-227-1160
OEHME@CI.CHANHASSEN.MN.US

ABBREVIATIONS AND SYMBOLS

APPROX.	APPROXIMATE
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
BMPS	BEST MANAGEMENT PRACTICES
C.C.C.	CONCRETE CLEAR COVER
C.F.	CUBIC FEET
CONT	CONTINUOUS
CPEP	CORRUGATED POLYETHYLENE PIPE
EL	ELEVATION
ELEV.	ELEVATION
EPDM	ETHYLENE PROPYLENE DIENE MONOMER
E.W.	EACH WAY
FT	FEET
GALV.	GALVANIZED
GND	GROUND
H	HORIZONTAL
HDPE	HIGH DENSITY POLYETHYLENE
HP	HORSE POWER
I.E.	INVERT ELEVATION
INV.	INVERT
LB	POUNDS
MAX.	MAXIMUM
MIN.	MINIMUM
MNDOT	MINNESOTA DEPARTMENT OF TRANSPORTATION
MPH	MILES PER HOUR
O.C.	ON CENTER
PLC	PROGRAMMABLE LOGIC CONTROLLER
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
RPZ	REDUCED PRESSURE ZONE
SPECS	SPECIFICATIONS
TBD	TO BE DETERMINED
T.O.C.	TOP OF CONCRETE
TYP.	TYPICAL
UV	ULTRAVIOLET
V	VERTICAL
VERT.	VERTICAL
YR	YEAR
⌀	DIAMETER

REFERENCING

LIMITS OF SECTION CUT
SECTION IDENTIFIER
SECTION REFERENCES (SHEET SECTION IS LOCATED ON)

SECTION IDENTIFIER
SECTION: SECTION TITLE
SECTION REFERENCES (SHEET SECTION IS CALLED OUT)

DETAIL IDENTIFIER
DETAIL REFERENCES (SHEET DETAIL IS LOCATED ON)

DETAIL IDENTIFIER
DETAIL: DETAIL TITLE
DETAIL REFERENCES (SHEET DETAIL IS CALLED OUT)

ISSUED FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	BOP	JAK2	JAK2	02/09/18	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME JENNIFER KOEHLER
SIGNATURE
DATE 02/09/18 LICENSE # 47300

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION — DATE RELEASED: A B C 0 1 2 3

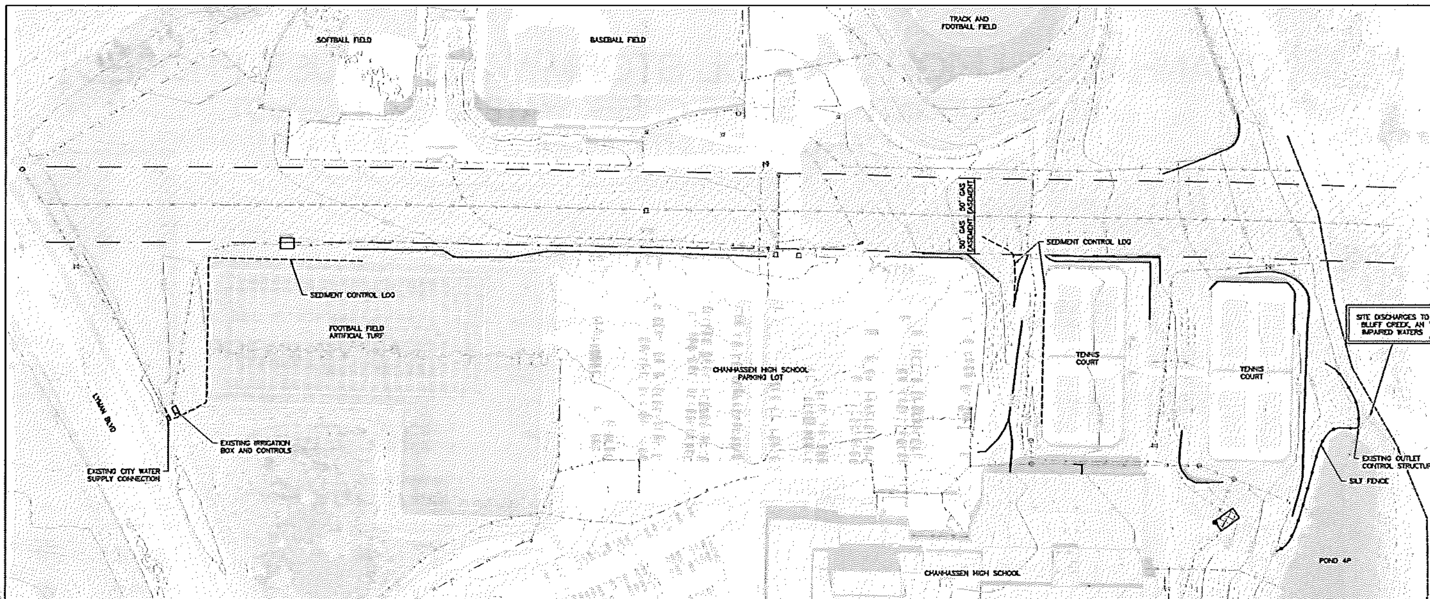
BARR
Project Office: BARR ENGINEERING CO., 4300 MARKETPOINTE DRIVE, Suite 200, MINNEAPOLIS, MN 55435, Ph: 1-800-632-2277, Fax: (952) 832-2601, www.barr.com
Corporate Headquarters: Minneapolis, Minnesota, Ph: 1-800-632-2277

Scale	AS SHOWN
Date	01/13/2017
Drawn	BOP
Checked	JAK2
Designed	BARR
Approved	JAK2

RPBCWD
CHANHASSEN, MN

CHAN HIGH SCHOOL STORMWATER REUSE
INDEX, LOCATION MAP, AND VICINITY MAP

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. G-01
REV. No. 0



WARNING

HIGH-PRESSURE PIPELINE(S)

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A MAGELLAN REPRESENTATIVE MUST BE PRESENT DURING WORK AROUND PIPELINE(S)

1 PLAN: EXISTING CONDITIONS, REMOVALS, AND EROSION CONTROL

SCALE IN FEET: 0 — 60 — 120

EROSION CONTROL NOTES:

1. NATURAL TOPOGRAPHY AND SOIL CONDITIONS MUST BE PROTECTED, INCLUDING RETENTION ONSITE OF NATIVE TOPSOIL TO THE GREATEST EXTENT POSSIBLE.
2. ADDITIONAL MEASURES, SUCH AS HYDRAULIC MULCHING AND OTHER PRACTICES AS SPECIFIED BY THE DISTRICT MUST BE USED ON SLOPES OF 3:1 (H:V) OR STEEPER TO PROVIDE ADEQUATE STABILIZATION.
3. FINAL SITE STABILIZATION MEASURES MUST SPECIFY 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.
4. CONSTRUCTION SITE WASTE SUCH AS DISCARDED BUILDING MATERIALS, CONCRETE TRUCK WASHOUT, CHEMICALS, LITTER AND SANITARY WASTE MUST BE PROPERLY MANAGED.
5. ALL TEMPORARY EROSION 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.
6. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPS MUST BE REMOVED UPON FINAL STABILIZATION.
7. SOIL SURFACES COMPACTED DURING CONSTRUCTION AND REMAINING PERVIOUS UPON COMPLETION OF CONSTRUCTION MUST BE DECOMPACTED THROUGH SOIL AMENDMENT AND/OR RIPPING TO A DEPTH OF 18 INCHES (8 INCHES FOR SINGLE-FAMILY HOME PROPERTIES) WHILE TAKING CARE TO AVOID UTILITIES, TREE ROOTS AND OTHER EXISTING VEGETATION PRIOR TO FINAL REVEGETATION OR OTHER STABILIZATION.
8. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN 7 CALENDAR DAYS AFTER LAND-DISTURBING WORK HAS TEMPORARILY OR PERMANENTLY CEASED ON A PROPERTY THAT DRAINS TO AN IMPAIRED WATER, WITHIN 14 DAYS ELSEWHERE.
9. THE PERMITTEE MUST, AT A MINIMUM, INSPECT, MAINTAIN AND REPAIR ALL DISTURBED SURFACES AND ALL EROSION 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.

LEGEND

- CONSTRUCTION LIMITS
- WETLAND BOUNDARY
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING FENCE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING IRRIGATION
- EXISTING WATER SUPPLY
- EXISTING NATURAL GAS
- EXISTING TELEVISION CABLE
- EXISTING OVERHEAD ELECTRIC
- EXISTING UNDERGROUND ELECTRIC
- EXISTING WALL
- APPROXIMATE NATURAL GAS EASEMENT

EROSION CONTROL LEGEND

- SILT FENCE (SEE PLATE 5300 ON SHEET C-07)
- SEDIMENT CONTROL LOG (SEE DETAIL 1 ON SHEET C-07)
- INLET PROTECTION (SEE PLATE 5302 ON SHEET C-07)
- INLET PROTECTION (SEE DETAIL 2 ON SHEET C-07)
- CONSTRUCTION ENTRANCE (SEE PLATE 5301 ON SHEET C-07)

ISSUED FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EDP	JAK2	JAK2	02/09/18	ISSUED FOR CONSTRUCTION

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.

PRINTED NAME JENNIFER KOEHLER

SIGNATURE ____

DATE 02/09/18 LICENSE # 47500

RELEASED TO/FOR	A	B	C	0	1	2	3
CLIENT							
BID							
CONSTRUCTION							

DATE RELEASED

BARR

Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435 Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com

Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277

Scale	AS SHOWN
Date	01/13/2017
Drawn	EDP
Checked	JAK2
Designed	BARR
Approved	JAK2

RPBCWD
CHANHASSEN, MN

CHAN HIGH SCHOOL STORMWATER REUSE

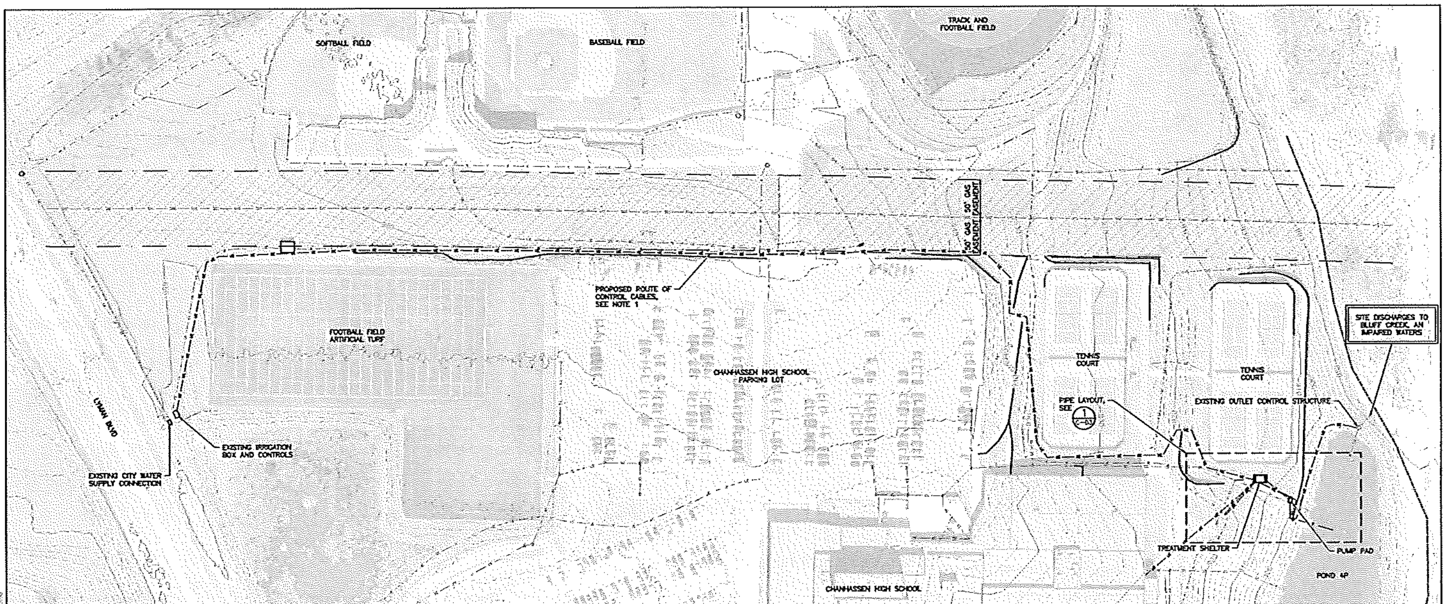
EXISTING CONDITIONS, REMOVALS, AND EROSION CONTROL PLAN

BARR PROJECT No. 23/27-0053.14

CLIENT PROJECT No.

DWG. No. C-01

REV. No 0



1 PLAN: PROPOSED SITE – OVERALL

0 60 120
SCALE IN FEET

WARNING

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A MAGELLAN REPRESENTATIVE MUST BE PRESENT DURING WORK AROUND PIPELINE(S)

NOTES:

1. SEE SHEET E-01 THROUGH E-05 FOR ADDITIONAL ELECTRICAL INFORMATION

LEGEND

- CONSTRUCTION LIMITS
- WETLAND BOUNDARY
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING FENCE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING IRRIGATION
- EXISTING WATER SUPPLY
- EXISTING NATURAL GAS
- EXISTING TELEVISION CABLE
- EXISTING OVERHEAD ELECTRIC
- EXISTING UNDERGROUND ELECTRIC
- EXISTING WALL
- APPROXIMATE NATURAL GAS EASEMENT

LEGEND – CONTINUED

- PROPOSED IRRIGATION
- PROPOSED PIPING
- PROPOSED UNDERGROUND ELECTRIC (SEE NOTE 1)
- PROPOSED ELECTRIC (SEE NOTE 1)

ISSUED FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
0				02/09/18	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME JENNIFER KOEHLER
SIGNATURE
DATE 02/09/18 LICENSE # 47500

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION
DATE RELEASED: A B C 0 1 2 3

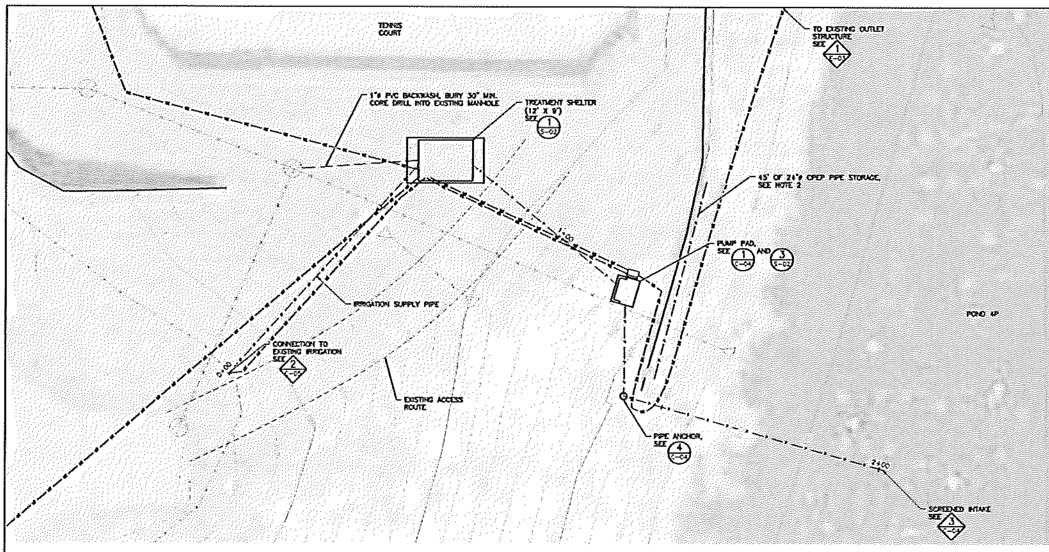
BARR
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277
Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435 Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com

Scale	AS SHOWN
Date	01/16/2017
Drawn	EOP
Checked	JAK2
Designed	BARR
Approved	JAK2

RPBCWD
CHANHASSEN, MN

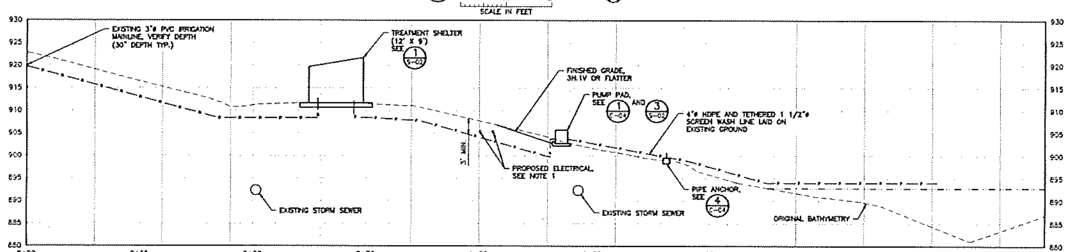
CHAN HIGH SCHOOL STORMWATER REUSE
PROPOSED SITE
PLAN OVERALL

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-02
REV. No. 0


TENNIS COURT
TO EXISTING OUTLET STRUCTURE SEE 1 C-01
1"ø PVC BACKWASH, BURY 30" MIN. CORE DRILL INTO EXISTING MANHOLE
TREATMENT SHELTER (12' X 9') SEE 1 S-02
45' OF 24"ø CPEP PIPE STORAGE, SEE NOTE 2
PUMP PAD, SEE 1 C-04 AND 3 S-02
IRRIGATION SUPPLY PIPE
POND 4P
CONNECTION TO EXISTING IRRIGATION SEE 2 C-04
EXISTING ACCESS ROUTE
PIPE ANCHOR, SEE 4 C-04
SCREENED INTAKE SEE 3 C-04

1 PLAN: PUMPING & PIPING

SCALE IN FEET 0 10 20


EXISTING 3"ø PVC IRRIGATION MAINLINE, VERIFY DEPTH (30" DEPTH TYP.)
TREATMENT SHELTER (12' X 9') SEE 1 S-02
FINISHED GRADE, 3H:1V OR FLATTER
PUMP PAD, SEE 1 C-04 AND 3 S-02
4"ø HDPE AND TETHERED 1 1/2"ø SCREEN WASH LINE LAID ON EXISTING GROUND
3' MIN.
PROPOSED ELECTRICAL, SEE NOTE 1
PIPE ANCHOR, SEE 4 C-04
EXISTING STORM SEWER
EXISTING STORM SEWER
ORIGINAL BATHYMETRY

2 PROFILE: PUMPING & PIPING

SCALE IN FEET 0 10 20

LEGEND

- CONSTRUCTION LIMITS
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING STORM SEWER
- EXISTING IRRIGATION
- EXISTING UNDERGROUND ELECTRIC
- EXISTING WALL
- PROPOSED UNDERGROUND ELECTRIC, SEE NOTE 1
- PROPOSED IRRIGATION
- PROPOSED PIPING
- PROPOSED BACKWASH PIPING

STRUCTURE COORDINATES

TREATMENT SHELTER PAD		
Location	Northing	Easting
Northwest	175206.048	550294.584
Southwest	175196.048	550294.084
Northeast	175206.048	550311.084
Southeast	175196.048	550311.084

PUMP PAD		
Location	Northing	Easting
Northwest	175175.827	550341.231
Southwest	175170.057	550339.587
Northeast	175174.456	550346.040
Southeast	175168.686	550344.395

NOTES:

1. SEE SHEET E-01 THROUGH E-05 FOR ADDITIONAL ELECTRICAL INFORMATION.
2. ANCHOR PIPE STORAGE AT 10' INTERVALS WITH EDIT REBAR OR OTHER ENGINEER APPROVED MEANS.

ISSUED FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	BDP	JAK2	AMP	02/09/18	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME ANNE M. PHARES
SIGNATURE
DATE 02/09/18 LICENSE # 42022

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION — DATE RELEASED A B C 0 1 2 3

Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435 Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277

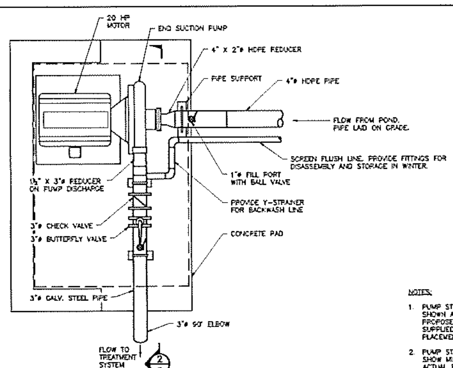
Scale	AS SHOWN
Date	01/16/2017
Drawn	BDP
Checked	JAK2
Designed	BARR
Approved	AMP

RPBCWD
CHANHASSEN, MN

CHAN HIGH SCHOOL STORMWATER REUSE

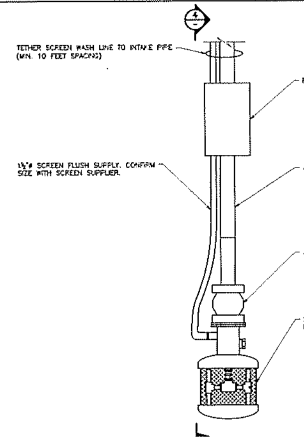
PIPE LAYOUT
PLAN AND PROFILE

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-03
REV. No. 0


20 HP MOTOR
END SUCTION PUMP
4" x 2"ø HDPE REDUCER
PIPE SUPPORT
4"ø HDPE PIPE
FLOW FROM POND. PIPE LAID ON GRADE.
SCREEN FLUSH LINE. PROVIDE FITTINGS FOR DISASSEMBLY AND STORAGE IN WINTER.
1"ø FILL PORT WITH BALL VALVE
1½" X 3"ø REDUCER ON PUMP DISCHARGE
PROVIDE Y-STRAINER FOR BACKWASH LINE
3"ø CHECK VALVE
3"ø BUTTERFLY VALVE
CONCRETE PAD
3"ø GALV. STEEL PIPE
3"ø 90° ELBOW
FLOW TO TREATMENT SYSTEM

1 PLAN: PUMP STATION

SCALE IN FEET

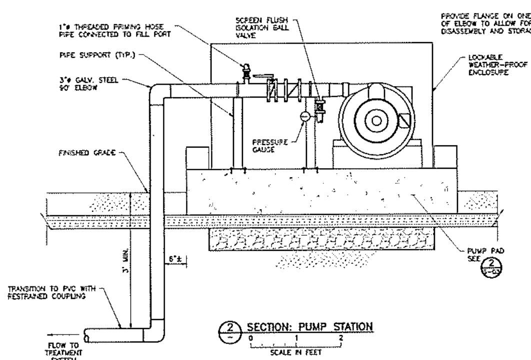


3 DETAIL: PUMP INTAKE

SCALE IN FEET

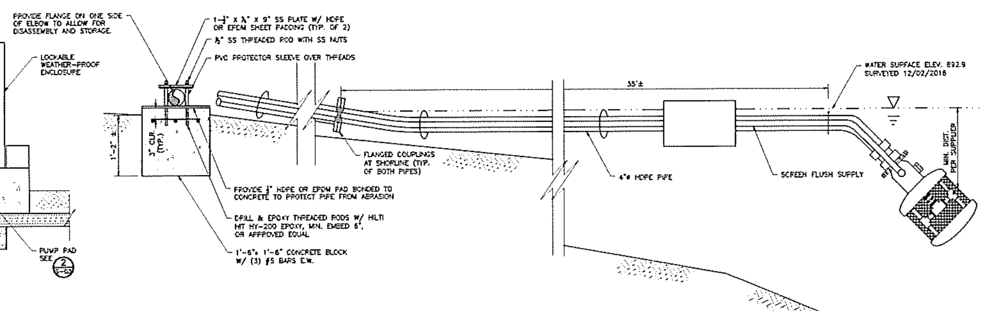
NOTES:

1. PUMP STATION AND INTAKE DIMENSIONS AND LOCATIONS SHOWN ARE APPROXIMATE. FIELD VERIFY DIMENSIONS AND PROPOSED EQUIPMENT LOCATIONS BASED ON EQUIPMENT SUPPLIED. COORDINATE WITH ENGINEER FOR FINAL PLACEMENT.
2. PUMP STATION AND INTAKE LAYOUTS ARE APPROXIMATE AND SHOW MINIMUM REQUIRED FUNCTIONALITY OF THE STATION. ACTUAL EQUIPMENT SIZE, LOCATION, AND CONFIGURATION MAY VARY BASED ON STATION SUPPLIED. MODIFY INSTALLATION AS REQUIRED TO ACCOMMODATE STATION SUPPLIED.
3. INSTALL PIPE ANCHOR ON PUMP SIDE OF ELBOW TO ALLOW MINOR VERTICAL ROTATION AS WATER LEVEL VARIES AND TO LIMIT LATERAL MOVEMENT UPHILL.
4. TETHER INTAKE SCREEN FLUSH LINE TO INTAKE PIPE. PROVIDE PROTECTION AT TETHER TO PREVENT CRUSHING OF FLUSH LINE.
5. SUPPORT PIPE ON GRADE AS REQUIRED TO PREVENT BENDING THAT DOES NOT COMPLY MFR. RECOMMENDED BENDING RADIUS. SUPPORT PIPE AT PUMP SUCTION.


1"ø THREADED PRIMING HOSE PIPE CONNECTED TO FILL PORT
SCREEN FLUSH ISOLATION BALL VALVE
PIPE SUPPORT (TYP.)
3"ø GALV. STEEL 90° ELBOW
LOCKABLE WEATHER-PROOF ENCLOSURE
PRESSURE GAUGE
FINISHED GRADE
PUMP PAD
3' MIN.
TRANSITION TO PVC WITH RESTRAINED COUPLING
FLOW TO TREATMENT SYSTEM

2 SECTION: PUMP STATION

SCALE IN FEET


PROVIDE FLANGE ON ONE SIDE OF ELBOW TO ALLOW FOR DISASSEMBLY AND STORAGE.
1-½" x ¾" x 9" SS PLATE W/ HDPE OR EPDM SHEET PADDING (TYP. OF 2)
¾" SS THREADED ROD WITH SS NUTS
PVC PROTECTOR SLEEVE OVER THREADS
WATER SURFACE ELEV. 892.9 SURVEYED 12/02/2016
35'±
FLANGED COUPLINGS AT SHORELINE (TYP. OF BOTH PIPES)
4"ø HDPE PIPE
SCREEN FLUSH SUPPLY
PROVIDE ¾" HDPE OR EPDM PAD BONDED TO CONCRETE TO PROTECT PIPE FROM ABRASION
DRILL & EPOXY THREADED RODS W/ HILTI HIT HY-200 EPOXY, MIN. EMBED 6", OR APPROVED EQUAL
1'-6"x 1'-6" CONCRETE BLOCK W/ (3) #5 BARS E.W.

4 SECTION: PUMP INTAKE

SCALE IN FEET

ISSUED FOR CONSTRUCTION

CHAN HIGH SCHOOL STORMWATER REUSE	BARR PROJECT No. 23/27-0053.14
	CLIENT PROJECT No.
PUMPING AND PIPING PLANS, SECTIONS, AND DETAILS	DWG. No. C-04 / REV. No. 0

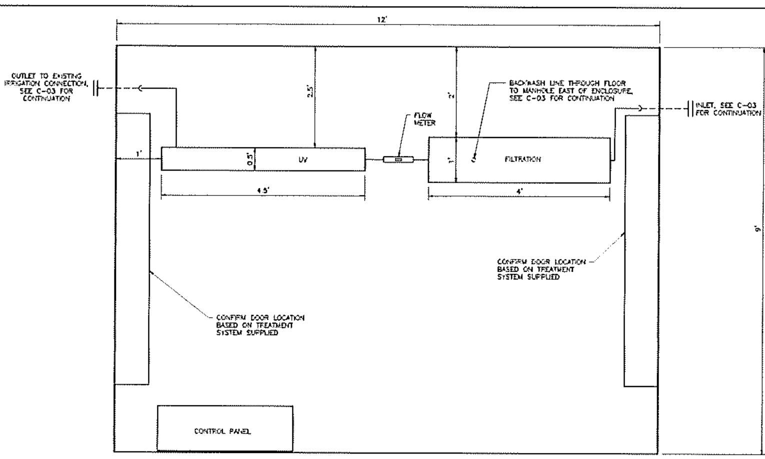
RPBCWD
CHANHASSEN, MN

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

Scale: AS SHOWN
Date: 01/13/2017
Drawn: AMP
Checked: AMP
Designed: MTS
Approved: AMP

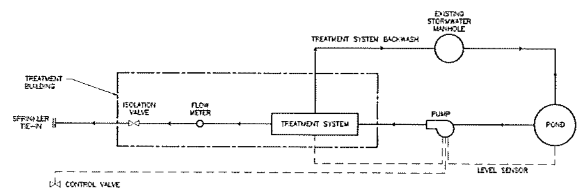
0 | BDP | AMP | AMP | 02/09/18 | ISSUED FOR CONSTRUCTION

NO. | BY | CHK | APP. | DATE | REVISION DESCRIPTION


12'
OUTLET TO EXISTING IRRIGATION CONNECTION, SEE C-03 FOR CONTINUATION
BACKWASH LINE THROUGH FLOOR TO MANHOLE EAST OF ENCLOSURE, SEE C-03 FOR CONTINUATION
FLOW METER
UV
FILTRATION
INLET, SEE C-03 FOR CONTINUATION
2.5'
4.5'
4'
9'
CONFIRM DOOR LOCATION BASED ON TREATMENT SYSTEM SUPPLIED
CONFIRM DOOR LOCATION BASED ON TREATMENT SYSTEM SUPPLIED
CONTROL PANEL

1 PLAN: TREATMENT SYSTEM BUILDING

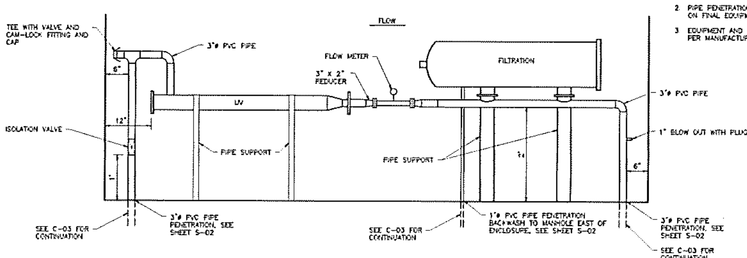
SCALE IN FEET



3 PROCESS FLOW DIAGRAM: TREATMENT SYSTEM
NO SCALE

NOTES:

1. FINAL PIPING AND EQUIPMENT DIMENSIONS SUBJECT TO CHANGE/FINAL EQUIPMENT SELECTION.
2. PIPE PENETRATIONS WILL BE DETERMINED BASED ON FINAL EQUIPMENT SELECTION
3. EQUIPMENT AND PIPING SHALL BE SUPPORTED PER MANUFACTURER RECOMMENDATIONS


TEE WITH VALVE AND CAM-LOCK FITTING AND CAP
3"ø PVC PIPE
FLOW
FLOW METER
3" x 2" REDUCER
FILTRATION
UV
3"ø PVC PIPE
ISOLATION VALVE
PIPE SUPPORT
PIPE SUPPORT
1" BLOW OUT WITH PLUG
SEE C-03 FOR CONTINUATION
3"ø PVC PIPE PENETRATION, SEE SHEET S-02
SEE C-03 FOR CONTINUATION
1"ø PVC PIPE PENETRATION BACKWASH TO MANHOLE EAST OF ENCLOSURE, SEE SHEET S-02
3"ø PVC PIPE PENETRATION, SEE SHEET S-02
SEE C-03 FOR CONTINUATION

2 SECTION: TREATMENT SYSTEM BUILDING

SCALE IN FEET

ISSUED FOR CONSTRUCTION

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	BDP	MAS	MAS	02/09/18	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME MICHELLE A. STOCKNESS
SIGNATURE
DATE 02/09/18 LICENSE # 43153

RELEASED TO/FOR: A B C 0 1 2 3 — DATE RELEASED

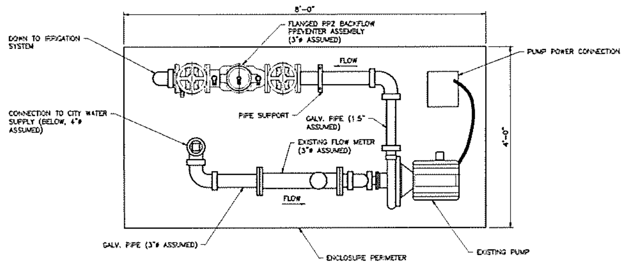
BARR
Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435
Corporate Headquarters: Minneapolis, Minnesota Ph. 1-800-632-2277
Ph. 1-800-632-2277 Fax (952) 832-2601 www.barr.com

Scale: AS SHOWN
Date: 01/18/2017
Drawn: EPF
Checked: MAS
Designed: KMB
Approved: MAS

RPBCWD
CHANHASSEN, MN

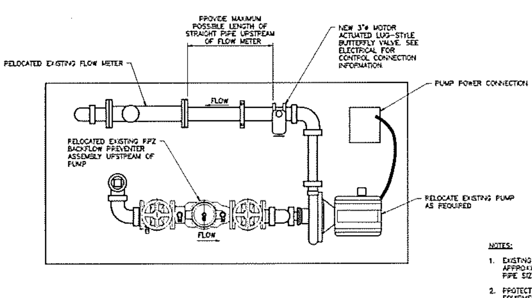
CHAN HIGH SCHOOL STORMWATER REUSE
TREATMENT SYSTEM
PLAN, SECTION, AND PROCESS FLOW DIAGRAM

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-05
REV. No. 0


8'-0"
4'-0"
DOWN TO IRRIGATION SYSTEM
FLANGED RPZ BACKFLOW PREVENTER ASSEMBLY (3"ø ASSUMED)
FLOW
PUMP POWER CONNECTION
CONNECTION TO CITY WATER SUPPLY (BELOW, 4"ø ASSUMED)
PIPE SUPPORT
GALV. PIPE (1.5" ASSUMED)
EXISTING FLOW METER (3"ø ASSUMED)
GALV. PIPE (3"ø ASSUMED)
ENCLOSURE PERIMETER
EXISTING PUMP

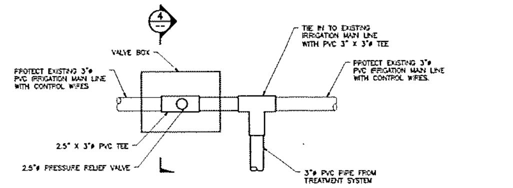
1 PLAN: EXISTING CITY WATER CONNECTION BOX

SCALE IN FEET 0 1 2


PROVIDE MAXIMUM POSSIBLE LENGTH OF STRAIGHT PIPE UPSTREAM OF FLOW METER
NEW 3"ø MOTOR ACTUATED LUG-STYLE BUTTERFLY VALVE. SEE ELECTRICAL FOR CONTROL CONNECTION INFORMATION
RELOCATED EXISTING FLOW METER
FLOW
PUMP POWER CONNECTION
RELOCATED EXISTING RPZ BACKFLOW PREVENTER ASSEMBLY UPSTREAM OF PUMP
RELOCATE EXISTING PUMP AS REQUIRED

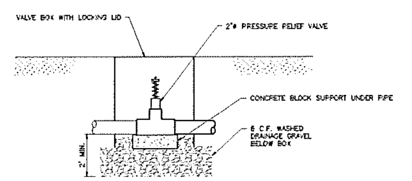
2 PLAN: CITY WATER CONNECTION BOX MODIFICATIONS

SCALE IN FEET 0 1 2



3 DETAIL: IRRIGATION CONNECTION
NOT TO SCALE

NOTE: SEE ELECTRICAL FOR INFORMATION ABOUT NEW WIRE CONNECTIONS FROM THE TREATMENT SYSTEM.



4 SECTION: PRESSURE RELIEF VALVE
NOT TO SCALE

NOTES:

1. EXISTING CITY WATER CONNECTION BOX LAYOUT SHOWN IS APPROXIMATE. FIELD VERIFY LAYOUT, DIMENSIONS AND PIPE SIZES.
2. PROTECT EXISTING EQUIPMENT. REPLACE IN-KIND EQUIPMENT DAMAGED BY CONTRACTOR DURING CONSTRUCTION WITH NEW EQUIPMENT AT NO COST TO OWNER.
3. SUBMIT CHANGES TO MODIFIED LAYOUT SHOWN FOR ENGINEER APPROVAL PRIOR TO EXECUTION.

ISSUED FOR CONSTRUCTION

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	BDF	JAK2	AMP	02/09/18	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME ANNE M. PHARES
SIGNATURE
DATE 02/09/18 LICENSE # 42002

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION — A B C 0 1 2 3 — DATE RELEASED

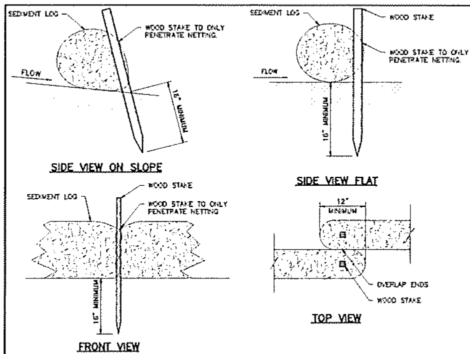
BARR
Project Office: BARR ENGINEERING CO., 4300 MARKETPOINTE DRIVE, Suite 200, MINNEAPOLIS, MN 55435, Ph: 1-800-632-2277, Fax: (952) 832-2601, www.barr.com
Corporate Headquarters: Minneapolis, Minnesota, Ph: 1-800-632-2277

Scale	AS SHOWN
Date	02/17/2017
Drawn	AMP
Checked	JAK2
Designed	AMP
Approved	AMP

RPBCWD
CHANHASSEN, MN

CHAN HIGH SCHOOL STORMWATER REUSE
IRRIGATION SYSTEM MODIFICATONS
PLANS, SECTION, AND DETAIL

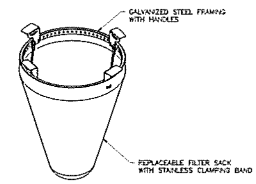
BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-06
REV. No. 0



NOTES:

1. INSTALL SEDIMENT LOG ALONG CONTOURS (CONSTANT ELEVATION).
2. NO GAPS SHALL BE PRESENT UNDER SEDIMENT LOG. PREPARE AREA AS NEEDED TO SMOOTH SURFACE OR REMOVE DEBRIS.
3. REMOVE ACCUMULATED SEDIMENT WHEN REACHING 1/3 OF LOG HEIGHT.
4. MAINTAIN SEDIMENT LOG THROUGHOUT THE CONSTRUCTION PERIOD AND REPAIR OR REPLACED AS REQUIRED.

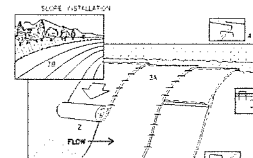
1 / C-07 DETAIL: EROSION LOG – STAKING
NOT TO SCALE



NOTES:

1. INSTALL INLET PROTECTION PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED OR IMMEDIATELY FOLLOWING ANY CATCHBASIN INSTALLATION AND MAINTAIN THROUGHOUT THE CONSTRUCTION PERIOD.
2. MATERIALS SHALL BE SUFFICIENT TO ALLOW FLOW WHILE BLOCKING SEDIMENT. NO HOLES OR GAPS SHALL BE PRESENT IN/AROUND FILTER SACK.
3. CLEAN FILTER SACK AND REMOVE ACCUMULATED SEDIMENT AS REQUIRED TO ALLOW FLOW INTO THE CATCHBASIN AND PREVENT SEDIMENT FROM LEAVING THE DEVICE.
4. REMOVE DEVICE AND ANY ACCUMULATED SEDIMENT IN CONJUNCTION WITH THE FINAL GRADING AND SITE STABILIZATION.

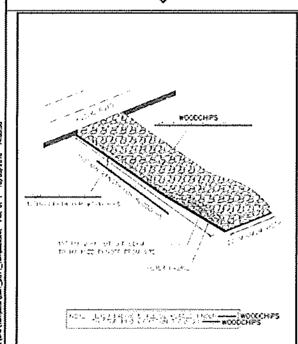
2 / C-07 DETAIL: INLET PROTECTION – FILTER SACK
NOT TO SCALE



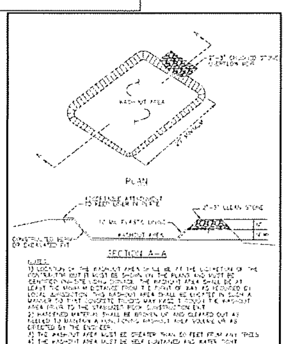
NOTES:

1. REFER TO MANUFACTURER RECOMMENDATIONS FOR STAPLE PATTERNS FOR SLOPE INSTALLATIONS
2. PREPARE SOIL BY LOOSENING TOP 1–2 INCHES AND APPLY SEED (AND FERTILIZER WHERE REQUIRED) PRIOR TO INSTALLING BLANKETS. GROUND SHOULD BE SMOOTH AND FREE OF DEBRIS.
3. BEGIN (A) AT THE TOP OF THE SLOPE AND ROLL THE BLANKETS DOWN OR (B) AT ONE END OF THE SLOPE AND ROLL THE BLANKETS HORIZONTALLY ACROSS THE SLOPE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 6" OVERLAP, WITH THE UPHILL BLANKET ON TOP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 6" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART.
6. BLANKET MATERIALS SHALL BE AS SPECIFIED OR AS APPROVED BY ENGINEER

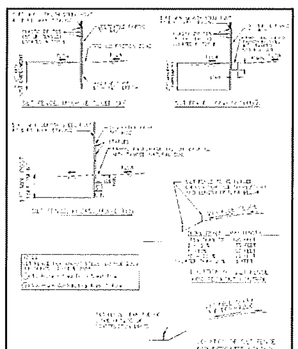
3 / C-07 DETAIL: EROSION CONTROL BLANKET – INSTALLATION
NOT TO SCALE



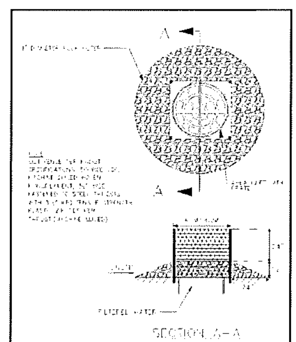
CITY OF CHANHASSEN — ~~ROCK~~ WOODCHIP CONSTRUCTION ENTRANCE — ENGINEERING DEPARTMENT — PLATE NO. 5301



CITY OF CHANHASSEN — CONCRETE WASHOUT AREA — ENGINEERING DEPARTMENT — PLATE NO. 5304



CITY OF CHANHASSEN — SILT FENCE — ENGINEERING DEPARTMENT — PLATE NO. 5300



CITY OF CHANHASSEN — OFFROAD CATCHBASIN FILTER BARRIER — ENGINEERING DEPARTMENT — PLATE NO. 5302

ISSUED FOR CONSTRUCTION

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	BOP	JAK2	JAK2	02/09/18	ISSUED FOR CONSTRUCTION

PRINTED NAME JENNIFER KOEHLER — DATE 02/09/18 LICENSE # 47300

RELEASED TO/FOR: A B C 0 1 2 3 — DATE RELEASED

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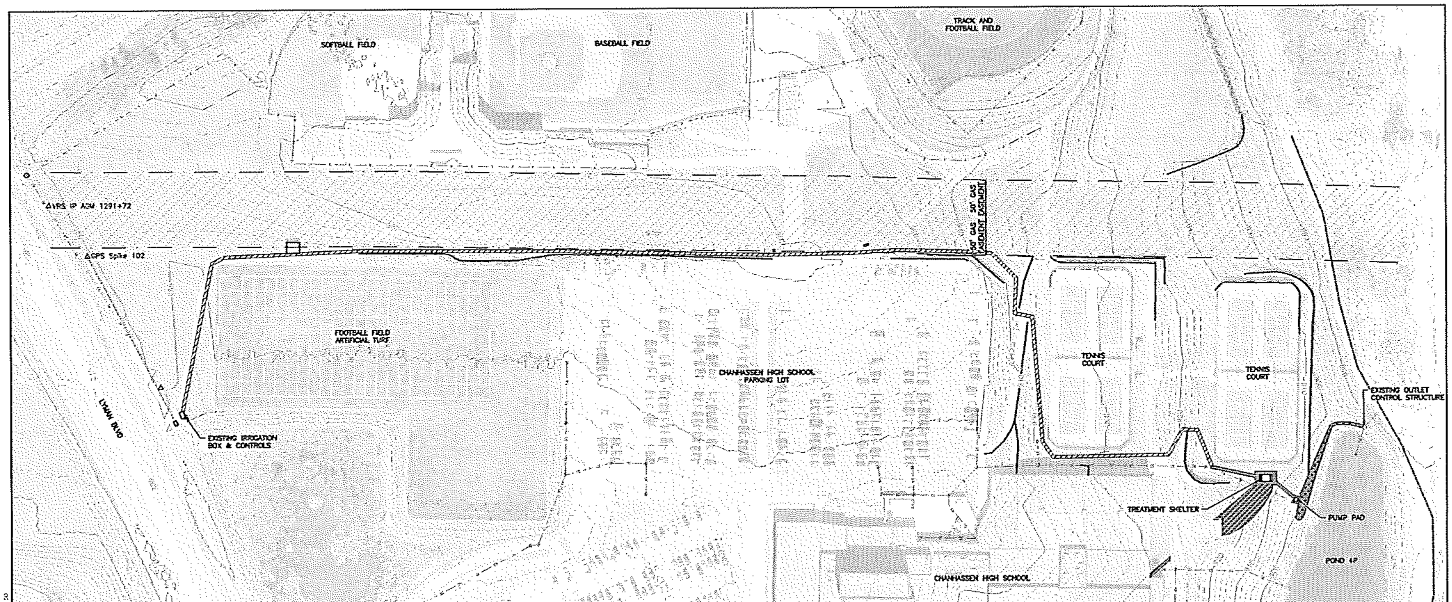
Scale	AS SHOWN
Date	01/16/2017
Drawn	BOP
Checked	JAK2
Designed	BARR
Approved	JAK2

RPBCWD
CHANHASSEN, MN

CHAN HIGH SCHOOL STORMWATER REUSE

EROSION CONTROL DETAILS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-07 — REV. No. 0



1 PLAN: LANDSCAPE RESTORATION

0 60 120
SCALE IN FEET

LEGEND

CONSTRUCTION LIMITS
WETLAND BOUNDARY
EXISTING 10' CONTOUR
EXISTING 2' CONTOUR
EXISTING FENCE
EXISTING OVERHEAD ELECTRIC
EXISTING STORM SEWER
EXISTING WALL
APPROXIMATE NATURAL GAS EASEMENT

LOW-MAINTENANCE TURF SEEDING
PRAIRIE SEEDING MESIC PRAIRIE SOUTHEAST
EROSION CONTROL BLANKET, SEE DETAIL 3 ON SHEET C-07

ISSUED FOR CONSTRUCTION

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	BDP	JAK2	JAK2	02/09/18	ISSUED FOR CONSTRUCTION

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PRINTED NAME JENNIFER KOEHLER
SIGNATURE
DATE 02/09/18 LICENSE # 47305

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION — DATE RELEASED A B C 0 1 2 3

BARR
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Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277
Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com

Scale	AS SHOWN
Date	01/16/2017
Drawn	BDP
Checked	JAK2
Designed	BARR
Approved	JAK2

RPBCWD
CHANHASSEN, MN

CHAN HIGH SCHOOL STORMWATER REUSE
LANDSCAPE RESTORATION PLAN

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. L-01
REV. No. 0

1.0 GENERAL REQUIREMENTS

A. GENERAL
1. THESE NOTES ARE COMPLEMENTARY TO THE SPECIFICATIONS AND DRAWINGS AND REPRESENT MINIMUM REQUIREMENTS. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. DO NOT SCALE DRAWINGS.
3. THE STRUCTURAL DRAWINGS REPRESENT THE FINISHED STRUCTURE AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION.
4. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR PREPARATION AND INSTALLATION OF PURCHASED MATERIALS AND EQUIPMENT.
5. TESTS WILL BE PAID FOR BY THE OWNER, HOWEVER, IN THE EVENT THAT WORK IS DEFECTIVE, THE CONTRACTOR WILL PAY FOR THE TESTS AND ANY ADDITIONAL TESTING AND WORK REQUIRED TO CONFIRM THAT THE DEFECTIVE WORK HAS BEEN CORRECTED AND COMPLIES WITH THIS SPECIFICATION.

B. GOVERNING CODES
1. PERFORM WORK IN COMPLIANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES AND REGULATIONS.
   a. 2012 INTERNATIONAL BUILDING CODE AND REFERENCED STANDARDS W/ 2015 MINNESOTA STATE BUILDING CODE (MSBC) AMENDMENTS.

C. DESIGN CRITERIA FOR LOADS
1. GENERAL:
   a. PER ASCE 7–10
   b. RISK CATEGORY: I
2. DEAD LOAD:
   a. MECHANICAL/PIPING = 5 PSF
   b. ROOF DEAD LOAD = 10 PSF
3. LIVE LOAD:
   a. FLOOR LIVE LOAD (EQUIPMENT AREAS), LL = 100 PSF OR CONCENTRATED LOAD OF 1000 LBF
   b. ROOF LIVE LOAD = 20 PSF
4. EQUIPMENT LOAD:
   a. TBD
5. SNOW LOAD
   a. GROUND SNOW (Pg) = 50 PSF
   b. FLAT ROOF SNOW (Pf) = 31 PSF
   c. EXPOSURE FACTOR (Ce) = 0.9
   d. IMPORTANCE FACTOR (I) = 0.8
   e. THERMAL FACTOR (Ct) = 1.2 (UNHEATED)
6. WIND LOAD
   a. ULTIMATE DESIGN WIND SPEED (3–SECOND GUST) (VULT) = 105 MPH
   b. INTERNAL PRESSURE COEFFICIENT (GCpi) = +0.18/–0.18
   c. EXPOSURE CATEGORY = C
   d. SURFACE ROUGHNESS = C
   e. WIND DIRECTIONALITY FACTOR (Kd) = 0.85
   f. TOPOGRAPHIC FACTOR (Kzt) = 1.0
   g. GUST EFFECT FACTOR = 0.85
   h. ENCLOSURE CLASSIFICATION = ENCLOSED
   i. VELOCITY PRESSURE EXPOSURE COEFFICIENT (Kz) = 0.85
   j. COMPONENTS AND CLADDING DESIGN WIND PRESSURE = VARIES
7. SEISMIC LOAD (NOT APPLICABLE MSBC RULE 1305.0011 SUBP. 4):
   a. IMPORTANCE FACTOR (I) = 1.0
   b. MAPPED SPECTRAL RESPONSE ACCELERATIONS (Ss) = 0.050 g (S1) = 0.028 g
   c. SITE CLASS: D
   d. SPECTRAL RESPONSE COEFFICIENTS (SDS) = 0.053 g (SD1) = 0.045 g
   e. SEISMIC DESIGN CATEGORY = A
   f. BASIC SEISMIC–FORCE–RESISTING SYSTEM(S): N/A
   g. DESIGN BASE SHEAR = N/A
   h. SEISMIC RESPONSE COEFFICIENT (CS) = N/A
   i. RESPONSE MODIFICATION FACTOR (R) = N/A
   j. ANALYSIS PROCEDURE USED: N/A

D. GEOTECHNICAL INFORMATION
B. BARR ENGINEERING COMPANY, "GEOTECHNICAL INVESTIGATION", FEBRUARY 2017.

E. EXISTING CONDITIONS
1. PRIOR TO COMMENCING WORK AT THE SITE, CONTACT GOPHER STATE ONE AND HAVE ALL EXISTING UTILITIES FIELD LOCATED AND MARKED. PROTECT EXISTING UTILITIES UNLESS OTHERWISE INDICATED. REPAIR OR REPLACE ANY UTILITIES DAMAGED BY CONTRACTOR AT CONTRACTOR'S EXPENSE.
2. VERIFY ALL EXISTING CONDITIONS SHOWN ON DRAWINGS FOR ACCURACY. VERIFICATION OF FIELD DIMENSIONS ARE NOT PART OF THE ENGINEER'S RESPONSIBILITY.
3. NOTIFY OWNER IMMEDIATELY IF SITE CONDITIONS OR UTILITIES DIFFER SIGNIFICANTLY FROM THAT SHOWN.
4. DO NOT DISTURB EXISTING VEGETATION AREAS OUTSIDE OF CONSTRUCTION LIMITS.

F. SAFETY
1. CONTRACTOR IS RESPONSIBLE FOR JOB–SITE CONDITIONS AND SAFETY PROCEDURES AND PROGRAMS. THIS REQUIREMENT APPLIES CONTINUOUSLY AND IS NOT LIMITED TO NORMAL WORKING HOURS.
2. MEET ALL FEDERAL, STATE, AND LOCAL RULES AND REGULATIONS PERTAINING TO SAFETY, INCLUDING OSHA AND MNOSHA RULES.
3. SECURE THE SITE FOR PUBLIC SAFETY FOR THE DURATION OF THE WORK.

G. PHASING
1. COORDINATE CONSTRUCTION PHASING WITH OWNER. COORDINATE CONSTRUCTION LIMITS FOR ALL PHASES OF WORK.
2. PHASE WORK TO MINIMIZE EXPOSED SOIL AND EROSION POTENTIAL.

H. TRAFFIC MANAGEMENT
1. TAKE ALL NECESSARY PRECAUTIONS TO EFFECTIVELY ADDRESS VEHICLE AND PEDESTRIAN TRAFFIC, ACCESSIBILITY AND WORKER SAFETY DURING CONSTRUCTION.

2.0 EXCAVATION, SUBGRADE PREPARATION, BACKFILL, & COMPACTION

A. GENERAL
1. COORDINATE THE EXCAVATION, SUBGRADE PREPARATION, BACKFILL, COMPACTION, AND GRADING ACTIVITIES WITH THE DRAWINGS.

B. SUBMITTALS
1. GROUNDWATER AND SURFACE WATER CONTROL PLAN.
2. SUBGRADE STRENGTH AND UNIFORMITY VERIFICATION METHOD.
3. SUBGRADE INSPECTION REPORT FOR EACH FOUNDATION COMPLETED BY A GEOTECHNICAL ENGINEER.
4. GRAIN SIZE ANALYSIS, NATURAL MOISTURE CONTENT, STANDARD PROCTOR MAXIMUM DRY DENSITY AND ATTERBERG LIMITS (FOR COHESIVE MATERIALS) FOR FILL MATERIALS.
5. COMPACTION TEST RESULTS FOR FILL INDICATING LOCATION OF TEST, DRY DENSITY, AND MOISTURE CONTENT OF PLACED FILL.

C. PRODUCTS
1. STRUCTURAL FILL:
   a. WELL GRADED (PER UNIFIED SOIL CLASSIFICATION SYSTEM) GRANULAR SOIL CONSISTING OF GRAVEL AND SAND, OR
   b. CRUSHED STONE WITH A MAXIMUM PARTICLE SIZE OF 1½" AND LESS THAN 5% PASSING THE NO. 200 SIEVE AND FREE OF VEGETATION, DEBRIS, ROOTS, STICKS, BRUSH, AND NON–SOIL MATERIALS.
2. NON–FROST SUSCEPTIBLE FILL: GRANULAR SOIL CONSISTING OF GRAVEL, SAND OR CRUSHED STONE HAVING A MAXIMUM PARTICLE SIZE OF 1½", NO LESS THAN 70% PASSING THE ¾" SIEVE, AND LESS THAN 5% PASSING THE NO. 200 SIEVE AND FREE OF VEGETATION, DEBRIS, ROOTS, STICKS, BRUSH, AND NON–SOIL MATERIALS.
3. COMMON FILL: SUITABLE UNFROZEN MATERIALS EXCAVATED FROM THE FOUNDATION SITE OR IMPORTED AS NECESSARY AND PROCESSED TO THE SPECIFIED REQUIREMENTS BELOW.
   a. MATERIALS BACKFILLED WITHIN 1 FOOT OF ANY CONCRETE: FINE, WELL GRADED MATERIAL WITH PARTICLE SIZE NO GREATER THAN 3".
   b. REMAINING BACKFILL TO MEET THE DENSITY REQUIREMENTS, FREE OF VEGETATION, DEBRIS, ROOTS, STICKS, BRUSH AND NON–SOIL MATERIALS, AND PLACED USING METHODS THAT WILL PREVENT VOIDS FROM OCCURRING.
   c. COHESIVE MATERIALS HAVING LIQUID LIMIT VALUES OF 40% OR LESS AND PLASTICITY INDICES OF 15% OR LESS.

D. EXECUTION
1. EXCAVATE SOILS TO THE LIMITS INDICATED, USING TECHNIQUES THAT WILL MINIMIZE DISTURBANCE.
2. CONTROL SURFACE AND GROUNDWATER FLOWS INTO THE EXCAVATION.
3. IF GRANULAR SOILS ARE ENCOUNTERED ACROSS THE ENTIRE FOOTPRINT OF THE FOUNDATION, SURFACE COMPACT THE TOP OF THE SUBGRADE TO CONSOLIDATE LOOSE SOILS CREATED DURING EXCAVATION. REFER TO THE GEOTECHNICAL REPORT FOR RECOMMENDED SUBGRADE PREPARATION TECHNIQUES.
4. PRIOR TO PLACING CONCRETE, HAVE A PROFESSIONAL GEOTECHNICAL ENGINEER (OR A PERSON UNDER THE GEOTECHNICAL ENGINEER'S DIRECT SUPERVISION) INSPECT THE SUBGRADE CONDITIONS AND RECORD THE SOIL TYPE ENCOUNTERED, GROUNDWATER CONDITIONS, OR OTHER SUBSURFACE CONDITIONS. PREPARE AND SUBMIT A SUBGRADE INSPECTION REPORT FOR EACH FOUNDATION THAT INCLUDES THE FOLLOWING:
   a. VERIFICATION THAT OBSERVATIONS TAKEN ARE CONSISTENT WITH THE OBSERVATIONS CONTAINED IN THE GEOTECHNICAL REPORT.
   b. METHODS AND RESULTS TO VERIFY SUBGRADE STRENGTH AND UNIFORMITY.

   IF SOIL CONDITIONS ARE ENCOUNTERED THAT ARE NOT CONSISTENT WITH THE GEOTECHNICAL REPORT, SUBGRADE IS NON–UNIFORM, OR STRENGTH IS INSUFFICIENT, OBTAIN WRITTEN INSTRUCTIONS FROM THE FOUNDATION ENGINEER AS TO THE MEANS OF CORRECTION TO BE UNDERTAKEN. OBTAIN WRITTEN CONFIRMATION FROM THE GEOTECHNICAL ENGINEER THAT THE SPECIFIED CORRECTIVE ACTIONS WERE COMPLETED.
5. BACKFILL AND COMPACTION: PLACE AND COMPACT MATERIALS TO THE LIMITS, DEPTH AND DRY DENSITY INDICATED ON THE DRAWINGS.
   a. STRUCTURAL FILL – PLACE IN MAXIMUM LOOSE LIFTS OF 9 INCHES OR LESS TO ACHIEVE THE SPECIFIED DENSITY, COMPACT TO A MINIMUM OF 98% STANDARD PROCTOR.
   b. GRANULAR FILL – PLACE IN MAXIMUM LOOSE LIFTS OF 12 INCHES OR LESS TO ACHIEVE THE SPECIFIED DENSITY, COMPACT TO A MINIMUM OF 98% STANDARD PROCTOR.
   c. COMMON FILL – PLACE IN MAXIMUM LOOSE LIFTS OF 12 INCHES OR LESS TO ACHIEVE THE SPECIFIED DENSITY, COMPACT TO A MINIMUM OF 95% STANDARD PROCTOR.
   d. BACKFILL MAY BE PLACED WHEN THE ADJACENT CONCRETE HAS REACHED 2,000 PSI.
   e. BACKFILL ALL SIDES OF FOUNDATION WALLS OR PIERS EVENLY.
6. GRADING TOLERANCE: ± 0.1 FEET.

E. TESTING
1. FOR EVERY 1000 CUBIC YARDS (OR CHANGE IN MATERIAL TYPE) OF PLACED STRUCTURAL, GRANULAR, OR COMMON FILL, OBTAIN SAMPLES OF MATERIALS AND PERFORM AND SUBMIT GRAIN SIZE ANALYSIS PER ASTM D422, MOISTURE CONTENT PER ASTM D2216, STANDARD PROCTOR MAXIMUM DRY DENSITY PER ASTM D698, AND ATTERBERG LIMITS (FOR COHESIVE MATERIALS) PER ASTM D4318.
2. FOR ALL PLACED AND COMPACTED STRUCTURAL, GRANULAR, OR COMMON FILL, PERFORM AND SUBMIT ONE DENSITY TEST PER LIFT (PER 1000 SQUARE FEET ON SLABS–ON–GRADE AND PER 25 LINEAL FEET ON WALLS AND FOOTINGS) INDICATING TEST LOCATION, DRY DENSITY AND MOISTURE CONTENT PER ASTM D6938.

3.0 CONCRETE

A. SEE DIVISION 03 SPECIFICATIONS

4.0 BUILDING ENCLOSURE

A. SEE DIVISION 13 SPECIFICATIONS

ISSUED FOR CONSTRUCTION

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
0	BDP	MBI	MBI	02/09/18	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME MUSTAFA [illegible]
SIGNATURE
DATE 02/09/18 LICENSE # [illegible]

RELEASED TO/FOR	A	B	C	0	1	2	3
CLIENT							
BID							
CONSTRUCTION							

DATE RELEASED

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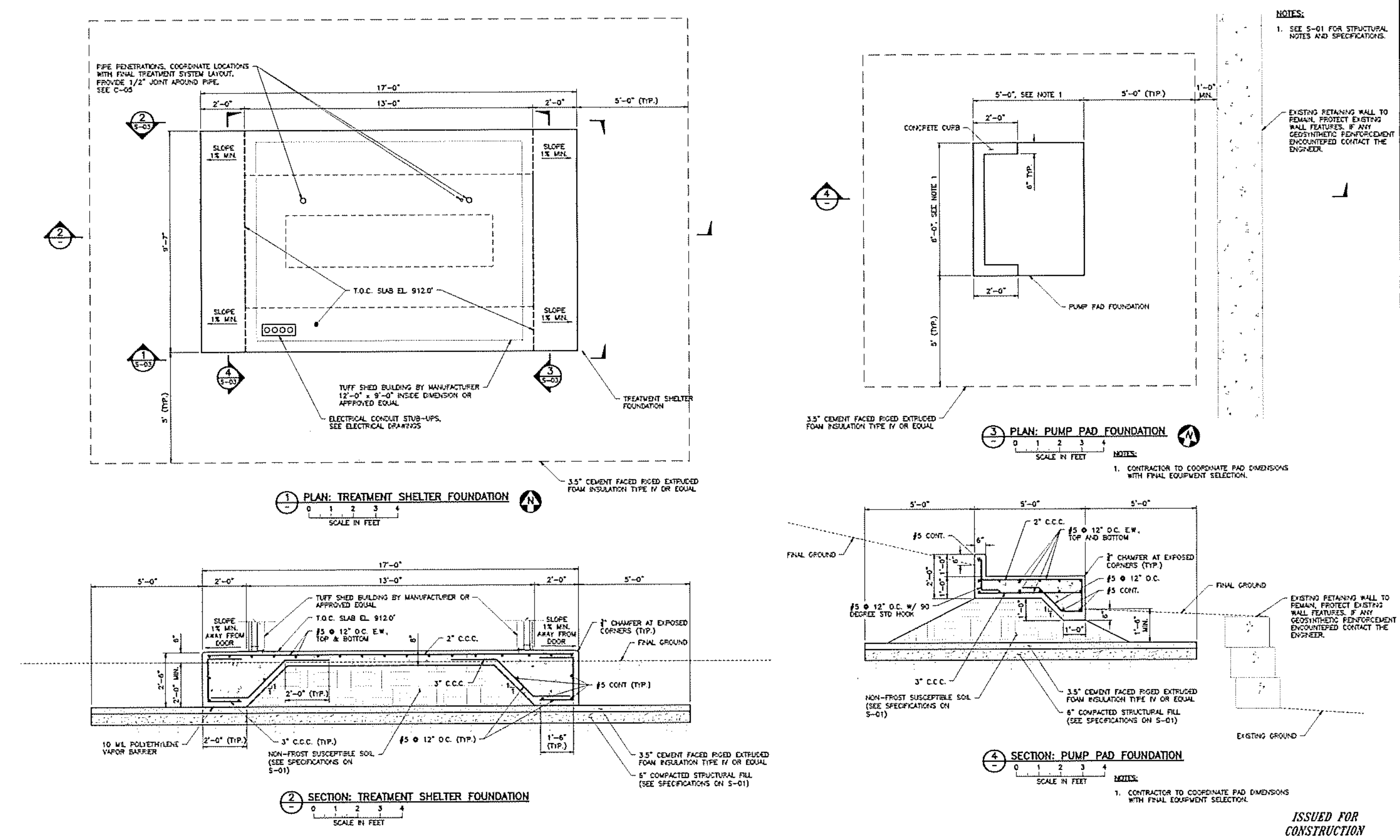
Scale	AS SHOWN
Date	01/16/2017
Drawn	BDP
Checked	MBI
Designed	BARR
Approved	MBI

RPBCWD
CHANHASSEN, MN

CHAN HIGH SCHOOL STORMWATER REUSE
STRUCTURAL NOTES AND SPECIFICATIONS

BARR PROJECT No. 23/27–0053.14
CLIENT PROJECT No.
DWG. No. S–01 REV. No. 0


PIPE PENETRATIONS, COORDINATE LOCATIONS WITH FINAL TREATMENT SYSTEM LAYOUT. PROVIDE 1/2" JOINT AROUND PIPE. SEE C-05
17'-0"
13'-0"
2'-0"
5'-0" (TYP.)
SLOPE 1% MIN.
9'-7"
T.O.C. SLAB EL. 912.0'
TUFF SHED BUILDING BY MANUFACTURER 12'-0" x 9'-0" INSIDE DIMENSION OR APPROVED EQUAL
ELECTRICAL CONDUIT STUB-UPS, SEE ELECTRICAL DRAWINGS
TREATMENT SHELTER FOUNDATION
5' (TYP.)
3.5" CEMENT FACED RIGID EXTRUDED FOAM INSULATION TYPE IV OR EQUAL
1 PLAN: TREATMENT SHELTER FOUNDATION
SCALE IN FEET
TUFF SHED BUILDING BY MANUFACTURER OR APPROVED EQUAL
#5 @ 12" O.C. E.W. TOP & BOTTOM
2" C.C.C.
3/4" CHAMFER AT EXPOSED CORNERS (TYP.)
FINAL GROUND
SLOPE 1% MIN. AWAY FROM DOOR
2'-6"
2'-0" MIN.
#5 CONT (TYP.)
3" C.C.C.
10 MIL POLYETHYLENE VAPOR BARRIER
3" C.C.C. (TYP.)
NON-FROST SUSCEPTIBLE SOIL (SEE SPECIFICATIONS ON S-01)
#5 @ 12" O.C. (TYP.)
1'-6" (TYP.)
3.5" CEMENT FACED RIGID EXTRUDED FOAM INSULATION TYPE IV OR EQUAL
6" COMPACTED STRUCTURAL FILL (SEE SPECIFICATIONS ON S-01)
2 SECTION: TREATMENT SHELTER FOUNDATION
SCALE IN FEET
5'-0", SEE NOTE 1
1'-0" MIN.
CONCRETE CURB
6'-0", SEE NOTE 1
6" TYP.
PUMP PAD FOUNDATION
EXISTING RETAINING WALL TO REMAIN, PROTECT EXISTING WALL FEATURES. IF ANY GEOSYNTHETIC REINFORCEMENT ENCOUNTERED CONTACT THE ENGINEER.
3 PLAN: PUMP PAD FOUNDATION
SCALE IN FEET
NOTES:
1. CONTRACTOR TO COORDINATE PAD DIMENSIONS WITH FINAL EQUIPMENT SELECTION.
5'-0"
#5 CONT.
2" C.C.C.
#5 @ 12" O.C. E.W. TOP AND BOTTOM
3/4" CHAMFER AT EXPOSED CORNERS (TYP.)
#5 @ 12" O.C.
#5 CONT.
FINAL GROUND
#5 @ 12" O.C. W/ 90 DEGREE STD HOOK
1'-0" MIN.
3" C.C.C.
NON-FROST SUSCEPTIBLE SOIL (SEE SPECIFICATIONS ON S-01)
3.5" CEMENT FACED RIGID EXTRUDED FOAM INSULATION TYPE IV OR EQUAL
6" COMPACTED STRUCTURAL FILL (SEE SPECIFICATIONS ON S-01)
EXISTING GROUND
4 SECTION: PUMP PAD FOUNDATION
SCALE IN FEET
NOTES:
1. CONTRACTOR TO COORDINATE PAD DIMENSIONS WITH FINAL EQUIPMENT SELECTION.

NOTES:

1. SEE S-01 FOR STRUCTURAL NOTES AND SPECIFICATIONS.

ISSUED FOR CONSTRUCTION

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
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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.

PRINTED NAME: MUSTAFA INCELIOGLU

SIGNATURE ____ DATE 02/09/18 LICENSE # 45628

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BARR

Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435
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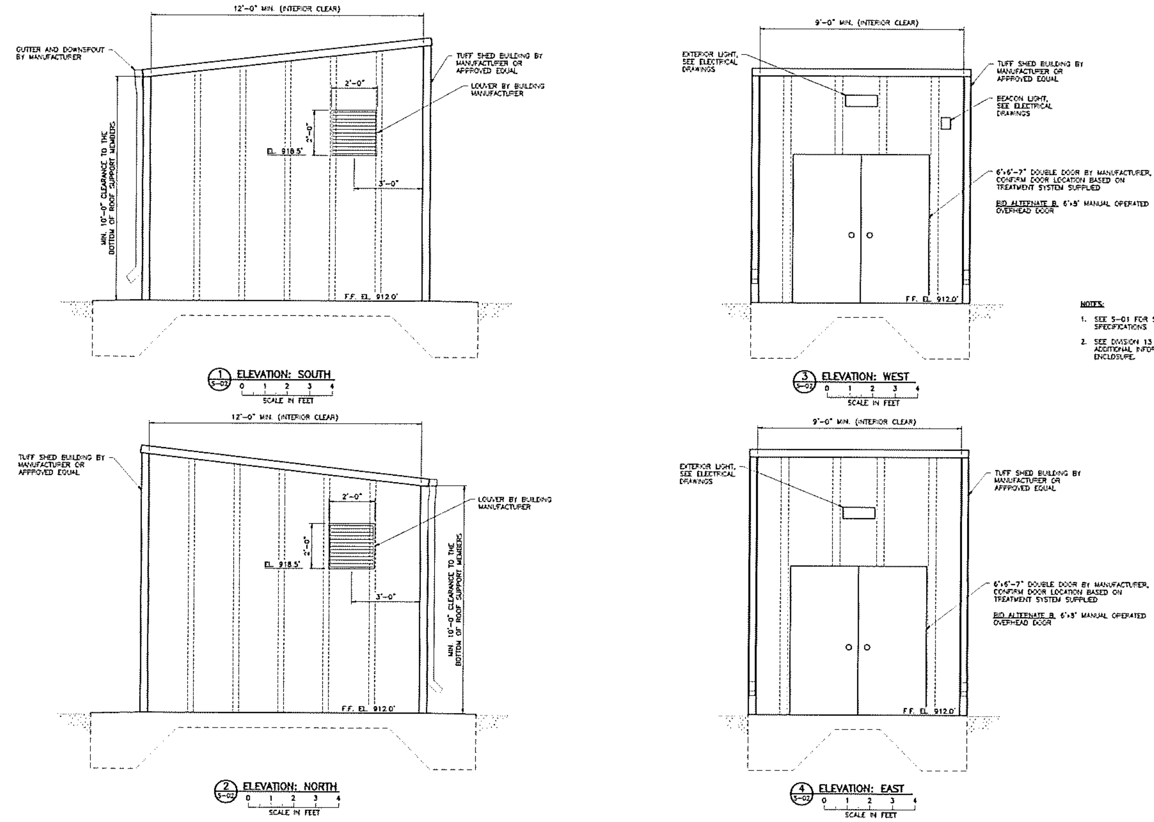
Checked	MBI
Designed	BARR
Approved	MBI

RPBCWD
CHANHASSEN, MN

CHAN HIGH SCHOOL STORMWATER REUSE

TREATMENT SHELTER AND PUMP PAD FOUNDATIONS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. S-02
REV. No. 0



12'-0" MIN. (INTERIOR CLEAR)
GUTTER AND DOWNSPOUT BY MANUFACTURER
TUFF SHED BUILDING BY MANUFACTURER OR APPROVED EQUAL
LOUVER BY BUILDING MANUFACTURER
2'-0"
2'-0"
EL. 918.5'
3'-0"
MIN. 10'-0" CLEARANCE TO THE BOTTOM OF ROOF SUPPORT MEMBERS
F.F. EL. 912.0'
1 S-02 ELEVATION: SOUTH
0 1 2 3 4
SCALE IN FEET
9'-0" MIN. (INTERIOR CLEAR)
EXTERIOR LIGHT, SEE ELECTRICAL DRAWINGS
TUFF SHED BUILDING BY MANUFACTURER OR APPROVED EQUAL
BEACON LIGHT, SEE ELECTRICAL DRAWINGS
6'x6'-7" DOUBLE DOOR BY MANUFACTURER, CONFIRM DOOR LOCATION BASED ON TREATMENT SYSTEM SUPPLIED
BID ALTERNATE B, 6'x8' MANUAL OPERATED OVERHEAD DOOR
F.F. EL. 912.0'
3 S-02 ELEVATION: WEST
0 1 2 3 4
SCALE IN FEET
12'-0" MIN. (INTERIOR CLEAR)
TUFF SHED BUILDING BY MANUFACTURER OR APPROVED EQUAL
LOUVER BY BUILDING MANUFACTURER
2'-0"
2'-0"
EL. 918.5'
3'-0"
MIN. 10'-0" CLEARANCE TO THE BOTTOM OF ROOF SUPPORT MEMBERS
F.F. EL. 912.0'
2 S-02 ELEVATION: NORTH
0 1 2 3 4
SCALE IN FEET
9'-0" MIN. (INTERIOR CLEAR)
EXTERIOR LIGHT, SEE ELECTRICAL DRAWINGS
TUFF SHED BUILDING BY MANUFACTURER OR APPROVED EQUAL
6'x6'-7" DOUBLE DOOR BY MANUFACTURER, CONFIRM DOOR LOCATION BASED ON TREATMENT SYSTEM SUPPLIED
BID ALTERNATE B, 6'x8' MANUAL OPERATED OVERHEAD DOOR
F.F. EL. 912.0'
4 S-02 ELEVATION: EAST
0 1 2 3 4
SCALE IN FEET

NOTES:

1. SEE S-01 FOR STRUCTURAL NOTES AND SPECIFICATIONS
2. SEE DIVISION 13 SPECIFICATIONS FOR ADDITIONAL INFORMATION RELATED TO BUILDING ENCLOSURE.

ISSUED FOR CONSTRUCTION

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	BOP	MEB	MEB	12/09/15	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME MUSTAFA INCELOGLU
SIGNATURE
DATE 02/28/13 LICENSE # 55425

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CLIENT							
BID							
CONSTRUCTION							

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BARR

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Scale	AS SHOWN
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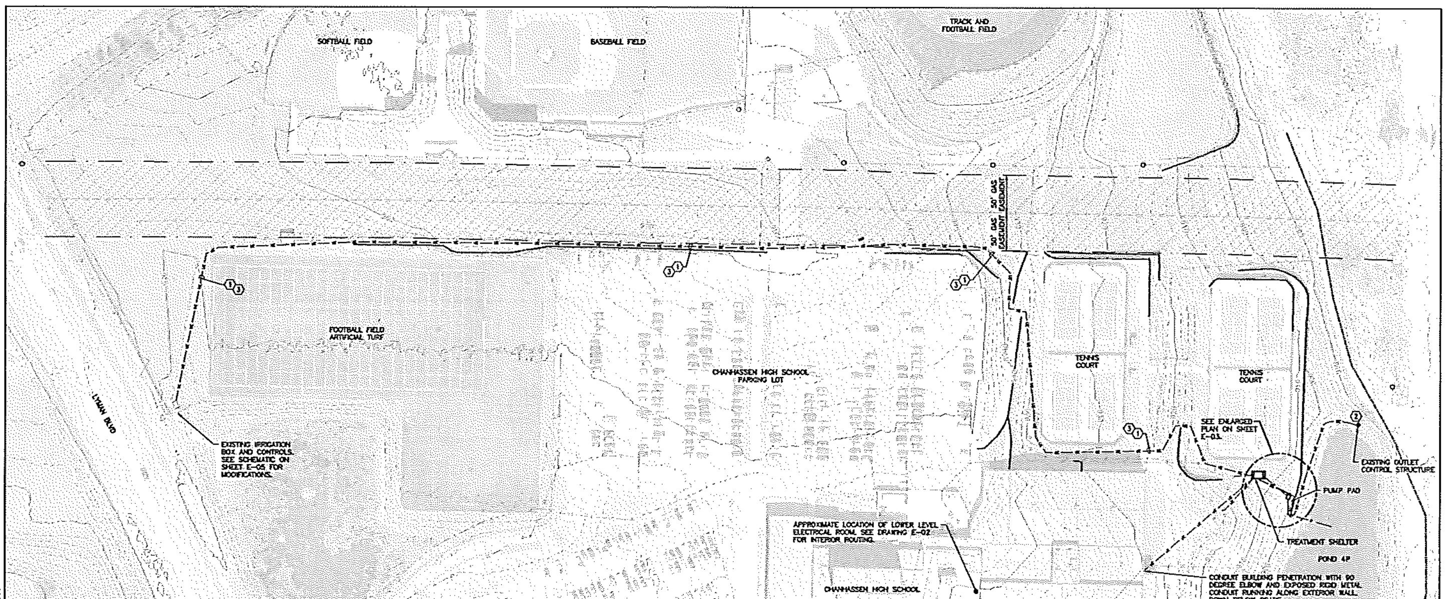
Checked	MEB
Designed	BARR
Approved	MEB

RPBCWD
CHANHASSEN, MN

CHAN HIGH SCHOOL STORMWATER REUSE

TREATMENT SHELTER
ELEVATIONS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. S-03
REV. No. 0



GENERAL NOTES:

1. CONDUCT ALL WORK SO THAT EXISTING FACILITIES REMAIN IN OPERATION DURING CONSTRUCTION. COORDINATE ALL OUTAGES AND CUTOVERS WITH OWNER AND PROPERTY OWNER AT LEAST TWO (2) WEEKS IN ADVANCE, AND ONLY TO OCCUR AT TIMES AND IN DURATIONS AS APPROVED BY OWNER AND PROPERTY OWNER.
2. FIELD CONFIRM LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES, CABLES, CONDUITS, ETC. PRIOR TO CONSTRUCTION. CONTRACTOR SHALL REPAIR SUCH ITEMS AT NO COST IF DAMAGED BY CONTRACTOR.
3. PROVIDE TEMPORARY SUPPORT FOR EXISTING UNDERGROUND FACILITIES THAT WILL BE EXPOSED DUE TO GENERAL, STRUCTURAL AND PROCESS CONSTRUCTION.
4. EXISTING UNDERGROUND CIRCUITRY THAT IS TO REMAIN IS NOT ALL SHOWN.
5. NOT ALL NEW CIRCUITRY IS SHOWN ON PLAN. SEE ENLARGED PLANS, ONE-LINES, SCHEMATICS AND CABLE & CONDUIT SCHEDULE FOR ADDITIONAL CIRCUITRY REQUIREMENTS.
6. FIELD CONFIRM ALL CONDUIT AND CIRCUIT ROUTING.
7. USE DIRECTIONAL BORING OR SIMILAR METHOD FOR NEW CONDUITS TO BE INSTALLED UNDER EXISTING SIDEWALKS AND PAVEMENTS. WHERE PITS ARE OPENED, PATCH ALL SURFACES TO MATCH EXISTING.
8. CORE DRILL EXISTING STRUCTURES AS REQUIRED FOR NEW CONDUIT INSTALLATION. PATCH ALL SURFACES TO MATCH EXISTING. ALL CORE DRILL LOCATIONS SHALL BE VERIFIED WITH FIELD ENGINEER.
9. SEAL ALL CONDUITS TO EXTERIOR USING DUCTSEAL OR 1/2" THICKNESS SILICONE CAULK.

NUMBERED NOTES:

(1) DIRECT-BURY TWO SETS-#12 TWISTED PAIR IRRIGATION CONTROL WIRES, HUNTER DECODER CABLE OR APPROVED EQUAL. PLACE 6" WIDE VINYL MARKING TAPE 15" ABOVE BURIED WIRES, MCMASTER-CARR NO. 8265T12 OR APPROVED EQUAL.

(2) POND LEVEL INSTRUMENTS. SEE DETAIL ON SHEET E-04.

(3) BID ALTERNATE A - RADIO COMMUNICATION. CONTRACTOR MAY SUBMIT BID ALTERNATE FOR RADIO COMMUNICATION, IN PLACE OF DIRECT BURY CIRCUITS, BETWEEN EXISTING IRRIGATION CONTROLS AND NEW TREATMENT SYSTEM CONTROLS. CONTRACTOR RESPONSIBLE FOR SUBMITTING ALL EQUIPMENT AT BOTH ENDS TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM, INCLUDING A SITE PATH STUDY.

(1) PLAN: PROPOSED SITE – ELECTRICAL

0 60 120
SCALE IN FEET

WARNING
HIGH-PRESSURE PIPELINE(S)
EXCAVATION AND/OR CONSTRUCTION PROHIBITED WITHOUT COMPLIANCE WITH STATE ONE-CALL, AND WITHOUT WRITTEN PERMISSION FROM MAGELLAN PIPELINE COMPANY, L.P.
A MAGELLAN REPRESENTATIVE MUST BE PRESENT DURING WORK AROUND PIPELINE(S)

LEGEND

- CONSTRUCTION LIMITS
- WETLAND BOUNDARY
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING FENCE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING IRRIGATION
- EXISTING WATER SUPPLY
- EXISTING NATURAL GAS
- EXISTING TELEVISION CABLE
- EXISTING OVERHEAD ELECTRIC
- EXISTING UNDERGROUND ELECTRIC
- EXISTING WALL
- APPROXIMATE NATURAL GAS EASEMENT

LEGEND – CONTINUED

- PROPOSED IRRIGATION
- PROPOSED UNDERGROUND ELECTRIC

ISSUED FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EDF	JAK2	PJL	02/09/18	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME PATRICK LEHNHERR
SIGNATURE
DATE 02/09/18 LICENSE # 25033

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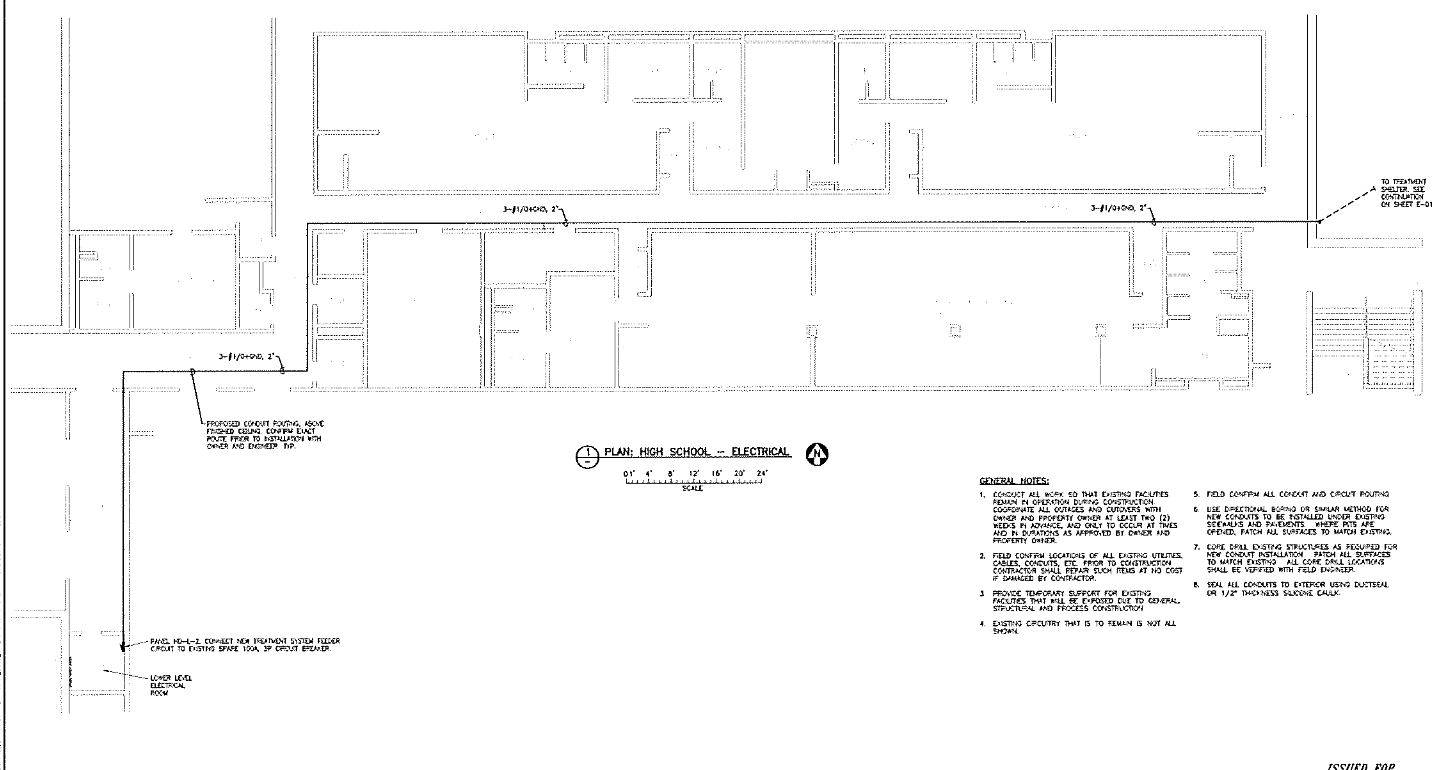
Corporate Headquarters
Minneapolis, Minnesota
Ph: 1-800-632-2277

Scale	AS SHOWN
Date	01/16/2017
Drawn	EDP
Checked	JAK2
Designed	BARR
Approved	PJL

RPBCWD
CHANHASSEN, MN

CHAN HIGH SCHOOL STORMWATER REUSE
ELECTRICAL SITE PLAN

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. E-01
REV. No. 0



GENERAL NOTES:

1. CONDUCT ALL WORK SO THAT EXISTING FACILITIES REMAIN IN OPERATION DURING CONSTRUCTION. COORDINATE ALL OUTAGES AND CUTOVERS WITH OWNER AND PROPERTY OWNER AT LEAST TWO (2) WEEKS IN ADVANCE, AND ONLY TO OCCUR AT TIMES AND IN DURATIONS AS APPROVED BY OWNER AND PROPERTY OWNER.
2. FIELD CONFIRM LOCATIONS OF ALL EXISTING UTILITIES, CABLES, CONDUITS, ETC. PRIOR TO CONSTRUCTION. CONTRACTOR SHALL REPAIR SUCH ITEMS AT NO COST IF DAMAGED BY CONTRACTOR.
3. PROVIDE TEMPORARY SUPPORT FOR EXISTING FACILITIES THAT WILL BE EXPOSED DUE TO GENERAL, STRUCTURAL AND PROCESS CONSTRUCTION.
4. EXISTING CIRCUITRY THAT IS TO REMAIN IS NOT ALL SHOWN.
5. FIELD CONFIRM ALL CONDUIT AND CIRCUIT ROUTING.
6. USE DIRECTIONAL BORING OR SIMILAR METHOD FOR NEW CONDUITS TO BE INSTALLED UNDER EXISTING SIDEWALKS AND PAVEMENTS. WHERE PITS ARE OPENED, PATCH ALL SURFACES TO MATCH EXISTING.
7. CORE DRILL EXISTING STRUCTURES AS REQUIRED FOR NEW CONDUIT INSTALLATION. PATCH ALL SURFACES TO MATCH EXISTING. ALL CORE DRILL LOCATIONS SHALL BE VERIFIED WITH FIELD ENGINEER.
8. SEAL ALL CONDUITS TO EXTERIOR USING DUCTSEAL OR 1/2" THICKNESS SILICONE CAULK.

ISSUED FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EDP	JAK2	PJL	02/09/18	ISSUED FOR CONSTRUCTION

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PRINTED NAME PATRICK LOHMEIER
SIGNATURE
DATE 02/09/18 LICENSE # 23033

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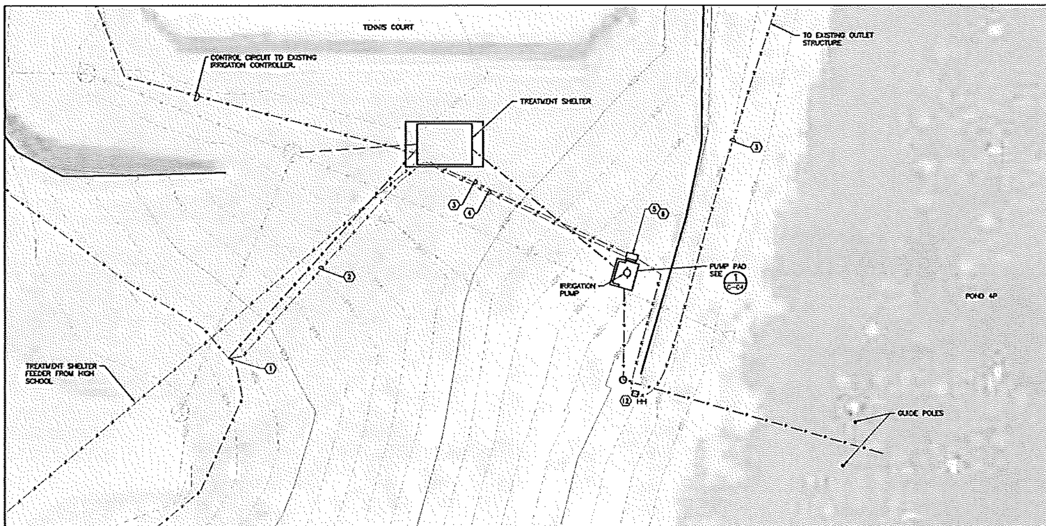
Approved	PJL

RPBCWD
CHANHASSEN, MN

CHAN HIGH SCHOOL STORMWATER REUSE

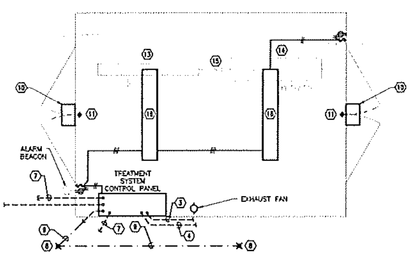
HIGH SCHOOL ELECTRICAL PLAN

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. E-02
REV. No. 0



PLAN: TREATMENT SHELTER AREA – ELECTRICAL

SCALE IN FEET 0 10 20



PLAN: TREATMENT SYSTEM BUILDING – ELECTRICAL

SCALE 0 1' 2' 3' 4' 5' 6'

ALL BUILDING WIRING AND CONDUIT ROUTING BY CONTRACTOR. INTERIOR CONDUITS SHALL BE EMT.

LEGEND

- CONSTRUCTION LIMITS
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING STORM SEWER
- EXISTING IRRIGATION
- EXISTING UNDERGROUND ELECTRIC
- EXISTING WALL
- PROPOSED IRRIGATION
- PROPOSED UNDERGROUND ELECTRIC
- PROPOSED TREATMENT SHELTER
- PROPOSED PUMP PAD
- HANDHOLE

GENERAL NOTES:

1. CONDUCT ALL WORK SO THAT EXISTING FACILITIES REMAIN IN OPERATION DURING CONSTRUCTION. COORDINATE ALL OUTAGES AND CUTOVERS WITH OWNER AND PROPERTY OWNER AT LEAST TWO (2) WEEKS IN ADVANCE, AND ONLY TO OCCUR AT TIMES AND IN DURATIONS AS APPROVED BY OWNER AND PROPERTY OWNER.
2. FIELD CONFIRM LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES, CABLES, CONDUITS, ETC. PRIOR TO CONSTRUCTION. CONTRACTOR SHALL REPAIR SUCH ITEMS AT NO COST IF DAMAGED BY CONTRACTOR.
3. PROVIDE TEMPORARY SUPPORT FOR EXISTING UNDERGROUND FACILITIES THAT WILL BE EXPOSED DUE TO GENERAL, STRUCTURAL AND PROCESS CONSTRUCTION.
4. EXISTING UNDERGROUND CIRCUITRY THAT IS TO REMAIN IS NOT ALL SHOWN.
5. NOT ALL NEW CIRCUITRY IS SHOWN ON PLAN. SEE SCHEMATICS FOR ADDITIONAL CIRCUITRY REQUIREMENTS.
6. FIELD CONFIRM ALL CONDUIT AND CIRCUIT ROUTING
7. USE DIRECTIONAL BORING OR SIMILAR METHOD FOR NEW CONDUITS TO BE INSTALLED UNDER EXISTING SIDEWALKS AND PAVEMENTS. WHERE PITS ARE OPENED, PATCH ALL SURFACES TO MATCH EXISTING.
8. CORE DRILL EXISTING STRUCTURES AS REQUIRED FOR NEW CONDUIT INSTALLATION. PATCH ALL SURFACES TO MATCH EXISTING. ALL CORE DRILL LOCATIONS SHALL BE VERIFIED WITH FIELD ENGINEER.
9. SEAL ALL CONDUITS TO EXTERIOR USING DUCTSEAL OR 1/2" THICKNESS SILICONE CAULK.

NUMBERED NOTES:

(1) CONNECTION TO EXISTING IRRIGATION MAIN COMMUNICATION LINE BY PROPERTY OWNER'S IRRIGATION SERVICE PROVIDER, COORDINATE.

(2) DIRECT BURY #14 TWISTED PAIR IRRIGATION CONTROL WIRE, HUNTER DECODER CABLE OR APPROVED EQUAL.

(3) 2" SCHEDULE 80 PVC CONDUIT FOR LEVEL SENSING INSTRUMENT CABLE.

(4) 2" SCHEDULE 80 PVC CONDUIT FOR PUMP CABLES.

(5) FABRICATE STAINLESS STEEL STRUT STAND. SEE DETAIL ON SHEET E-04.

(6) PUMP DISCONNECT SWITCH AND INSTRUMENT CABLE JUNCTION BOX PER SCHEMATIC.

(7) STUB 1" CONDUIT 24" BEYOND CONCRETE PAD FOR IRRIGATION CONTROL CIRCUITS.

(8) 5/8" X 10' COPPER-CLAD GROUND ROD WITH EXOTHERMIC WELD TO CONDUCTORS SHOWN. SET TOP 12" DEEP.

(9) #3/0 BARE COPPER GROUND CONDUCTOR, 12" DEEP

(10) WALL-MOUNT EXTERIOR LED FIXTURE, LITHONIA WSTLED-1A-4K-120-DDBXD, OR EQUAL, WITH INTEGRAL MFR. PHOTOCONTROL.

(11) MAGNETIC INTRUSION SWITCH (40 90 00)

(12) AT-GRADE FIBERGLASS PULL-BOX WITH TAMPER PROOF COVER AND SCREWS. QUAZITE OR APPROVED EQUAL.

(13) UV SYSTEM (32 81 05). CONFIRM ALL WIRING AND INSTALLATION REQUIREMENTS WITH MANUFACTURER.

(14) FILTRATION SYSTEM (32 81 05). CONFIRM ALL WIRING AND INSTALLATION REQUIREMENTS WITH MANUFACTURER.

(15) FLOWMETER (32 81 05). CONFIRM ALL WIRING AND INSTALLATION REQUIREMENTS WITH MANUFACTURER.

(16) CHAIN HUNG LED VAPORTIGHT FIXTURE, LITHONIA FEM4LED-4L-MAFL-MVOLT-MHCH36, OR EQUAL. COORDINATE PROPER CLEARANCES WITH TREATMENT SYSTEM EQUIPMENT.

ISSUED FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	BOP	JAK2	PJL	02/09/18	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME PATRICK LEHMKUHL
SIGNATURE
DATE 02/09/18 LICENSE # 25033

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CLIENT							
BID							
CONSTRUCTION							

DATE RELEASED

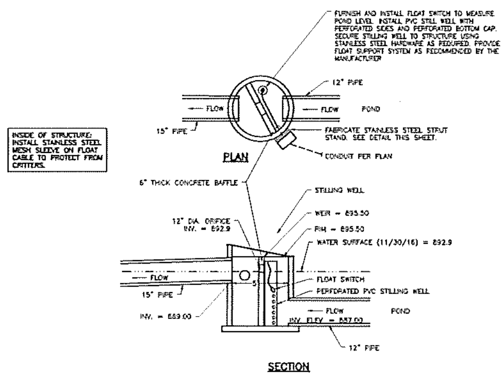
BARR
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277
Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435 Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com

Scale	AS SHOWN
Date	01/16/2017
Drawn	BOP
Checked	JAK2
Designed	BARR
Approved	PJL

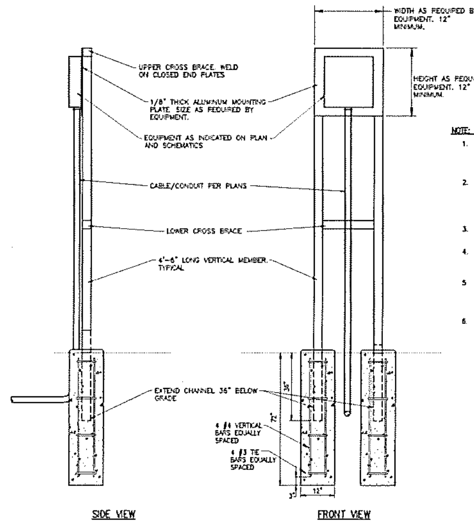
RPBCWD
CHANHASSEN, MN

CHAN HIGH SCHOOL STORMWATER REUSE
TREATMENT SHELTER ELECTRICAL PLANS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. E-03
REV. No. 0


FURNISH AND INSTALL FLOAT SWITCH TO MEASURE POND LEVEL. INSTALL PVC STILL WELL WITH PERFORATED SIDES AND PERFORATED BOTTOM CAP. SECURE STILLING WELL TO STRUCTURE USING STAINLESS STEEL HARDWARE AS REQUIRED. PROVIDE FLOAT SUPPORT SYSTEM AS RECOMMENDED BY THE MANUFACTURER
12" PIPE
FLOW
POND
15" PIPE
FABRICATE STAINLESS STEEL STRUT STAND. SEE DETAIL THIS SHEET.
CONDUIT PER PLAN
PLAN
INSIDE OF STRUCTURE: INSTALL STAINLESS STEEL MESH SLEEVE ON FLOAT CABLE TO PROTECT FROM CRITTERS.
6" THICK CONCRETE BAFFLE
STILLING WELL
WEIR = 895.50
RIM = 895.50
WATER SURFACE (11/30/16) = 892.9
12" DIA. ORIFICE
INV. = 892.9
FLOAT SWITCH
PERFORATED PVC STILLING WELL
INV. = 889.00
INV. ELEV = 887.00
12" PIPE
SECTION

1 DETAIL: EXISTING OUTLET CONTROL STRUCTURE MODIFICATIONS
NOT TO SCALE


WIDTH AS REQUIRED BY EQUIPMENT. 12" MINIMUM.
UPPER CROSS BRACE. WELD ON CLOSED END PLATES
1/8" THICK ALUMINUM MOUNTING PLATE. SIZE AS REQUIRED BY EQUIPMENT.
HEIGHT AS REQUIRED BY EQUIPMENT. 12" MINIMUM.
EQUIPMENT AS INDICATED ON PLAN AND SCHEMATICS
CABLE/CONDUIT PER PLANS
LOWER CROSS BRACE
4'-6" LONG VERTICAL MEMBER. TYPICAL
EXTEND CHANNEL 36" BELOW GRADE
4 #4 VERTICAL BARS EQUALLY SPACED
4 #3 TIE BARS EQUALLY SPACED
12"
SIDE VIEW
FRONT VIEW

NOTE:

1. CONSTRUCT STAND USING TYPE 316 STAINLESS STEEL 1 5/8"x 1 5/8" CHANNEL, B-LINE SERIES B24, OR OR EQUAL.
2. FASTEN ALL CONNECTIONS USING MANUFACTURER'S TYPE 316 STAINLESS STEEL CONNECTORS & STAINLESS STEEL BOLTS, WASHERS & NUTS.
3. FOR STANDS WIDER THAN 24", PROVIDE THIRD VERTICAL MEMBER.
4. CONCRETE SHALL HAVE 6% AIR ENTRAINMENT AND A "28 DAY" STRENGTH OF 4000 PSI
5. REINFORCING STEEL SHALL BE ASTM A615, GRADE 60, NEW BILLET, INTERMEDIATE GRADE, DEFORMED W/ 60000 PSI YIELD STRENGTH.
6. CONFIRM STAND HEIGHT WITH ENGINEER DURING CONSTRUCTION.

2 STRUT MOUNTING STAND DETAIL
NOT TO SCALE

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PRINTED NAME PATRICK LENAHAN
SIGNATURE
DATE 02/09/18 LICENSE # 25033

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Corporate Headquarters: Minneapolis, Minnesota Ph. 1-800-632-2277

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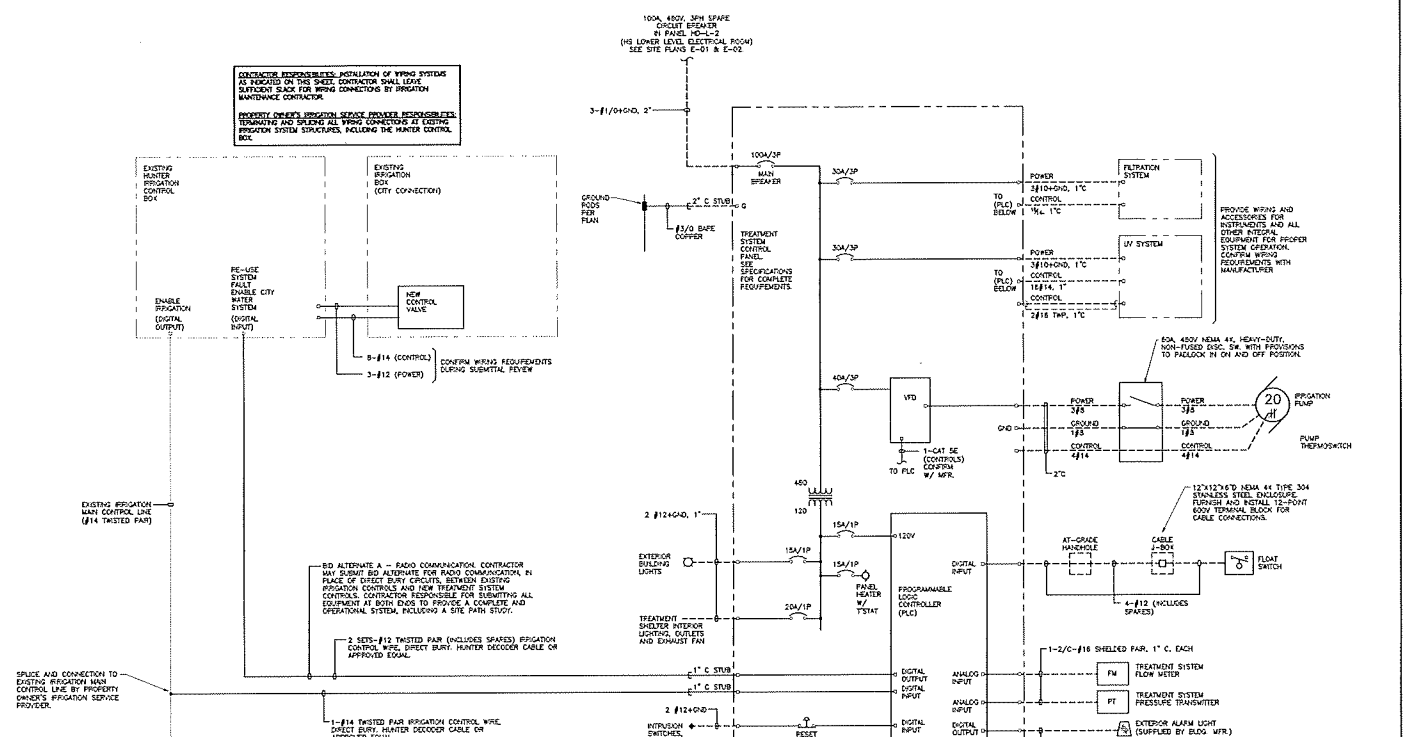
Date	01/16/2017
Drawn	BDP
Checked	JAK2
Designed	BARR
Approved	PJL

RPBCWD
CHANHASSEN, MN

CHAN HIGH SCHOOL STORMWATER REUSE
ELECTRICAL DETAILS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. E-04
REV. No. 0


100A, 480V, 3PH SPARE CIRCUIT BREAKER IN PANEL HD-L-2 (HS LOWER LEVEL ELECTRICAL ROOM) SEE SITE PLANS E-01 & E-02
CONTRACTOR RESPONSIBILITIES: INSTALLATION OF WIRING SYSTEMS AS INDICATED ON THIS SHEET. CONTRACTOR SHALL LEAVE SUFFICIENT SLACK FOR WIRING CONNECTIONS BY IRRIGATION MAINTENANCE CONTRACTOR.
PROPERTY OWNER'S IRRIGATION SERVICE PROVIDER RESPONSIBILITIES: TERMINATING AND SPLICING ALL WIRING CONNECTIONS AT EXISTING IRRIGATION SYSTEM STRUCTURES, INCLUDING THE HUNTER CONTROL BOX.
3-#1/0+GND, 2"
EXISTING HUNTER IRRIGATION CONTROL BOX
EXISTING IRRIGATION BOX (CITY CONNECTION)
100A/3P MAIN BREAKER
30A/3P
FILTRATION SYSTEM
UV SYSTEM
POWER
CONTROL
TO (PLC) BELOW
GROUND RODS PER PLAN
2" C STUB
#3/0 BARE COPPER
TREATMENT SYSTEM CONTROL PANEL SEE SPECIFICATIONS FOR COMPLETE REQUIREMENTS
PROVIDE WIRING AND ACCESSORIES FOR INSTRUMENTS AND ALL OTHER INTEGRAL EQUIPMENT FOR PROPER SYSTEM OPERATION. CONFIRM WIRING REQUIREMENTS WITH MANUFACTURER
RE-USE SYSTEM FAULT ENABLE CITY WATER SYSTEM (DIGITAL INPUT)
ENABLE IRRIGATION (DIGITAL OUTPUT)
NEW CONTROL VALVE
8-#14 (CONTROL)
3-#12 (POWER)
CONFIRM WIRING REQUIREMENTS DURING SUBMITTAL REVIEW
60A, 480V NEMA 4X, HEAVY-DUTY, NON-FUSED DISC. SW. WITH PROVISIONS TO PADLOCK IN ON AND OFF POSITION.
40A/3P
VFD
20
IRRIGATION PUMP
PUMP THERMOSWITCH
1-CAT 5E (CONTROLS) CONFIRM W/ MFR.
TO PLC
480
120
EXISTING IRRIGATION MAIN CONTROL LINE (#14 TWISTED PAIR)
2 #12+GND, 1"
12"x12"x6"D NEMA 4X TYPE 304 STAINLESS STEEL ENCLOSURE. FURNISH AND INSTALL 12-POINT 600V TERMINAL BLOCK FOR CABLE CONNECTIONS.
15A/1P
20A/1P
120V
EXTERIOR BUILDING LIGHTS
PANEL HEATER W/ T'STAT
PROGRAMMABLE LOGIC CONTROLLER (PLC)
DIGITAL INPUT
AT-GRADE HANDHOLE
CABLE J-BOX
FLOAT SWITCH
4-#12 (INCLUDES SPARES)
BID ALTERNATE A – RADIO COMMUNICATION. CONTRACTOR MAY SUBMIT BID ALTERNATE FOR RADIO COMMUNICATION, IN PLACE OF DIRECT BURY CIRCUITS, BETWEEN EXISTING IRRIGATION CONTROLS AND NEW TREATMENT SYSTEM CONTROLS. CONTRACTOR RESPONSIBLE FOR SUBMITTING ALL EQUIPMENT AT BOTH ENDS TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM, INCLUDING A SITE PATH STUDY.
TREATMENT SHELTER INTERIOR LIGHTING, OUTLETS AND EXHAUST FAN
2 SETS-#12 TWISTED PAIR (INCLUDES SPARES) IRRIGATION CONTROL WIRE, DIRECT BURY. HUNTER DECODER CABLE OR APPROVED EQUAL.
SPLICE AND CONNECTION TO EXISTING IRRIGATION MAIN CONTROL LINE BY PROPERTY OWNER'S IRRIGATION SERVICE PROVIDER.
1" C STUB
DIGITAL OUTPUT
ANALOG INPUT
1-2/C-#16 SHIELDED PAIR, 1" C. EACH
FM
TREATMENT SYSTEM FLOW METER
PT
TREATMENT SYSTEM PRESSURE TRANSMITTER
2 #12+GND
INTRUSION SWITCHES, TYP 2
RESET
EXTERIOR ALARM LIGHT (SUPPLIED BY BLDG MFR.)
2-#12+GND
1-#14 TWISTED PAIR IRRIGATION CONTROL WIRE, DIRECT BURY. HUNTER DECODER CABLE OR APPROVED EQUAL.

GENERAL NOTES:

1. CONFIRM WIRING REQUIREMENTS FOR ALL EQUIPMENT DURING SUBMITTAL REVIEW.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EQUIPMENT WIRING. ADDITIONAL WIRING REQUIRED SHALL BE PROVIDED AT NO ADDITIONAL COST TO OWNER.

ISSUED FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EDP	JAK2	PJL	02/09/18	ISSUED FOR CONSTRUCTION

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PRINTED NAME PATRICK LOHMANN
SIGNATURE ____
DATE 02/09/18 LICENSE # 25033

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION — DATE RELEASED: A B C 0 1 2 3

BARR
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Designed	BARR
Approved	PJL

RPBCWD
CHANHASSEN, MN

CHAN HIGH SCHOOL STORMWATER REUSE

ELECTRICAL SCHEMATICS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. E-05
REV. No. 0

Contract Documents

Chanhassen High School Stormwater Reuse Project
Chanhassen, MN

Prepared for:
Riley Purgatory Bluff Creek Watershed District

February 9, 2018

CONTRACT DOCUMENTS

CHANHASSEN HIGH SCHOOL STORMWATER REUSE PROJECT
RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
CHANHASSEN, MINNESOTA

TABLE OF CONTENTS

resourceful. naturally.
engineering and environmental consultants

BARR

Memorandum

To: Riley-Purgatory-Bluff Creek Watershed District Board of Managers
From: Barr Engineering
Subject: Lake Susan Park Pond – Request Board Authorization to Solicit Bids for Construction
Date: 1/31/2018
Project: 23/27-0053.14 013B
c: Claire Bleser – RPBCWD Administrator

In 2017, RPBCWD completed a feasibility study to improve the water quality in Lake Susan in the City of Chanhassen and for the reuse for stormwater from an existing stormwater pond, Lake Susan Park Pond. The project proposes the following:

- Installation of an iron enhanced sand filter (IESF) to reduce phosphorus loading in Lake Susan
- Installation of a pump-and-treat system to draw stormwater from an existing stormwater pond, Lake Susan Park Pond, for irrigation of the site's ballfield, making use of an existing irrigation system and reducing groundwater demand for irrigation
- Lake Susan Park Pond outlet retrofit to address erosion issues immediately downstream of the pond

In 2015, RPBCWD secured a $233,400 Clean Water Fund grant for a watershed treatment and stormwater reuse project at Lake Susan. In July 2017, the RPBCWD Board of Managers approved authorized final design and preparation of construction documents for the watershed treatment and stormwater reuse system recommended in the feasibility study completed in early 2017.

The design of the proposed system includes, but not limited to, excavation and installation of an iron-enhanced sand filter, a pump to supply the iron-enhanced sand filter and separate irrigation supply pump, a package water treatment system, a water treatment building to house the pump and treatment equipment for the irrigation water, and necessary piping and appurtenances. The 60 percent design review meeting with RPBCWD and city of Chanhassen staff was held on 12/18/2017, and comments on the 90 percent plan set were solicited by email on 1/17/2018 and incorporated in the construction drawings. We are in the process of finalizing the specifications for bid. Enclosed are the 100 percent draft design plans for the Lake Susan Park Pond Watershed Treatment and Stormwater Reuse system.

The engineer's opinion of probable construction cost based on the 100 percent design is $392,000. The opinion of probable cost provided is made on the basis of Barr Engineering's experience and qualifications and represents our best judgment as experienced and qualified professionals familiar with the project. Because we have no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor's methods of determining prices, or over competitive bidding or market

conditions, Barr Engineering cannot and does not guarantee that proposals, bids, or actual costs will not vary from the opinion of probable cost presented.

It is requested that the RPBCWD Board of Managers authorize Barr Engineering Co. to solicit of bids for the construction of the watershed treatment and stormwater reuse system at Lake Susan Park Pond, pending review of the final contract documents by the RPBCWD legal counsel. If the Board of Managers authorizes solicitation of bids to construct the reuse system, the following is the tentative schedule for the project:

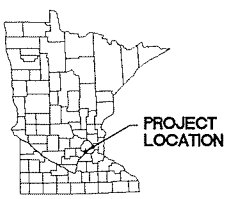
- Front end documents and 100% specifications (2/7/2018) – for RPBCWD attorney review & submittal to City of Chanhassen for review
- Advertisement to bid submitted (2/12/2018)
- Bid package final/bidding begins (2/20/2018)
- Pre-bid meeting (3/9/2018)
- Bid opening (3/20/2018)
- Bidder recommendation to RPBCWD Managers for consideration at 4/4/2018 meeting
- Notice of Award (early-April)
- Notice to Proceed (late-April)
- Construction (early-May to late-September) – pending City of Chanhassen input on construction window

Attachments

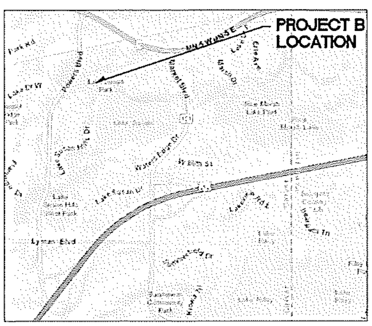
- Drawings (100% draft) for the Lake Susan Park Pond Watershed Treatment and Stormwater Reuse Project
- Technical specifications Section 00 01 10 Table of Contents

LAKE SUSAN PARK POND WATERSHED TREATMENT AND STORMWATER REUSE

RILEY-PURGATORY-BLUFF CREEK WATERSHED DISTRICT
CARVER COUNTY, MINNESOTA



LOCATION MAP
NOT TO SCALE



PROJECT VICINITY MAP
NOT TO SCALE

SHEET INDEX

NOTES:

1. TOPOGRAPHIC SURVEY PERFORMED BY BARR ENGINEERING CO. ON SEPTEMBER 21, 2017.
2. HIGH RESOLUTION ORTHOIMAGERY FOR CARVER COUNTY, MINNESOTA BY MINNESOTA GEOSPATIAL INFORMATION CENTER, TAKEN APRIL, 2016
3. ALL UTILITIES SHOWN ARE CONSIDERED LEVEL D, UNLESS OTHERWISE NOTED, IN ACCORDANCE WITH ASCE STANDARD CI/ASCE38-02.
4. CONTRACTOR SHALL FIELD-LOCATE ALL SITE UTILITIES PRIVATE AND PUBLIC PRIOR TO STARTING THE WORK. ALL UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE. ANY UTILITIES DAMAGED BY CONTRACTOR SHALL BE REPAIRED TO THE SATISFACTION OF UTILITY OWNER.
5. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

COORDINATE SYSTEM:

HORIZONTAL DATUM – CARVER COUNTY, NAD83 (2011) REF, VRS
VERTICAL DATUM – NAVD88 REF, VRS.

PROJECT ENGINEER CONTACT:

KATIE WOLOHAN
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435
952-842-3594
KWOLOHAN@BARR.COM

DISTRICT ENGINEER CONTACT:

SCOTT SOBIECH
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435
952-832-2755
SSOBIECH@BARR.COM

DISTRICT ADMINISTRATOR (OWNER) CONTACT:

CLAIRE BLESER
18681 LAKE DRIVE EAST
CHANHASSEN, MN 55317
952-234-5976
CBLESER@RPBCWD.ORG

PROPERTY OWNER'S REPRESENTATIVE CONTACT:

PAUL OEHME
7700 MARKET BOULEVARD
CHANHASSEN, MN 55317
952-227-1169
POEHME@CI.CHANHASSEN.MN.US

ABBREVIATIONS AND SYMBOLS

APPROX.	APPROXIMATE
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
BMPS	BEST MANAGEMENT PRACTICES
C.C.C.	CONCRETE CLEAR COVER
C.F.	CUBIC FEET
CONT	CONTINUOUS
CPEP	CORRUGATED POLYETHYLENE PIPE
EL.	ELEVATION
ELEV.	ELEVATION
EPDM	ETHYLENE PROPYLENE DIENE MONOMER
E.W.	EACH WAY
FT	FEET
GALV.	GALVANIZED
GND	GROUND
H	HORIZONTAL
HDPE	HIGH DENSITY POLYETHYLENE
HP	HORSE POWER
I.E.	INVERT ELEVATION
INV.	INVERT
LB.	POUNDS
MAX.	MAXIMUM
MIN.	MINIMUM
MNDOT	MINNESOTA DEPARTMENT OF TRANSPORTATION
MPH	MILES PER HOUR
O.C.	ON CENTER
PLC	PROGRAMMABLE LOGIC CONTROLLER
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
RPZ	REDUCED PRESSURE ZONE
SPECS	SPECIFICATIONS
TBD	TO BE DETERMINED
T.O.C.	TOP OF CONCRETE
TYP.	TYPICAL
UV	ULTRAVIOLET
V	VERTICAL
VERT.	VERTICAL
YR	YEAR
ø	DIAMETER

REFERENCING

LIMITS OF SECTION CUT
SECTION IDENTIFIER
SECTION REFERENCES (SHEET SECTION IS LOCATED ON)

SECTION IDENTIFIER
SECTION: SECTION TITLE
SECTION REFERENCES (SHEET SECTION IS CALLED OUT)

DETAIL IDENTIFIER
DETAIL REFERENCES (SHEET DETAIL IS LOCATED ON)

DETAIL IDENTIFIER
DETAIL: DETAIL TITLE
DETAIL REFERENCES (SHEET DETAIL IS CALLED OUT)

GOPHER STATE ONE CALL
GOPHER STATE ONE CALL:
CALL BEFORE YOU DIG
1-800-252-1166

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PRINTED NAME KATHRYN M. WOLOHAN
SIGNATURE
DATE 2/9/2018 LICENSE # 54581

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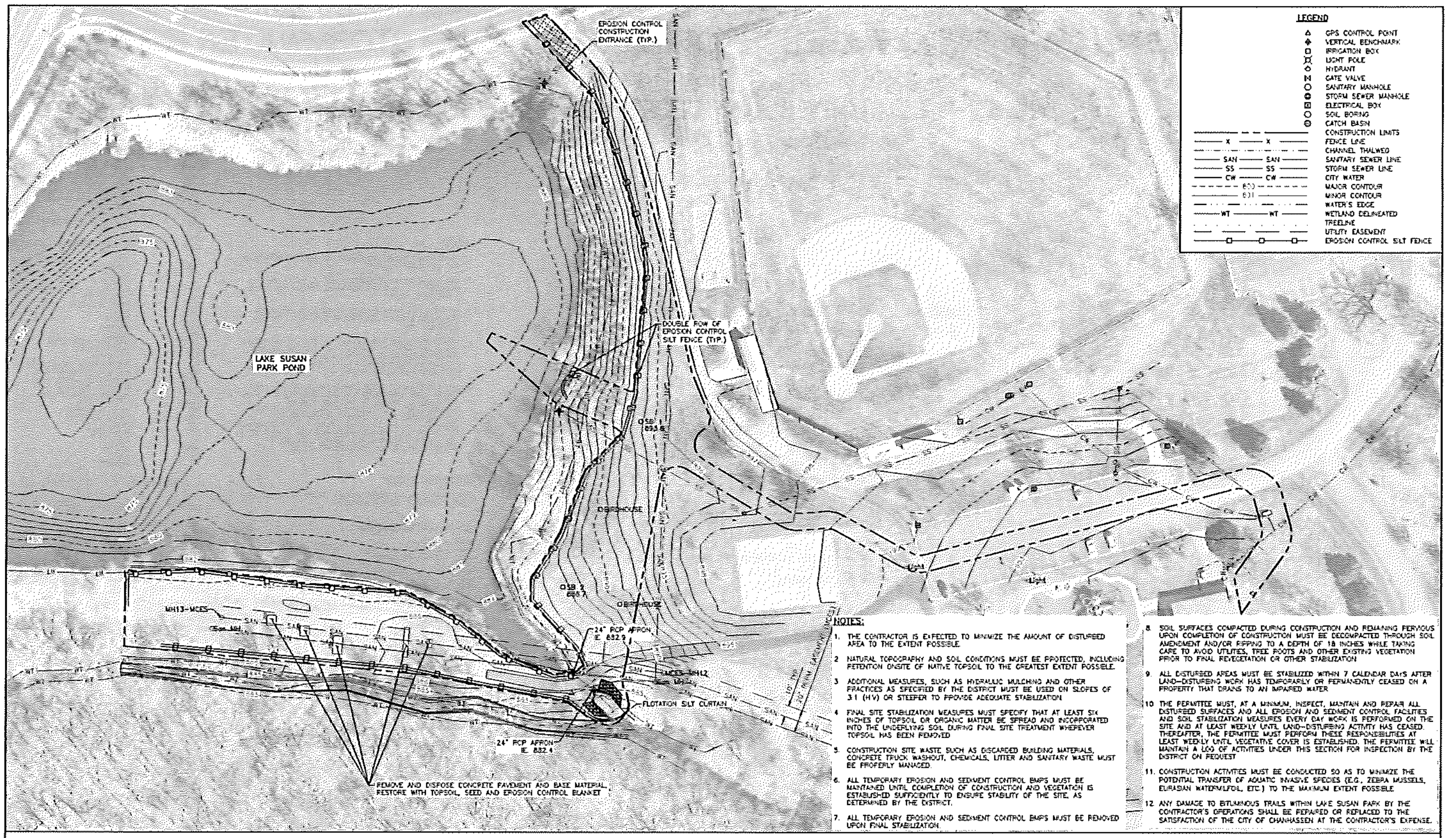
Scale	AS SHOWN
Date	10/11/2017
Drawn	GGN
Checked	KMB
Designed	BARR
Approved	KMB

RPBCWD
CHANHASSEN, MN

LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE

INDEX, LOCATION MAP AND VICINITY MAP

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. G-01
REV. No 0



LEGEND

- GPS CONTROL POINT
- VERTICAL BENCHMARK
- IRRIGATION BOX
- LIGHT POLE
- HYDRANT
- GATE VALVE
- SANITARY MANHOLE
- STORM SEWER MANHOLE
- ELECTRICAL BOX
- SOIL BORING
- CATCH BASIN
- CONSTRUCTION LIMITS
- FENCE LINE
- CHANNEL THALWEG
- SAN — SANITARY SEWER LINE
- SS — STORM SEWER LINE
- CW — CITY WATER
- 830 — MAJOR CONTOUR
- 831 — MINOR CONTOUR
- WATER'S EDGE
- WT — WETLAND DELINEATED
- TREELINE
- UTILITY EASEMENT
- EROSION CONTROL SILT FENCE

NOTES:

1. THE CONTRACTOR IS EXPECTED TO MINIMIZE THE AMOUNT OF DISTURBED AREA TO THE EXTENT POSSIBLE.
2. NATURAL TOPOGRAPHY AND SOIL CONDITIONS MUST BE PROTECTED, INCLUDING RETENTION ONSITE OF NATIVE TOPSOIL TO THE GREATEST EXTENT POSSIBLE.
3. ADDITIONAL MEASURES, SUCH AS HYDRAULIC MULCHING AND OTHER PRACTICES AS SPECIFIED BY THE DISTRICT MUST BE USED ON SLOPES OF 3:1 (H:V) OR STEEPER TO PROVIDE ADEQUATE STABILIZATION.
4. FINAL SITE STABILIZATION MEASURES MUST SPECIFY 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.
5. CONSTRUCTION SITE WASTE SUCH AS DISCARDED BUILDING MATERIALS, CONCRETE TRUCK WASHOUT, CHEMICALS, LITTER AND SANITARY WASTE MUST BE PROPERLY MANAGED.
6. ALL TEMPORARY EROSION 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.
7. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPS MUST BE REMOVED UPON FINAL STABILIZATION.
8. SOIL SURFACES COMPACTED DURING CONSTRUCTION AND REMAINING PERVIOUS UPON COMPLETION OF CONSTRUCTION MUST BE DECOMPACTED THROUGH SOIL AMENDMENT AND/OR RIPPING TO A DEPTH OF 18 INCHES WHILE TAKING CARE TO AVOID UTILITIES, TREE ROOTS AND OTHER EXISTING VEGETATION PRIOR TO FINAL REVEGETATION OR OTHER STABILIZATION.
9. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN 7 CALENDAR DAYS AFTER LAND-DISTURBING WORK HAS TEMPORARILY OR PERMANENTLY CEASED ON A PROPERTY THAT DRAINS TO AN IMPAIRED WATER.
10. THE PERMITTEE MUST, AT A MINIMUM, INSPECT, MAINTAIN AND REPAIR ALL DISTURBED SURFACES AND ALL EROSION 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.
11. CONSTRUCTION ACTIVITIES 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.
12. ANY DAMAGE TO BITUMINOUS TRAILS WITHIN LAKE SUSAN PARK BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE CITY OF CHANHASSEN AT THE CONTRACTOR'S EXPENSE.

1 PLAN VIEW
0 40 80
SCALE IN FEET

ISSUED FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	GGN	KMB	KMB	2/9/2018	ISSUED FOR CONSTRUCTION

PRINTED NAME KATHRYN M. WOLOHAN
DATE 2/9/2018 LICENSE # 54881

RELEASED TO/FOR: A B C 0 1 2 3 — DATE RELEASED

BARR
Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435 Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277

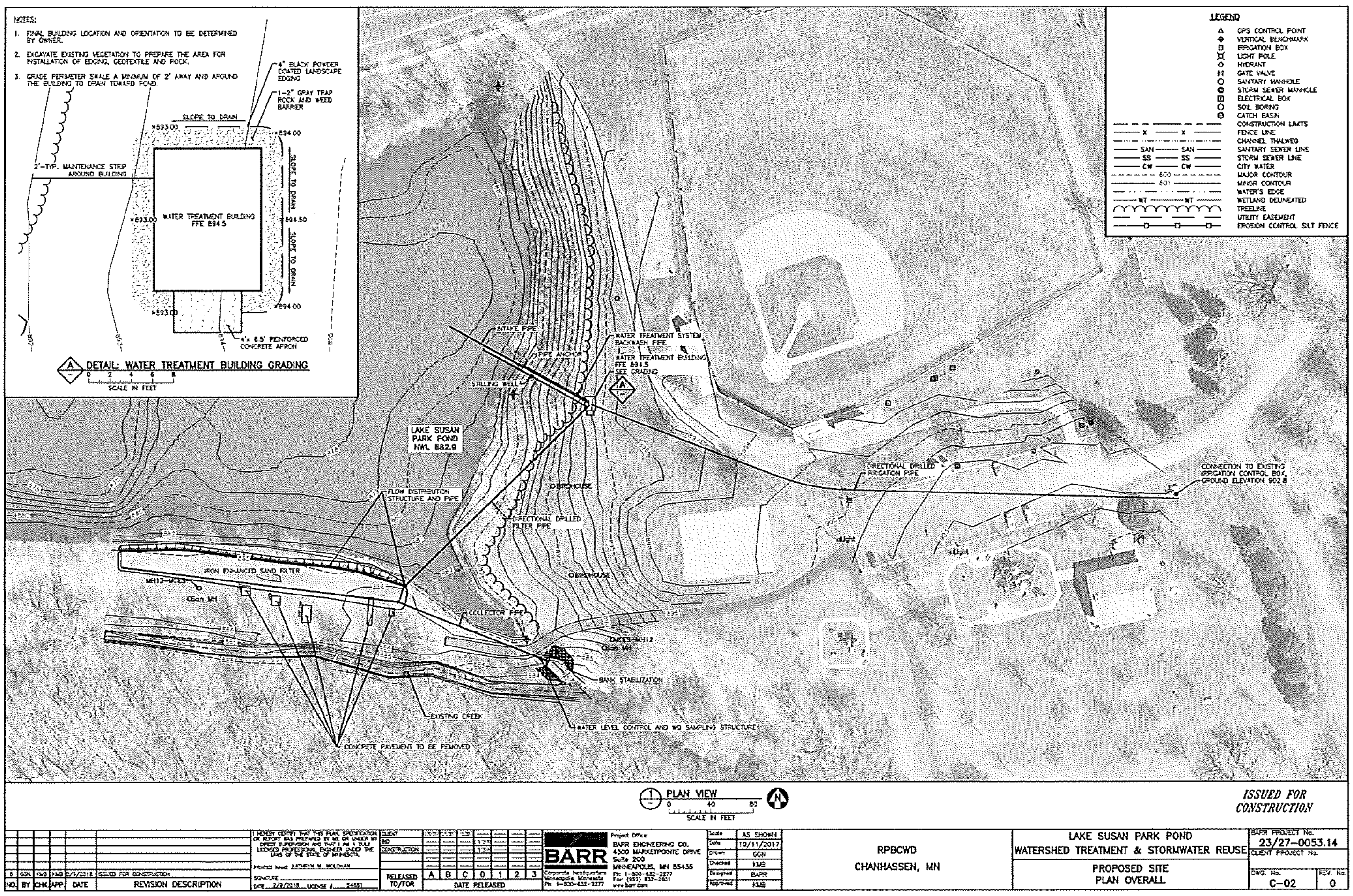
Scale	AS SHOWN
Date	10/11/2017
Drawn	GGN
Checked	KMB
Designed	BARR
Approved	KMB

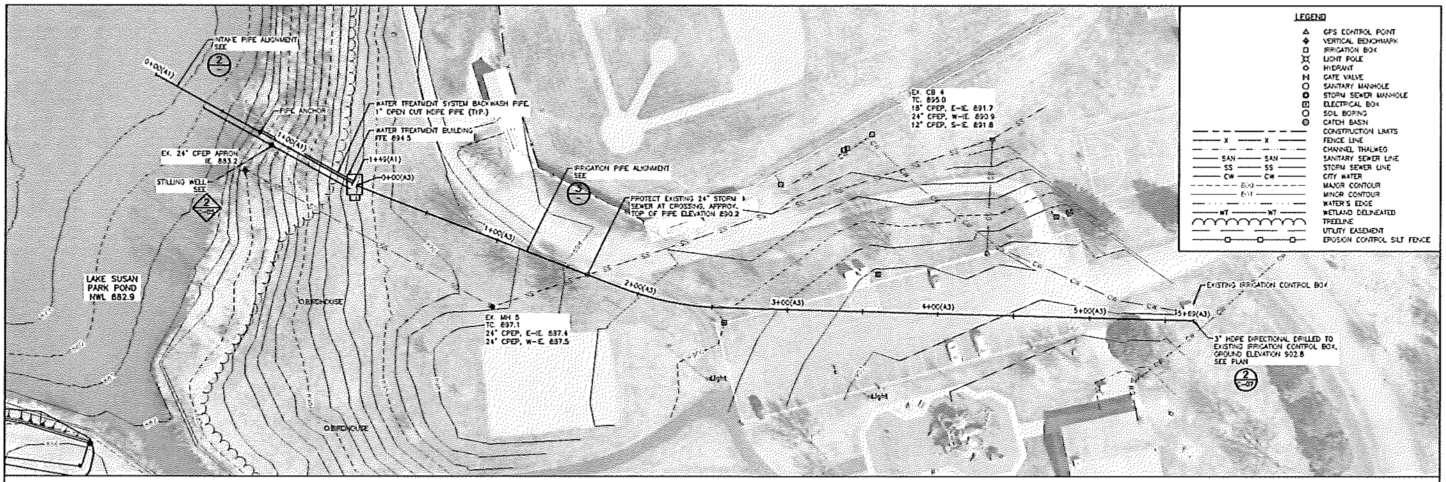
RPBCWD
CHANHASSEN, MN

LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE

EXISTING CONDITIONS, REMOVALS, AND EROSION CONTROL PLAN

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-01
REV. No. 0

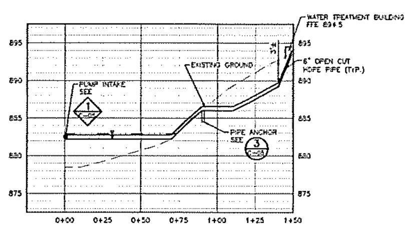

NOTES:
1. FINAL BUILDING LOCATION AND ORIENTATION TO BE DETERMINED BY OWNER.
2. EXCAVATE EXISTING VEGETATION TO PREPARE THE AREA FOR INSTALLATION OF EDGING, GEOTEXTILE AND ROCK.
3. GRADE PERIMETER SWALE A MINIMUM OF 2' AWAY AND AROUND THE BUILDING TO DRAIN TOWARD POND.
4" BLACK POWDER COATED LANDSCAPE EDGING
1-2" GRAY TRAP ROCK AND WEED BARRIER
SLOPE TO DRAIN
2'-TYP. MAINTENANCE STRIP AROUND BUILDING
WATER TREATMENT BUILDING FFE 894.5
4'x 6.5' REINFORCED CONCRETE APRON
DETAIL: WATER TREATMENT BUILDING GRADING
SCALE IN FEET
LEGEND
GPS CONTROL POINT
VERTICAL BENCHMARK
IRRIGATION BOX
LIGHT POLE
HYDRANT
GATE VALVE
SANITARY MANHOLE
STORM SEWER MANHOLE
ELECTRICAL BOX
SOIL BORING
CATCH BASIN
CONSTRUCTION LIMITS
FENCE LINE
CHANNEL THALWEG
SANITARY SEWER LINE
STORM SEWER LINE
CITY WATER
MAJOR CONTOUR
MINOR CONTOUR
WATER'S EDGE
WETLAND DELINEATED
TREELINE
UTILITY EASEMENT
EROSION CONTROL SILT FENCE
INTAKE PIPE
PIPE ANCHOR
STILLING WELL
WATER TREATMENT SYSTEM BACKWASH PIPE
WATER TREATMENT BUILDING FFE 894.5 SEE GRADING
LAKE SUSAN PARK POND NWL 882.9
FLOW DISTRIBUTION STRUCTURE AND PIPE
DIRECTIONAL DRILLED FILTER PIPE
DIRECTIONAL DRILLED IRRIGATION PIPE
CONNECTION TO EXISTING IRRIGATION CONTROL BOX, GROUND ELEVATION 902.8
IRON ENHANCED SAND FILTER
COLLECTOR PIPE
BANK STABILIZATION
EXISTING CREEK
WATER LEVEL CONTROL AND WQ SAMPLING STRUCTURE
CONCRETE PAVEMENT TO BE REMOVED
PLAN VIEW
SCALE IN FEET
ISSUED FOR CONSTRUCTION
0 GCN KMB KMB 2/9/2018 ISSUED FOR CONSTRUCTION
NO. BY CHK APP. DATE REVISION DESCRIPTION
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.
PRINTED NAME KATHRYN M. WOLOHAN
DATE 2/9/2018 LICENSE # 54551
RELEASED TO/FOR
A B C 0 1 2 3
DATE RELEASED
BARR
Project Office:
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
Suite 200
MINNEAPOLIS, MN 55435
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com
Scale AS SHOWN
Date 10/11/2017
Drawn GCN
Checked KMB
Designed BARR
Approved KMB
RPBCWD
CHANHASSEN, MN
LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE
PROPOSED SITE
PLAN OVERALL
BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-02
REV. No. 0


LEGEND
GPS CONTROL POINT
VERTICAL BENCHMARK
IRRIGATION BOX
LIGHT POLE
HYDRANT
GATE VALVE
SANITARY MANHOLE
STORM SEWER MANHOLE
ELECTRICAL BOX
SOIL BORING
CATCH BASIN
CONSTRUCTION LIMITS
FENCE LINE
CHANNEL THALWEG
SANITARY SEWER LINE
STORM SEWER LINE
CITY WATER
MAJOR CONTOUR
MINOR CONTOUR
WATER'S EDGE
WETLAND DELINEATED
TREELINE
UTILITY EASEMENT
EROSION CONTROL SILT FENCE
INTAKE PIPE ALIGNMENT SEE
PIPE ANCHOR
EX. 24" CPEP APRON IE. 883.2
STILLING WELL SEE
WATER TREATMENT SYSTEM BACKWASH PIPE, 1" OPEN CUT HDPE PIPE (TYP.)
WATER TREATMENT BUILDING FFE 894.5
IRRIGATION PIPE ALIGNMENT SEE
PROTECT EXISTING 24" STORM SEWER AT CROSSING, APPROX. TOP OF PIPE ELEVATION 890.2
LAKE SUSAN PARK POND NWL 882.9
EX. CB 4 TC. 895.0 18" CPEP, E-IE. 891.7 24" CPEP, W-IE. 890.9 12" CPEP, S-IE. 891.8
EX. MH 5 TC. 897.1 24" CPEP, E-IE. 887.4 24" CPEP, W-IE. 887.5
EXISTING IRRIGATION CONTROL BOX
3" HDPE DIRECTIONAL DRILLED TO EXISTING IRRIGATION CONTROL BOX, GROUND ELEVATION 902.8 SEE PLAN

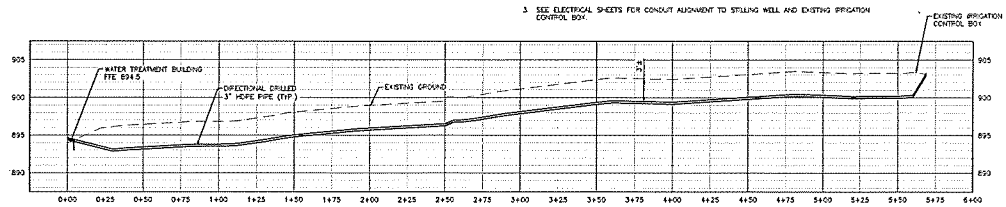
1 PLAN: PIPE LAYOUT
0 30 60 SCALE IN FEET

NOTES.

1. USE GALVANIZED STEEL FOR PIPE UNDER BUILDING SLAB. TRANSITION FROM HDPE WITH HDPE/PVC TRANSITION COUPLING 2 FEET OUTSIDE OF BUILDING SLAB.
2. INSTALL SCREEN FLUSH SUPPLY PIPE IN TRENCH BETWEEN TREATMENT ENCLOSURE AND PIPE ANCHOR BESIDE INTAKE PIPE.
3. SEE ELECTRICAL SHEETS FOR CONDUIT ALIGNMENT TO STILLING WELL AND EXISTING IRRIGATION CONTROL BOX.



2 PROFILE: INTAKE PIPE (A1)
0 30 60 HORIZONTAL SCALE IN FEET 0 6 12 VERTICAL SCALE IN FEET



3 PROFILE: IRRIGATION PIPE (A3)
0 30 60 HORIZONTAL SCALE IN FEET 0 6 12 VERTICAL SCALE IN FEET

ISSUED FOR CONSTRUCTION

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
0	GON	KMB	AMP	2/9/2018	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME ANNE M. PHARES
SIGNATURE
DATE LICENSE # 42022

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION
A B C 0 1 2 3
DATE RELEASED

BARR
Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435 Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277

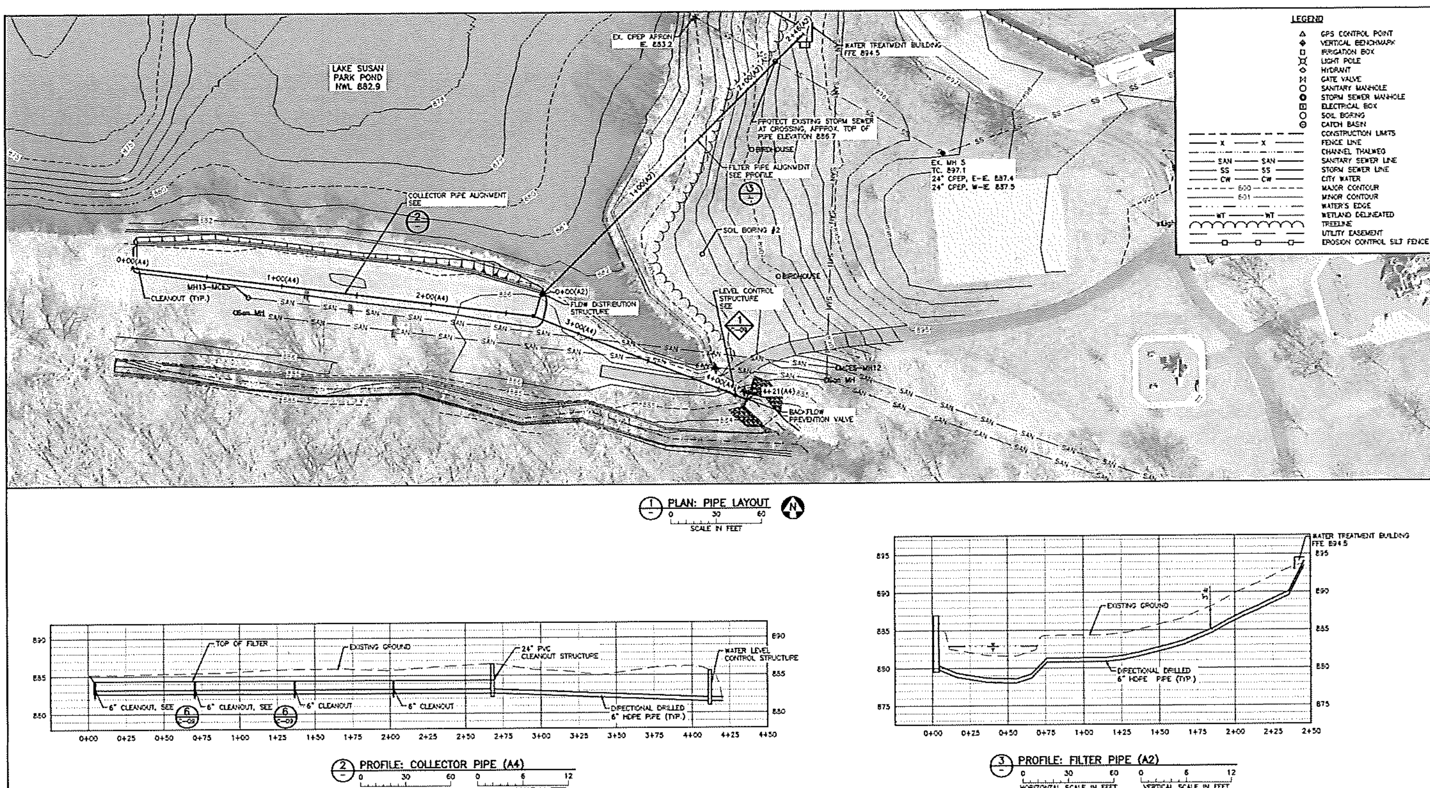
Scale	AS SHOWN
Date	10/11/2017
Drawn	GON
Checked	AMP
Designed	BARR
Approved	AMP

RPBCWD
CHANHASSEN, MN

LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE

PIPE LAYOUT
PLAN AND PROFILE

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-03
REV. No. 0



LEGEND
GPS CONTROL POINT
VERTICAL BENCHMARK
IRRIGATION BOX
LIGHT POLE
HYDRANT
GATE VALVE
SANITARY MANHOLE
STORM SEWER MANHOLE
ELECTRICAL BOX
SOIL BORING
CATCH BASIN
CONSTRUCTION LIMITS
FENCE LINE
CHANNEL THALWEG
SANITARY SEWER LINE
STORM SEWER LINE
CITY WATER
MAJOR CONTOUR
MINOR CONTOUR
WATER'S EDGE
WETLAND DELINEATED
TREELINE
UTILITY EASEMENT
EROSION CONTROL SILT FENCE
LAKE SUSAN PARK POND NWL 882.9
EX. CPEP APRON IE. 883.2
WATER TREATMENT BUILDING FFE 894.5
COLLECTOR PIPE ALIGNMENT SEE PROFILE
FILTER PIPE ALIGNMENT SEE PROFILE
SOIL BORING #2
CLEANOUT (TYP.)
FLOW DISTRIBUTION STRUCTURE
LEVEL CONTROL STRUCTURE SEE
BACKFLOW PREVENTION VALVE
PLAN: PIPE LAYOUT
SCALE IN FEET
PROFILE: COLLECTOR PIPE (A4)
TOP OF FILTER
EXISTING GROUND
24" PVC CLEANOUT STRUCTURE
WATER LEVEL CONTROL STRUCTURE
6" CLEANOUT
DIRECTIONAL DRILLED 6" HDPE PIPE (TYP.)
HORIZONTAL SCALE IN FEET
VERTICAL SCALE IN FEET
PROFILE: FILTER PIPE (A2)

ISSUED FOR CONSTRUCTION

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	GGN	HMB	HMB	2/3/2018	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME ANNE W. PHARES
SIGNATURE
DATE 2/3/2018 LICENSE # 42032

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION — A B C 0 1 2 3 — DATE RELEASED

BARR
Project Office: BARR ENGINEERING CO., 4300 MARKETPOINTE DRIVE, Suite 200, MINNEAPOLIS, MN 55435, Ph: 1-800-632-2277, Fax: (952) 832-2601, www.barr.com
Corporate Headquarters: Minneapolis, Minnesota, Ph: 1-800-632-2277

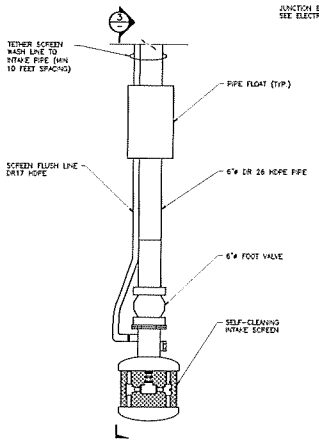
Scale	AS SHOWN
Date	10/11/2017
Drawn	GGN
Checked	AMP
Designed	BARR
Approved	AMP

RPBCWD
CHANHASSEN, MN

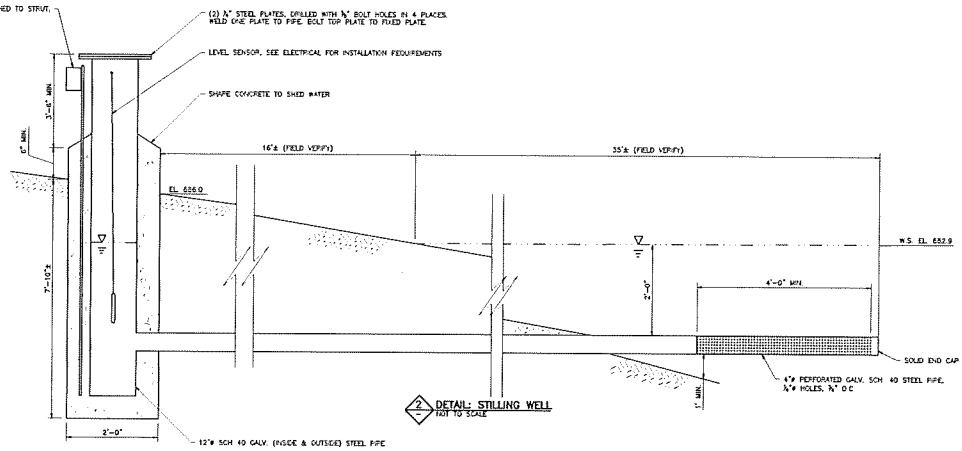
LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE

PIPE LAYOUT
PLAN AND PROFILE

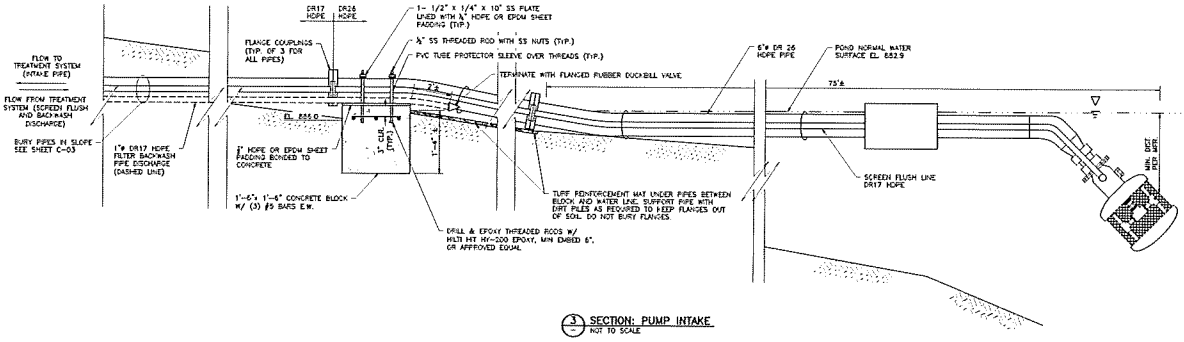
BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-04
REV. No. 0



1 DETAIL: PUMP INTAKE
NOT TO SCALE



2 DETAIL: STILLING WELL
NOT TO SCALE



3 SECTION: PUMP INTAKE
NOT TO SCALE

NOTES:

1. FIELD VERIFY ALIGNMENT OF PIPE AND WATER DEPTH AT INTAKE SCREEN. ADJUST ALIGNMENT AS REQUIRED TO PROVIDE MFR. MINIMUM REQUIRED SUBMERGENCE FOR SCREEN WHILE HOLDING SCREEN ABOVE POND BOTTOM
2. VERIFY SCREEN FLUSH SUPPLY AND FILTER BACKWASH SUPPLY PIPE SIZE WITH EQUIPMENT SUPPLIER.
3. PROVIDE ONE FLANGED JOINT AT THE MID-POINT OF EACH PIPE BETWEEN SHOREline AND SUCTION SCREEN TO ALLOW FOR REMOVAL AND STORAGE OF FLOATING PIPE. PROVIDE BLIND FLANGE AT JOINTS UPSTREAM OF PIPE ANCHOR FOR WINTER CLOSURE.

ISSUED FOR CONSTRUCTION

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	AMP	MJB	AMP	2/5/2018	ISSUED FOR CONSTRUCTION

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.

PRINTED NAME: ANDREW M. PHARES

SIGNATURE

DATE 2/5/2018 LICENSE # 52022

CLIENT REVIEW
PRELIMINARY
CONSTRUCTION

RELEASED TO/FOR

A	B	C	0	1	2	3
DATE RELEASED						

BARR

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BARR ENGINEERING CO.
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Minneapolis, Minnesota
Ph. 1-800-632-2277

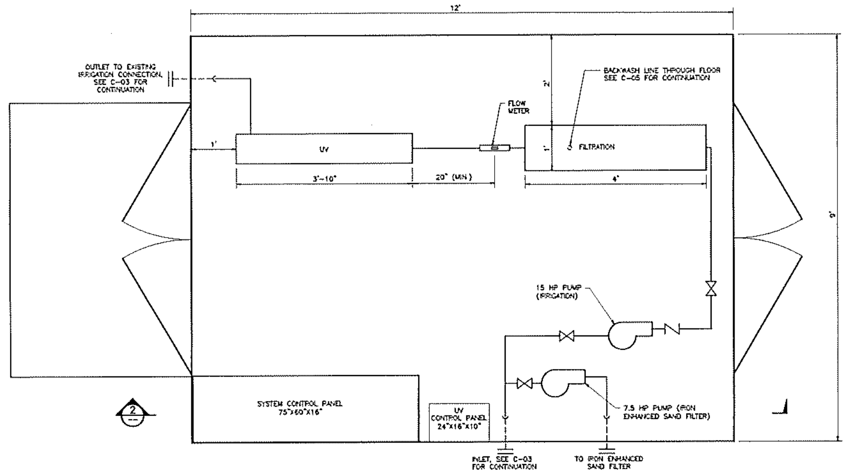
Scale	AS SHOWN
Date	10/19/2017
Drawn	AMP
Checked	JWB
Designed	AMP
Approved	AMP

RPBCWD
CHANHASSEN, MN

LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE

STILLING WELL AND INTAKE PIPING
PLANS, SECTIONS, AND DETAILS

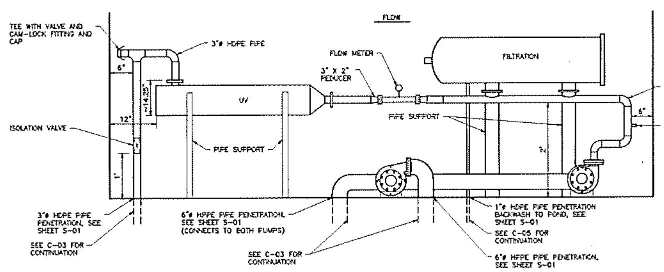
BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG No. C-05
REV. No 0


12'
9'
OUTLET TO EXISTING IRRIGATION CONNECTION, SEE C-03 FOR CONTINUATION
BACKWASH LINE THROUGH FLOOR SEE C-05 FOR CONTINUATION
FLOW METER
UV
FILTRATION
3'-10"
20" (MIN)
4'
15 HP PUMP (IRRIGATION)
7.5 HP PUMP (IRON ENHANCED SAND FILTER)
SYSTEM CONTROL PANEL 75"x60"x16"
UV CONTROL PANEL 24"x16"x10"
INLET, SEE C-03 FOR CONTINUATION
TO IRON ENHANCED SAND FILTER

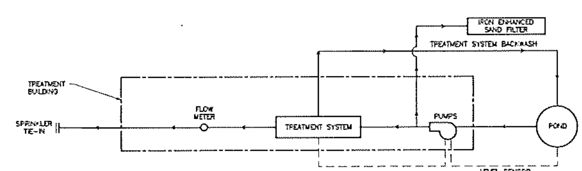
1 PLAN: TREATMENT SYSTEM BUILDING SCHEMATIC

SCALE IN FEET 0 1 2

NOTES:
1. FINAL PIPING AND EQUIPMENT DIMENSIONS ARE APPROXIMATE AND SUBJECT TO CHANGE PENDING FINAL EQUIPMENT SELECTION.
2. PIPE PENETRATIONS WILL BE DETERMINED BASED ON FINAL EQUIPMENT SELECTION.
3. SUPPORT EQUIPMENT AND PIPING PER MANUFACTURER RECOMMENDATIONS.


FLOW
TEE WITH VALVE AND CAM-LOCK FITTING AND CAP
3"Ø HDPE PIPE
FLOW METER
3" X 2" REDUCER
FILTRATION
UV
3"Ø PVC PIPE
1" BLOW OUT WITH PLUG
ISOLATION VALVE
PIPE SUPPORT
3"Ø HDPE PIPE PENETRATION, SEE SHEET S-01
SEE C-03 FOR CONTINUATION
6"Ø HDPE PIPE PENETRATION, SEE SHEET S-01 (CONNECTS TO BOTH PUMPS)
1"Ø HDPE PIPE PENETRATION BACKWASH TO POND, SEE SHEET S-01
SEE C-05 FOR CONTINUATION
6"Ø HDPE PIPE PENETRATION, SEE SHEET S-01

2 SECTION: TREATMENT SYSTEM BUILDING
NOT TO SCALE



3 PROCESS FLOW DIAGRAM: TREATMENT SYSTEM
NO SCALE

ISSUED FOR CONSTRUCTION

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	FLG	KMB	MES	2/3/2018	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME KATHRYN M. WOLOHAN
SIGNATURE ______
DATE 2/2/2018 LICENSE # 54881

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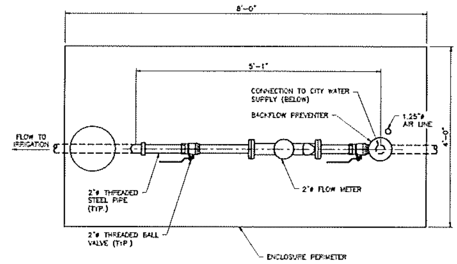
Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com

Scale	AS SHOWN
Date	10/17/2017
Drawn	FLG
Checked	KMB
Designed	KMB
Approved	MAS

RPBCWD
CHANHASSEN, MN

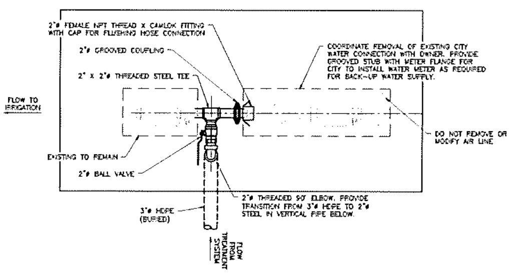
LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE
WATER TREATMENT SYSTEM
PLAN, SECTION, AND PROCESS FLOW DIAGRAM

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-06
REV. No. 0



(1) PLAN: EXISTING IRRIGATION CONNECTION BOX

SCALE IN FEET (0, 1, 2)


2"ø FEMALE NPT THREAD X CAMLOK FITTING WITH CAP FOR FLUSHING HOSE CONNECTION
2"ø GROOVED COUPLING
2" x 2"ø THREADED STEEL TEE
COORDINATE REMOVAL OF EXISTING CITY WATER CONNECTION WITH OWNER. PROVIDE GROOVED STUB WITH METER FLANGE FOR CITY TO INSTALL WATER METER AS REQUIRED FOR BACK-UP WATER SUPPLY.
FLOW TO IRRIGATION
DO NOT REMOVE OR MODIFY AIR LINE
EXISTING TO REMAIN
2"ø BALL VALVE
2"ø THREADED 90° ELBOW. PROVIDE TRANSITION FROM 3"ø HDPE TO 2"ø STEEL IN VERTICAL PIPE BELOW.
3"ø HDPE (BURIED)
FLOW FROM TREATMENT SYSTEM

(2) PLAN: IRRIGATION CONNECTION BOX MODIFICATIONS

SCALE IN FEET (0, 1, 2)

NOTES:

1. EXISTING CITY WATER CONNECTION BOX LAYOUT SHOWN IS APPROXIMATE. FIELD VERIFY LAYOUT, DIMENSIONS AND PIPE SIZES. PIPE ASSEMBLY IS APPROXIMATELY 21" ABOVE GRADE.
2. PROTECT EXISTING EQUIPMENT. REPLACE EQUIPMENT DAMAGED BY CONTRACTOR DURING CONSTRUCTION WITH NEW EQUIPMENT IN-KIND AT NO COST TO OWNER.
3. SUBMIT CHANGES TO MODIFIED LAYOUT SHOWN FOR ENGINEER APPROVAL PRIOR TO EXECUTION.

ISSUED FOR CONSTRUCTION

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	AMP	KMB	AMP	2/9/2018	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME ANNE M. PHARES
SIGNATURE
DATE 2/9/2018 LICENSE # 47022

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION — DATE RELEASED: A B C 0 1 2 3

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Project Office: BARR ENGINEERING CO., 4300 MARKETPOINTE DRIVE, Suite 200, MINNEAPOLIS, MN 55435
Ph: 1-800-632-2277
Corporate Headquarters: Minneapolis, Minnesota
Ph: 1-800-632-2277, Fax: (952) 832-2601, www.barr.com

Scale	AS SHOWN
Date	11/22/2017
Drawn	AMP
Checked	KMB
Designed	BARR
Approved	

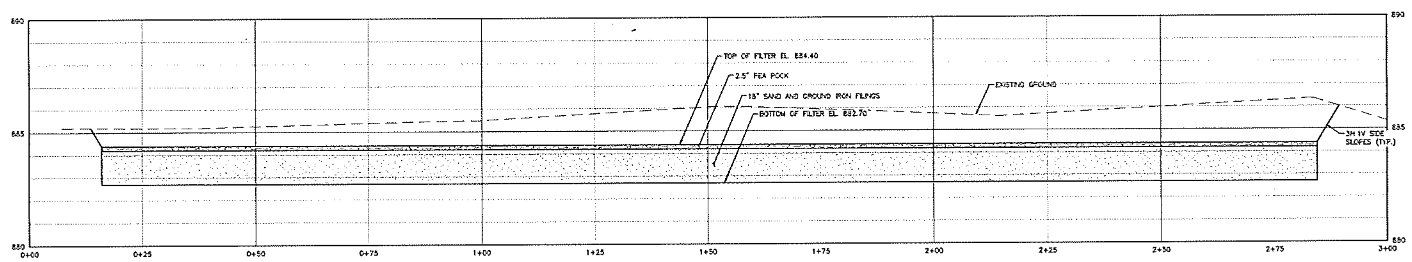
RPBCWD
CHANHASSEN, MN

LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE
IRRIGATION BOX PIPE MODIFICATIONS
PLANS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-07
REV. No. 0

1 PLAN: IRON ENHANCED SAND FILTER

0 10 20 SCALE IN FEET



2 SECTION: IRON ENHANCED SAND FILTER (TYP.)

0 10 20 HORIZONTAL SCALE IN FEET | 0 1 2 3 4 VERTICAL SCALE IN FEET

ISSUED FOR CONSTRUCTION

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	GGN	KMB	KMB	2/9/2018	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME GREGORY J. WILSON
SIGNATURE
DATE 2/9/2018 LICENSE # 25792

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION | A B C 0 1 2 3 | DATE RELEASED

BARR
Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435 Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277

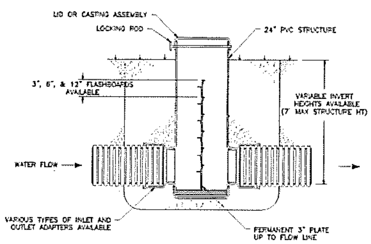
Scale	AS SHOWN
Date	10/11/2017
Drawn	GGN
Checked	GJW
Designed	BARR
Approved	GJW

RPBCWD
CHANHASSEN, MN

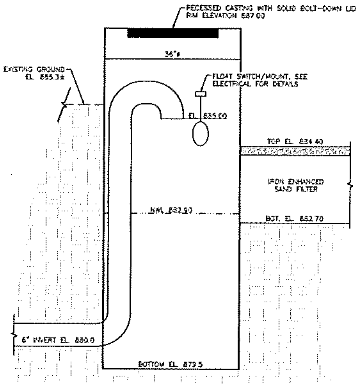
LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE

IRON ENHANCED SAND FILTER
PLANS, SECTIONS, AND DETAILS

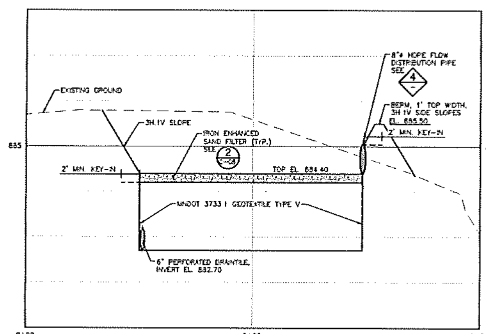
BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-08
REV. No. 0



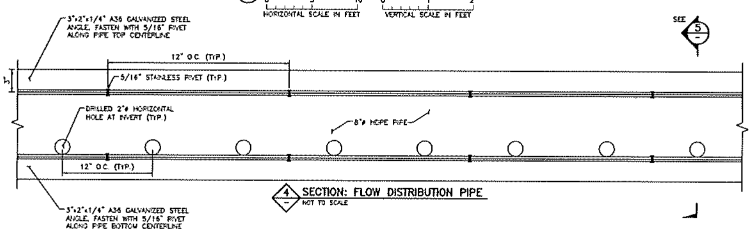
1 DETAIL: WATER LEVEL CONTROL STRUCTURE
NOT TO SCALE



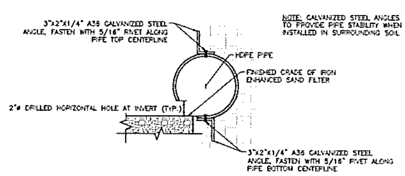
2 SECTION: FLOW DISTRIBUTION STRUCTURE
0 3" 6" 9" 1' 2' 3'
SCALE


EXISTING GROUND
3H:1V SLOPE
IRON ENHANCED SAND FILTER (TYP.) SEE 2 C-09
2' MIN. KEY-IN
TOP EL. 834.40
MNDOT 3733 I GEOTEXTILE TYPE V
6" PERFORATED DRAINTILE, INVERT EL. 832.70
8"⌀ HDPE FLOW DISTRIBUTION PIPE SEE 4
BERM, 1' TOP WIDTH, 3H:1V SIDE SLOPES EL. 855.50
2' MIN. KEY-IN
885
885
0+00
0+25
0+50

3 SECTION: IRON ENHANCED SAND FILTER
0 5 10 HORIZONTAL SCALE IN FEET
0 1 2 VERTICAL SCALE IN FEET

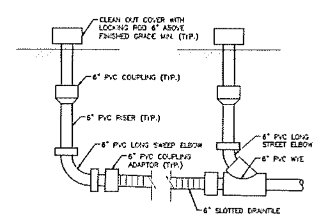

3"x2"x1/4" A36 GALVANIZED STEEL ANGLE, FASTEN WITH 5/16" RIVET ALONG PIPE TOP CENTERLINE
12" O.C. (TYP.)
5/16" STAINLESS RIVET (TYP.)
DRILLED 2"⌀ HORIZONTAL HOLE AT INVERT (TYP.)
8"⌀ HDPE PIPE
12" O.C. (TYP.)
3"x2"x1/4" A36 GALVANIZED STEEL ANGLE, FASTEN WITH 5/16" RIVET ALONG PIPE BOTTOM CENTERLINE
SEE 5

4 SECTION: FLOW DISTRIBUTION PIPE
NOT TO SCALE


3"x2"X1/4" A36 GALVANIZED STEEL ANGLE, FASTEN WITH 5/16" RIVET ALONG PIPE TOP CENTERLINE
HDPE PIPE
FINISHED GRADE OF IRON ENHANCED SAND FILTER
2"⌀ DRILLED HORIZONTAL HOLE AT INVERT (TYP.)
3"x2"X1/4" A36 GALVANIZED STEEL ANGLE, FASTEN WITH 5/16" RIVET ALONG PIPE BOTTOM CENTERLINE

NOTE: GALVANIZED STEEL ANGLES TO PROVIDE PIPE STABILITY WHEN INSTALLED IN SURROUNDING SOIL

5 SECTION: FLOW DISTRIBUTION PIPE
NOT TO SCALE



6 SECTION: COLLECTOR PIPE CLEANOUT
NOT TO SCALE

ISSUED FOR CONSTRUCTION

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	GGN	KMB	KMB	2/3/2018	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME GREGORY J. WILSON
SIGNATURE
DATE 2/3/2018 LICENSE # 25782

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION — A B C 0 1 2 3 — DATE RELEASED

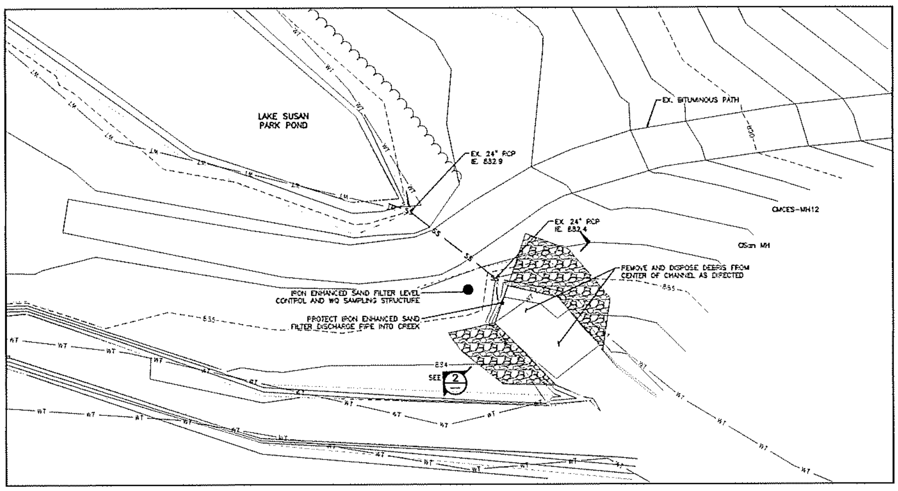
BARR
Project Office: BARR ENGINEERING CO., 4300 MARKETPOINTE DRIVE, Suite 200, MINNEAPOLIS, MN 55435, Ph: 1-800-632-2277, Fax: (952) 832-2601, www.barr.com
Corporate Headquarters: Minneapolis, Minnesota, Ph: 1-800-632-2277

Scale	AS SHOWN
Date	10/11/2017
Drawn	GGN
Checked	GJW
Designed	BARR
Approved	GJW

RPBCWD
CHANHASSEN, MN

LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE
IRON ENHANCED SAND FILTER
SECTIONS, AND DETAILS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-09
REV. No. 0

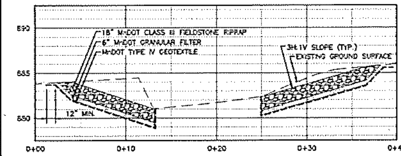


① PLAN: BANK STABILIZATION

0 10 20 SCALE IN FEET

LEGEND

△	GPS CONTROL POINT
◆	VERTICAL BENCHMARK
□	IRRIGATION BOX
☒	LIGHT POLE
○	HYDRANT
⋈	GATE VALVE
○	SANITARY MANHOLE
○	STORM SEWER MANHOLE
⊠	ELECTRICAL BOX
○	SOIL BORING
○	CATCH BASIN
— — —	CONSTRUCTION LIMITS
—— X —— X ——	FENCE LINE
—·—·—	CHANNEL THALWEG
—— SAN —— SAN ——	SANITARY SEWER LINE
—— SS —— SS ——	STORM SEWER LINE
—— CW —— CW ——	CITY WATER
- - - 800 - - -	MAJOR CONTOUR
——— 801 ———	MINOR CONTOUR
—·—·—	WATER'S EDGE
—— WT —— WT ——	WETLAND DELINEATED
⌒⌒⌒⌒	TREELINE
————	UTILITY EASEMENT
——□——□——□——	EROSION CONTROL SILT FENCE



NOTE:

1. FIELDSTONE RIPRAP REQUIRED. LIMESTONE OR DOLOMITE MATERIALS WILL NOT BE SUBSTITUTED.

② SECTION: RIPRAP AND FILTER

0 5 10 SCALE IN FEET

ISSUED FOR CONSTRUCTION

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
0	GON	JWB	JWB	2/2/2018	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME JEFFREY D. WEISS
SIGNATURE
DATE 2/2/2018 LICENSE # 43531

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION — DATE RELEASED: A B C 0 1 2 3

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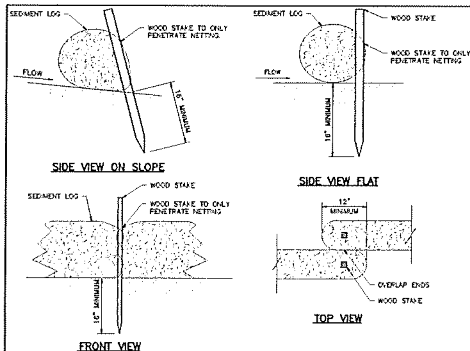
Corporate Headquarters: Minneapolis, Minnesota, Ph: 1-800-632-2277, Fax: (952) 832-2601, www.barr.com

Scale	AS SHOWN
Date	10/11/2017
Drawn	GON
Checked	JDW
Designed	BARR
Approved	JDW

RPBCWD
CHANHASSEN, MN

LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE
RILEY CREEK BANK STABILIZATION
PLANS, SECTIONS, AND DETAILS

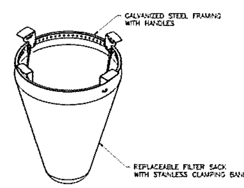
BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-10
REV. No. 0



NOTES:

1. INSTALL SEDIMENT LOG ALONG CONTOURS (CONSTANT ELEVATION)
2. NO GAPS SHALL BE PRESENT UNDER SEDIMENT LOG. PREPARE AREA AS NEEDED TO SMOOTH SURFACE OR REMOVE DEBRIS.
3. REMOVE ACCUMULATED SEDIMENT WHEN REACHING 1/3 OF LOG HEIGHT.
4. MAINTAIN SEDIMENT LOG THROUGHOUT THE CONSTRUCTION PERIOD AND REPAIR OR REPLACED AS REQUIRED

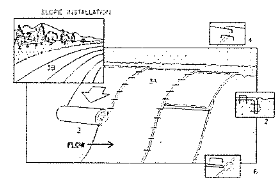
1 / C-01 DETAIL: EROSION LOG – STAKING
NOT TO SCALE



NOTES:

1. INSTALL INLET PROTECTION PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED OR IMMEDIATELY FOLLOWING ANY CATCHBASIN INSTALLATION AND MAINTAIN THROUGHOUT THE CONSTRUCTION PERIOD.
2. MATERIALS SHALL BE SUFFICIENT TO ALLOW FLOW WHILE BLOCKING SEDIMENT. NO HOLES OR GAPS SHALL BE PRESENT IN/AROUND FILTER SACK.
3. CLEAN FILTER SACK AND REMOVE ACCUMULATED SEDIMENT AS REQUIRED TO ALLOW FLOW INTO THE CATCHBASIN AND PREVENT SEDIMENT FROM LEAVING THE DEVICE.
4. REMOVE DEVICE AND ANY ACCUMULATED SEDIMENT IN CONJUNCTION WITH THE FINAL GRADING AND SITE STABILIZATION

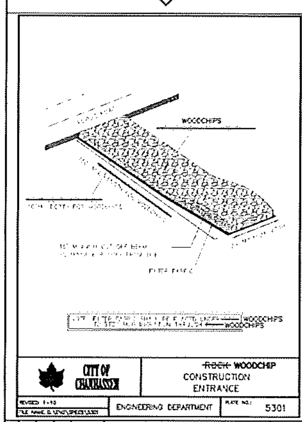
2 / C-01 DETAIL: INLET PROTECTION – FILTER SACK
NOT TO SCALE

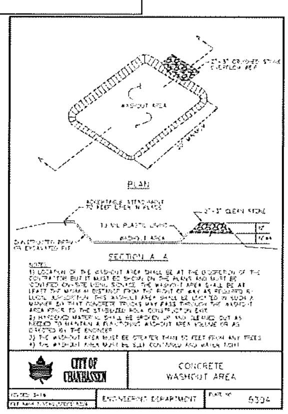


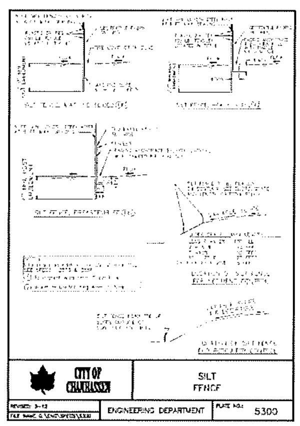
NOTES:

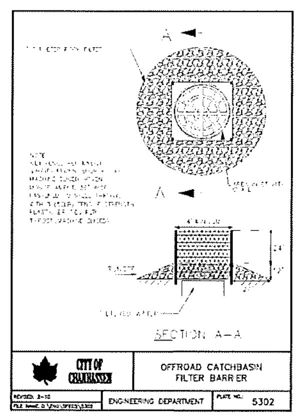
1. REFER TO MANUFACTURER RECCOMMENDATIONS FOR STAPLE PATTERNS FOR SLOPE INSTALLATIONS.
2. PREPARE SOIL BY LOOSENING TOP 1–2 INCHES AND APPLY SEED (AND FERTILIZER WHERE REQUIRED) PRIOR TO INSTALLING BLANKETS. GROUND SHOULD BE SMOOTH AND FREE OF DEBRIS.
3. BEGIN (A) AT THE TOP OF THE SLOPE AND ROLL THE BLANKETS DOWN OR (B) AT ONE END OF THE SLOPE AND ROLL THE BLANKETS HORIZONTALLY ACROSS THE SLOPE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 6" OVERLAP, WITH THE UPHILL BLANKET ON TOP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 6" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART.
6. BLANKET MATERIALS SHALL BE AS SPECIFIED OR AS APPROVED BY ENGINEER.

3 / C-01 DETAIL: EROSION CONTROL BLANKET – INSTALLATION
NOT TO SCALE









ISSUED FOR CONSTRUCTION

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	CON	KMB	KMB	2/9/2015	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME: GREGORY J. WILSON
SIGNATURE
DATE: 2/3/2015 LICENSE #: 25782

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Corporate Headquarters: Minneapolis, Minnesota, Ph: 1-800-632-2277

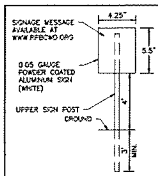
Scale	AS SHOWN
Date	10/11/2017
Drawn	CON
Checked	GJW
Designed	BARR
Approved	GJW

RPBCWD
CHANHASSEN, MN

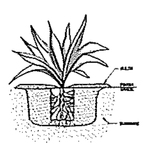
LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE

EROSION CONTROL DETAILS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-11 | REV. No. 0



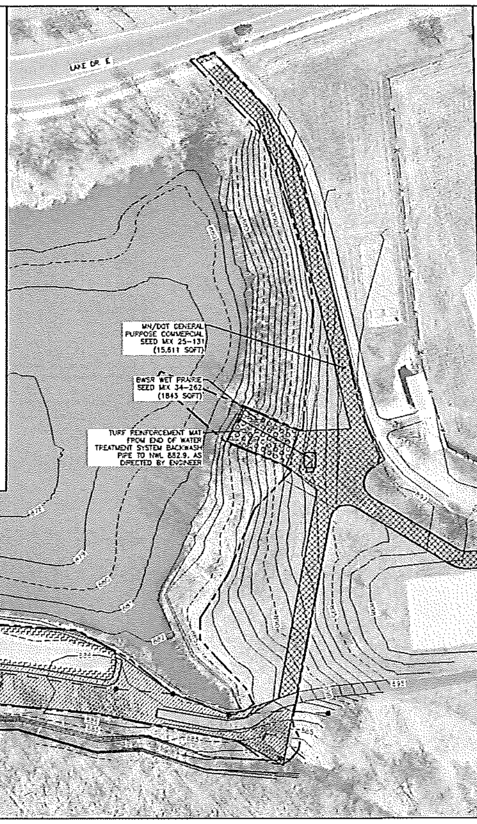
DETAIL 1: BUFFER SIGN INSTALLATION
NOT TO SCALE



DETAIL 2: HERBACEOUS PLUG
NOT TO SCALE

HERBACEOUS PLUG PLANTING NOTES

1. PREPARE SOIL WITH COMPOST AMENDMENT PER PLAN.
2. PROVIDE AND INSTALL PLANTS PER SCHEDULE.
3. EXCAVATE HOLE 3 TIMES WIDTH OF ROOTBALL.
4. BREAK BOTTOM OF ROOTBALL TO LOOSEN ROOTS.
5. PLANT THROUGH MULCH ALIGNING ROOTBALL TOP EVEN WITH SOIL – DO NOT PLANT TOO DEEP OR TOO SHALLOW. FIRM SOIL TO ENSURE GOOD CONTACT WITH ROOTS.
6. APPLY 3" DEPTH SHREDDED HARDWOOD MULCH TO ENTIRE PLANTING AREA (SOIL PREPARED AS PER SPECIFICATIONS).
7. NO MULCH TO BE IN CONTACT WITH PLANT.
8. WATER THOROUGHLY AFTER PLANTING.
9. HERBACEOUS PLANTS SHALL BE GUARANTEED FOR 60 DAYS FROM TIME OF OWNER ACCEPTANCE. CONTRACTOR TO WATER AS NECESSARY TO MAINTAIN IN A HEALTHY CONDITION AT THE END OF THIS PERIOD ANY DEAD PLANTS SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.



MN/DOT GENERAL PURPOSE COMMERCIAL TURF SEED MIX 25-131. SEED AT A RATE OF 220 LBS/ACRE. SEED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3876

BWSR WET PRAIRIE SEED MIX 34-262. SEED GRASSES AT A RATE OF 6.50 LBS/AC, SEED SEDGES AND RUSHES AT A RATE OF .30 LBS/AC, SEED FORBS AT A RATE OF 1.50 LBS/AC, AND COVER CROP AT 10 LBS/AC. SEED IN ACCORDANCE TO MN/DOT STANDARD SPECIFICATION 3876

BWSR MESIC PRAIRIE SOUTHEAST SEED MIX 35-641. SEED GRASSES AT A RATE OF 7.70 LBS/AC, SEED FORBS AT A RATE OF 1.60 LBS/AC, AND COVER CROP AT 10 LBS/AC. SEED IN ACCORDANCE TO MN/DOT STANDARD SPECIFICATION 3876

PRAIRIE CORDGRASS PLUGS AND NATIVE GRASSES SEED MIX, SEE PLANTING SCHEDULE BELOW.

LEGEND

- GPS CONTROL POINT
- VERTICAL BENCHMARK
- IRRIGATION BOX
- LIGHT POLE
- HYDRANT
- GATE VALVE
- SANITARY MANHOLE
- STORM SEWER MANHOLE
- ELECTRICAL BOX
- SOIL BORING
- CATCH BASIN
- CONSTRUCTION LIMITS
- FENCE LINE
- CHANNEL THALWEG
- SANITARY SEWER LINE
- STORM SEWER LINE
- CITY WATER
- MAJOR CONTOUR
- MINOR CONTOUR
- WATER'S EDGE
- WETLAND DELINEATED
- TREELINE
- UTILITY EASEMENT
- EROSION CONTROL SILT FENCE
- RPBCWD BUFFER BOUNDARY
- RPBCWD BUFFER BOUNDARY MARKER

PLANTING SCHEDULE

Common Name	Scientific Name	Quant.	Spacing	Size
Grasses				
Prairie Cordgrass	*Spartina pectinata*	354	3' o.c.	Plugs

Native Grasses Seed Mix - Seeding Rate = 10lbs/ac		
Common Name	**Scientific Name**	**Percent of Mix**
Little Bluestem	*Schizachyrium scoparium*	25
Side Oats Grama	*Bouteloua curtipendula*	50
Nodding Wild Rye	*Elymus trachycaulus*	25

PLANTING NOTES:

1. CONTRACTOR SHALL COORDINATE LAYOUT OF ALL PLANTS WITH DIRECTION OF LANDSCAPE ARCHITECT IN THE FIELD.
2. CONTRACTOR WILL BE RESPONSIBLE FOR WATERING PLUGS (REGARDLESS OF NOTIFICATION) DURING ENTIRE WARRANTY PERIOD. WATERING WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
3. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION. IN THE CASE OF ANY DISCREPANCIES BETWEEN THIS DETAILS, PLANS, OR SPECIFICATIONS, THE SPECIFICATIONS SHALL GOVERN.

BUFFER ZONE SIGN NOTES:

1. BUFFER ZONE WILL BE INDICATED BY SIX (6) PERMANENT, FREE-STANDING MARKERS, PROVIDED BY THE CONTRACTOR, AT THE UPLAND EDGE, IN MATERIAL CONFORMITY WITH A DESIGN AND TEXT PROVIDED BY THE DISTRICT.
2. A MARKER WILL BE PLACED AT EACH END OF BUFFER, WITH ADDITIONAL MARKERS AT AN INTERVAL OF NO MORE THAN 200 FEET, AS SHOWN ON LANDSCAPE PLAN.
3. BOLTS SHALL BE TAMPER PROOF.
4. POSTS SHALL BE PAINTED GREEN, 3LB/FT
5. CONTRACTOR TO OBTAIN SIGN DESIGN FROM BARR PRIOR TO MAKING SIGNS.

PLAN 1: LANDSCAPE RESTORATION
0 40 80
SCALE IN FEET

ISSUED FOR CONSTRUCTION

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
0	CGN	KMB	KMB	2/9/2018	ISSUED FOR CONSTRUCTION

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PRINTED NAME FRED J. ROZUMALSKI
SIGNATURE
DATE 2/9/2018 LICENSE # 26159

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION — A B C 0 1 2 3 — DATE RELEASED

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Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277

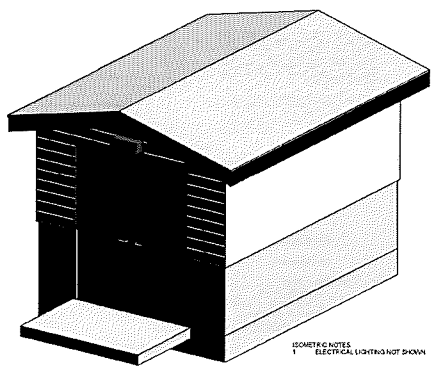
Scale	AS SHOWN
Date	10/11/2017
Drawn	WMB
Checked	FJR
Designed	BARR
Approved	FJR

RPBCWD
CHANHASSEN, MN

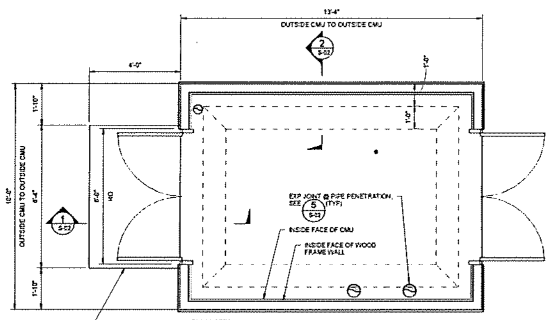
LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE

LANDSCAPE RESTORATION PLAN

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. L-01
REV. No. 0



① ISOMETRIC: PUMP STATION

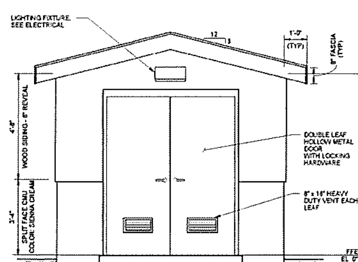


PLAN NOTES
1 PUMPS AND PIPING NOT SHOWN. SEE MECHANICAL
2 VERIFY THE SIZE AND LOCATION OF ALL SLAB PENETRATIONS WITH EQUIPMENT VENDOR PRIOR TO POURING FLOOR SLAB
3 SEE C-02 FOR WATER TREATMENT PLANT LOCATION, ORIENTATION AND LOCAL FINE GRADING
4 SEE C-08 FOR WATER TREATMENT BUILDING PIPE PENETRATIONS
5 ROTATE ORIENTATION BY 180° AT OWNER'S DIRECTION

② PLAN: WATER TREATMENT BUILDING
1/2" = 1'-0"

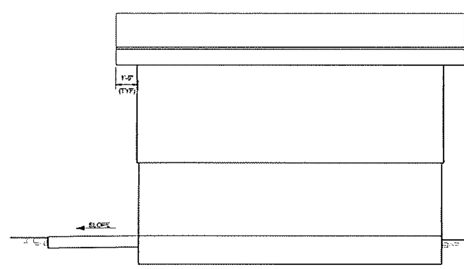
GENERAL STRUCTURAL NOTES

1. THESE NOTES ARE COMPLEMENTARY TO THE SPECIFICATIONS AND DRAWINGS AND REPRESENT MINIMUM REQUIREMENTS. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
   a. CONCRETE SPECIFICATION SECTION 03 20 00 (CONCRETE REINFORCEMENT), 03 30 00 (CAST-IN-PLACE CONCRETE)
   b. CMU SPECIFICATION SECTION 04 05 13 (MORTAR) 04 05 16 (GROUT) 04 20 00 (BLOCKS)
   c. WOOD BUILDING SPECIFICATION SECTION 13 34 16 (WOOD FRAME BUILDING SYSTEM)
   d. METAL DOORS: 08 11 13 (HOLLOW METAL DOORS AND FRAMES) 08 70 00 (DOOR HARDWARE)
2. DO NOT SCALE DRAWINGS
3. THE STRUCTURAL DRAWINGS REPRESENT THE FINISHED STRUCTURE AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION
4. PERFORM WORK IN COMPLIANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES AND REGULATIONS
5. 2006 INTERNATIONAL BUILDING CODE AND REFERENCED STANDARDS WITH 2007 MINNESOTA BUILDING CODE AMENDMENTS
6. DESIGN LOADS
   a. DEAD LOAD
      i. COLLATERAL LOAD = 10 PSF
   b. SNOW LOAD
      i. GROUND SNOW (Pg) = 50 PSF
      ii. FLAT ROOF SNOW (Pf) = 38 PSF
      iii. EXPOSURE FACTOR (Ce) = 0.9
      iii. IMPORTANCE FACTOR (I) = II
      iv. THERMAL FACTOR (Ct) = 1.2 (UNHEATED)
   c. WIND LOAD
      i. ULTIMATE DESIGN WIND SPEED (3-SECOND GUST) (VULT) = 115 MPH
      ii. NOMINAL DESIGN WIND SPEED (VASD) = 90 MPH
      iii. RISK CATEGORY = II
      iii. EXPOSURE CATEGORY = C
7. GEOTECHNICAL INFORMATION
   a. BARR ENGINEERING COMPANY, BORING LOGS B-01-17 AND B-02-17 OBTAINED BY STS ON 10/12/2017.
8. SURVEY
   a. EXISTING TOPOGRAPHY SHOWN BASED ON SELECTED SURVEYS PERFORMED BY:
      i. BARR ENGINEERING COMPANY, DATED 09/21/2017
   b. DATUM SUMMARY:
      i. VERTICAL DATUM - NORTH AMERICAN VERTICAL DATUM (NAVD88)
      ii. HORIZONTAL DATUM - NAD83 (2011)
      iii. REFERENCE - HASSEN MNDOT
      iii. COORDINATE SYSTEM - CARVER COUNTY
9. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 4,500 PSI
10. REINFORCING BARS: ASTM A615, A706, OR A996 (TYPE R), A970, GRADE 60
11. CONCRETE MASONRY UNITS
   a. MORTAR TYPE: S
   b. GROUT COMPRESSIVE STRENGTH: 3,000 PSI
   c. CMU: ASTM C90, SPLIT FACE
   d. CMU F'm: 2,000 PSI
   e. REINFORCING STEEL: ASTM A615, 60 KSI
12. FFE = 894.5'. ALL ELEVATIONS SHOWN ON THIS DRAWING SHEET ASSUME FFE = 0'-0" AND ARE +/- FROM THERE

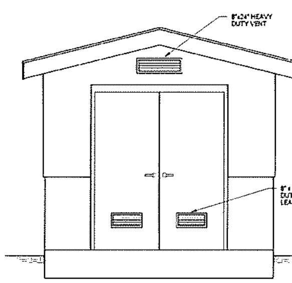


NOTE: CMU AND SIDING SIZE AND COLOR TO MATCH EXISTING BALLFIELD DUGOUT. CONFIRM BUILDING MATERIALS WITH OWNER PRIOR TO PROCUREMENT

③ ELEVATION: WATER TREATMENT BUILDING - FRONT



④ ELEVATION: WATER TREATMENT BUILDING



⑥ ELEVATION: WATER TREATMENT BUILDING - REAR

ISSUED FOR CONSTRUCTION

NO.	BY	CHK	DATE	REVISION DESCRIPTION
0	SWO	BJS	2/9/18	ISSUED FOR CONSTRUCTION

RELEASED TO/FOR: A B C 0 — DATE RELEASED

BARR
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

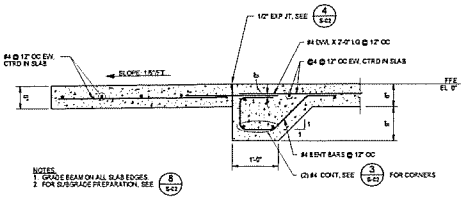
Scale	AS SHOWN
Date	OCT 2017
Drawn	SWO
Checked	KMB
Designed	BJS
Approved	BJS

RPBCWD
CHANHASSEN, MN

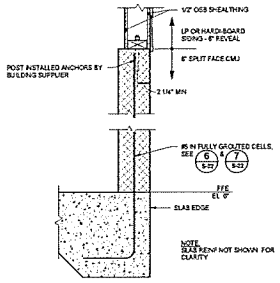
LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE

WATER TREATMENT BUILDING
ISOMETRIC, PLAN AND ELEVATIONS

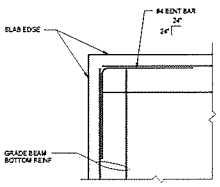
BARR PROJECT NO. 23/10-0053.14
CLIENT PROJECT NO.
DWG NO. S-01
REV NO. 0



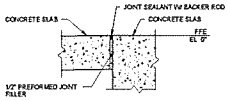
1 SECTION: CONCRETE SLAB ON GRADE
S-01 1" = 1'-0"



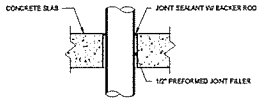
2 SECTION: TYPICAL WALL
S-01 1 1/2" = 1'-0"



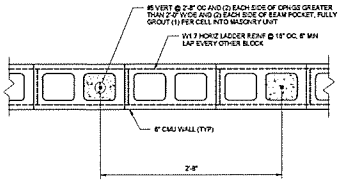
3 DETAIL: CORNER REINFORCEMENT
1" = 1'-0"



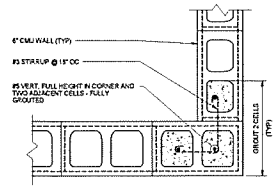
4 DETAIL: EXPANSION JOINT
1 1/2" = 1'-0"



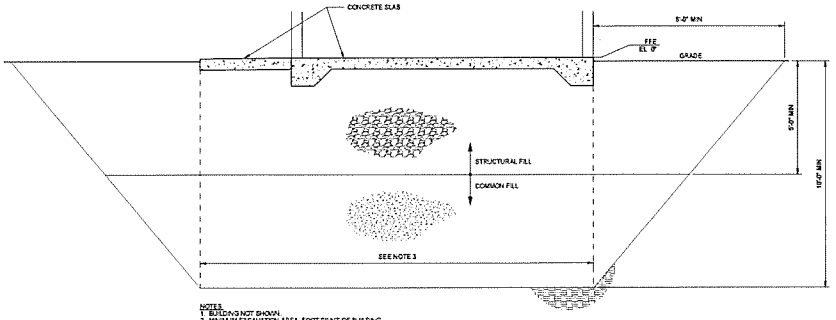
5 DETAIL: TYPICAL EXP JOINT @ PIPE PENETRATION
1 1/2" = 1'-0"



6 DETAIL: TYPICAL WALL REINFORCEMENT
1 1/2" = 1'-0"



7 DETAIL: TYPICAL WALL CORNER REINFORCEMENT
1 1/2" = 1'-0"



NOTES:
1. BUILDING NOT SHOWN.
2. MAXIMUM EXCAVATION AREA: FOOT PRINT OF BUILDING.
3. STRUCTURAL FILL:
   a. WELL GRADED (PER UNIFIED SOIL CLASSIFICATION SYSTEM) GRANULAR SOIL CONSISTING OF GRAVEL AND SAND; OR
   b. CRUSHED STONE WITH A MAXIMUM PARTICLE SIZE OF 1 1/2" AND LESS THAN 5% PASSING THE NO. 200 SIEVE AND FREE OF VEGETATION, DEBRIS, ROOTS, STICKS, BRUSH, AND NON-SOIL MATERIALS.
4. COMMON FILL: SUITABLE UNFROZEN MATERIALS EXCAVATED FROM THE FOUNDATION SITE OR IMPORTED AS NECESSARY AND PROCESSED TO THE SPECIFIED REQUIREMENTS BELOW.
   a. MATERIALS BACKFILLED WITHIN 1 FOOT OF ANY CONCRETE: FINE, WELL GRADED MATERIAL WITH PARTICLE SIZE NO GREATER THAN 3".
   b. REMAINING BACKFILL TO MEET THE DENSITY REQUIREMENTS, FREE OF VEGETATION, DEBRIS, ROOTS, STICKS, BRUSH, AND NON-SOIL MATERIALS, AND PLACED USING METHODS THAT WILL PREVENT VOIDS FROM OCCURRING.
   c. COHESIVE MATERIALS HAVING LIQUID LIMIT VALUES OF 40% OR LESS AND PLASTICITY INDICES OF 15% OR LESS.
5. BACKFILL AND COMPACTION: PLACE AND COMPACT MATERIALS TO THE LINES, DEPTH AND DRY DENSITY INDICATED ON THE DRAWINGS.
   a. STRUCTURAL FILL - PLACE IN MAXIMUM LOOSE LIFTS OF 8 INCHES OR LESS TO ACHIEVE THE SPECIFIED DENSITY, COMPACT TO A MINIMUM OF 95% STANDARD PROCTOR.
   b. COMMON FILL - PLACE IN MAXIMUM LOOSE LIFTS OF 12 INCHES OR LESS TO ACHIEVE THE SPECIFIED DENSITY, COMPACT TO A MINIMUM OF 95% STANDARD PROCTOR.
   c. BACKFILL MAY BE PLACED WHEN THE ADJACENT CONCRETE HAS REACHED 2,000 PSI
   d. BACKFILL ALL EDGES OF FOUNDATION WALLS OR PIERS EVENLY.

8 DETAIL: SUBGRADE
1/2" = 1'-0"

ISSUED FOR CONSTRUCTION

C:\Users\Public\Documents\Revit_local\22720300_R17_S_PUMPSTA_CENTRAL_tjh.rvt
10/2/2018 8:34:59 AM

NO.	BY	CHK	DATE	REVISION DESCRIPTION
0	SWO	BJS	3/8/18	ISSUED FOR CONSTRUCTION

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

SIGNATURE
PRINTED NAME: BRIAN J. SCHLIEVERT
DATE: 3/8/18 REG. NO. 43033

CLIENT	
BID	
CONSTRUCTION	
RELEASED TO PCR	

DATE RELEASED: A | B | C | D

BARR

Principal Office
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SUITE 200
MINNEAPOLIS, MN 55435

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Scale	AS SHOWN
Date	OCT 2017
Drawn	SWO
Checked	RMB
Designed	BJS
Approved	BJS

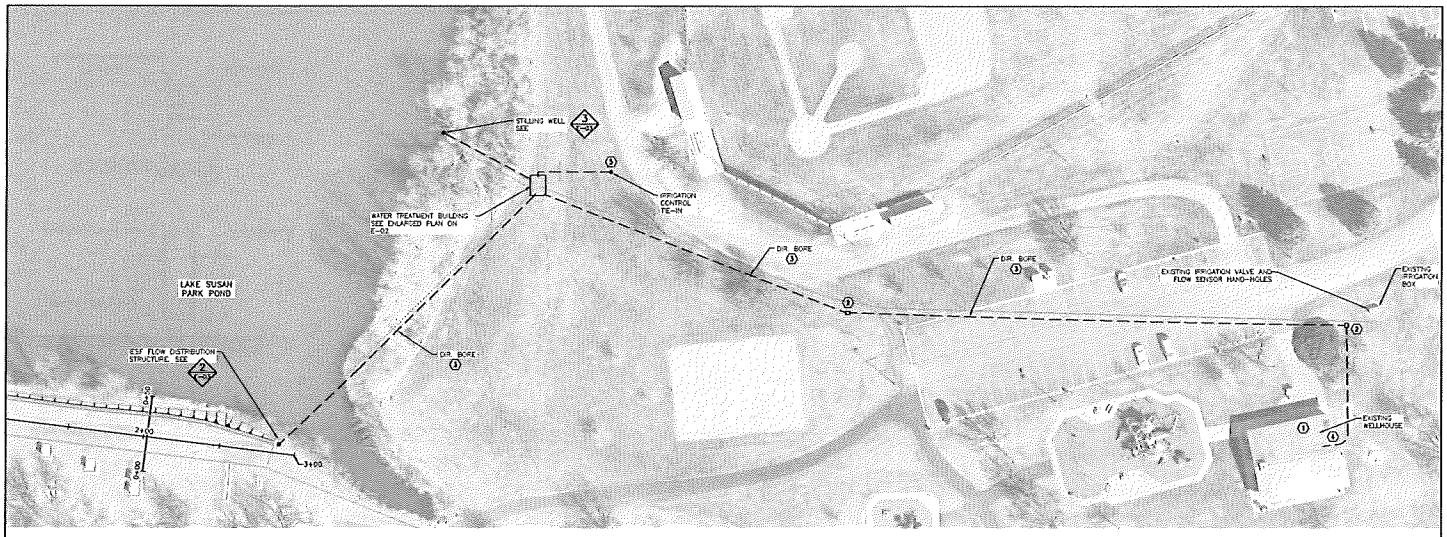
RPBCWD

CHANHASSEN, MN

LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE

WATER TREATMENT BUILDING
SECTIONS AND DETAILS

BARR PROJECT NO: 23/10-0053.14
CLIENT PROJECT NO:
DWG NO: S-02
REV NO: 0



1/8" = 1'-0" PLAN VIEW

SCALE IN FEET

GENERAL NOTES:

1. CONDUCT ALL WORK SO THAT EXISTING FACILITIES REMAIN IN OPERATION DURING CONSTRUCTION. COORDINATE ALL OUTAGES AND CUTOVERS WITH OWNER AND PROPERTY OWNER AT LEAST TWO (2) WEEKS IN ADVANCE, AND ONLY TO OCCUR AT TIMES AND IN DURATIONS AS APPROVED BY OWNER AND PROPERTY OWNER.
2. FIELD CONFIRM LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES, CABLES, CONDUITS, ETC PRIOR TO CONSTRUCTION. CONTRACTOR SHALL REPAIR SUCH ITEMS AT NO COST IF DAMAGED BY CONTRACTOR.
3. PROVIDE TEMPORARY SUPPORT FOR EXISTING UNDERGROUND FACILITIES THAT WILL BE EXPOSED DUE TO GENERAL STRUCTURAL AND PROCESS CONSTRUCTION.
4. EXISTING UNDERGROUND CIRCUITRY THAT IS TO REMAIN IS NOT ALL SHOWN.
5. NOT ALL NEW CIRCUITRY IS SHOWN ON PLAN. SEE ENLARGED PLANS, ONE-LINES, SCHEMATICS AND CABLE & CONDUIT SCHEDULE FOR ADDITIONAL CIRCUITRY REQUIREMENTS.
6. FIELD CONFIRM ALL CONDUIT AND CIRCUIT ROUTING.
7. USE DIRECTIONAL BORING OR SIMILAR METHOD FOR NEW CONDUITS TO BE INSTALLED UNDER EXISTING SIDEWALKS AND PAVEMENTS. WHERE PITS ARE OPENED, PATCH ALL SURFACES TO MATCH EXISTING.
8. CORE DRILL EXISTING STRUCTURES AS REQUIRED FOR NEW CONDUIT INSTALLATION. PATCH ALL SURFACES TO MATCH EXISTING. ALL CORE DRILL LOCATIONS SHALL BE VERIFIED WITH FIELD ENGINEER.
9. SEAL ALL CONDUITS TO EXTERIOR USING DUCTSEAL OR 1/2" THICKNESS SILICONE CAULK.

NUMBERED NOTES:

1. NEW TREATMENT SHELTER TO BE POWERED FROM EXISTING WELLHOUSE. PROVIDE NEW 100A, 480V, 3Φ FEEDER IN MCC LINE-UP. MATCH TO EXISTING MCC MANUFACTURER AND MODEL NUMBERS. FIELD ROUTE CONDUIT FROM MCC TO BUILDING EXTERIOR.
2. AT SPACE HAND-HOLE. SEE DETAIL. FIELD COORDINATE EXACT LOCATION WITH BORE PITS.
3. INSTALL CONDUIT USING DIRECTIONAL BORE METHOD USING CONTINUOUS POLYETHYLENE DUCT. FIELD VERIFY AND CONFIRM LOCATIONS OF BORING PITS WITH OWNER AND ENGINEER PRIOR TO BORING.
4. CONDUIT BUILDING PENETRATION WITH 90 DEGREE ELBOW AND EXPOSED RIGID METAL CONDUIT RUNNING ALONG EXTERIOR WALL. TRANSITION TO PVC CONDUIT BELOW GRADE.
5. IRRIGATION CONTROL TIE-IN LOCATION. SEE SCHEMATIC. FIELD VERIFY EXACT LOCATION.

ISSUED FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	CMLZ	ZMH	PJL	2/9/2018	ISSUED FOR CONSTRUCTION

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.

PRINTED NAME: PATRICK J. LEMMENES

SIGNATURE: _____

DATE: 2/9/2018 LICENSE #: 22053

CLIENT: RPBCWD

CONSTRUCTION: RELEASED TO/FOR

DATE RELEASED: A B C 0 1 2 3

BARR

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MINNEAPOLIS, MN 55435
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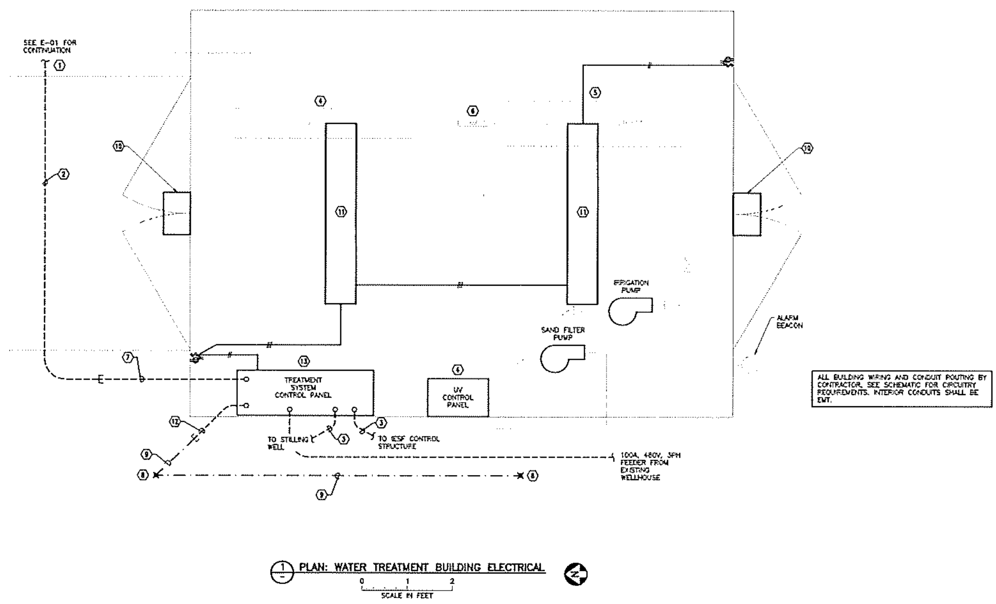
Corporate Headquarters
Minneapolis, Minnesota
Ph. 1-800-632-2277

Scale	AS SHOWN
Date	10/11/2017
Drawn	CMLZ
Checked	ZMH
Designed	ZMH
Approved	P.J.L.

RPBCWD
CHANHASSEN, MN

LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE
ELECTRICAL SITE PLAN

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG No. E-01
REV. No. 0



GENERAL NOTES:

1. CONDUCT ALL WORK SO THAT EXISTING FACILITIES REMAIN IN OPERATION DURING CONSTRUCTION. COORDINATE ALL OUTAGES AND CUTOVERS WITH OWNER AND PROPERTY OWNER AT LEAST TWO (2) WEEKS IN ADVANCE, AND ONLY TO OCCUR AT TIMES AND IN DURATIONS AS APPROVED BY OWNER AND PROPERTY OWNER.
2. FIELD CONFIRM LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES, CABLES, CONDUITS, ETC. PRIOR TO CONSTRUCTION. CONTRACTOR SHALL REPAIR SUCH ITEMS AT NO COST IF DAMAGED BY CONTRACTOR.
3. PROVIDE TEMPORARY SUPPORT FOR EXISTING UNDERGROUND FACILITIES THAT WILL BE EXPOSED DUE TO GENERAL, STRUCTURAL AND PROCESS CONSTRUCTION.
4. EXISTING UNDERGROUND CIRCUITRY THAT IS TO REMAIN IS NOT ALL SHOWN.
5. NOT ALL NEW CIRCUITRY IS SHOWN ON PLAN. SEE SCHEMATICS FOR ADDITIONAL CIRCUITRY REQUIREMENTS.
6. FIELD CONFIRM ALL CONDUIT AND CIRCUIT ROUTING.
7. USE DIRECTIONAL BORING OR SIMILAR METHOD FOR NEW CONDUITS TO BE INSTALLED UNDER EXISTING SIDEWALKS AND PAVEMENTS. WHERE PITS ARE OPENED, PATCH ALL SURFACES TO MATCH EXISTING.
8. CORE DRILL EXISTING STRUCTURES AS REQUIRED FOR NEW CONDUIT INSTALLATION. PATCH ALL SURFACES TO MATCH EXISTING. ALL CORE DRILL LOCATIONS SHALL BE VERIFIED WITH FIELD ENGINEER.
9. SEAL ALL CONDUITS TO EXTERIOR USING DUCTSEAL OR 1/2" THICKNESS SILICONE CAULK.

NUMBERED NOTES:

(1) CONNECTION TO EXISTING IRRIGATION MAIN COMMUNICATION LINE BY PROPERTY OWNER'S IRRIGATION SERVICE PROVIDER, COORDINATE.
(2) DIRECT BURY #14 TWISTED PAIR IRRIGATION CONTROL WIRE, HUNTER DECODER CABLE OR APPROVED EQUAL.
(3) 2" SCHEDULE 80 PVC CONDUIT FOR LEVEL SENSING INSTRUMENT CABLE.
(4) UV SYSTEM (32 81 05). CONFIRM ALL WIRING AND INSTALLATION REQUIREMENTS WITH MANUFACTURER.
(5) FILTRATION SYSTEM (32 81 05). CONFIRM ALL WIRING AND INSTALLATION REQUIREMENTS WITH MANUFACTURER.
(6) FLOWMETER (32 81 05). CONFIRM ALL WIRING AND INSTALLATION REQUIREMENTS WITH MANUFACTURER.
(7) STUB 1" CONDUIT 24" BEYOND CONCRETE PAD FOR IRRIGATION CONTROL CIRCUITS.
(8) 5/8" X 10' COPPER-CLAD GROUND ROD WITH EXOTHERMIC WELD TO CONDUCTORS SHOWN. SET TOP 12" DEEP.
(9) #3/0 BARE COPPER GROUND CONDUCTOR, 12" DEEP
(10) WALL-MOUNT EXTERIOR LED FIXTURE, LITHONIA WSTLED-1A-4K-120-DDBID, OR EQUAL, WITH INTEGRAL MFR. PHOTOCONTROL.
(11) CHAIN HUNG LED VAPORTIGHT FIXTURE, LITHONIA FEM4LED-4L-SMAFL-MVOLT-MHCH36, OR EQUAL. COORDINATE PROPER CLEARANCES WITH TREATMENT SYSTEM EQUIPMENT.
(12) STUB 2" CONDUIT FOR GROUNDING CONDUCTOR.
(13) TREATMENT SYSTEM CONTROL PANEL (40 90 00) SEE SCHEMATIC ON SHEET E-04.

ISSUED FOR CONSTRUCTION

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	CML2	ZMN	PJL	2/3/2018	ISSUED FOR CONSTRUCTION

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PRINTED NAME PATRICK J. LEHNHERR
SIGNATURE
DATE 2/3/2018 LICENSE # 25033

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION — DATE RELEASED A B C 0 1 2 3

BARR
Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277
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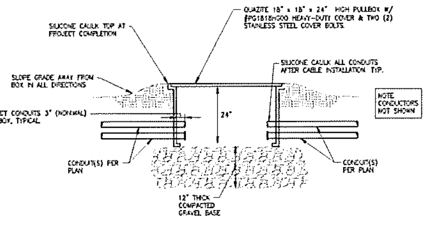
Scale	AS SHOWN
Date	10/17/2017
Drawn	CML2
Checked	ZMN
Designed	ZMN
Approved	PJL

RPBCWD
CHANHASSEN, MN

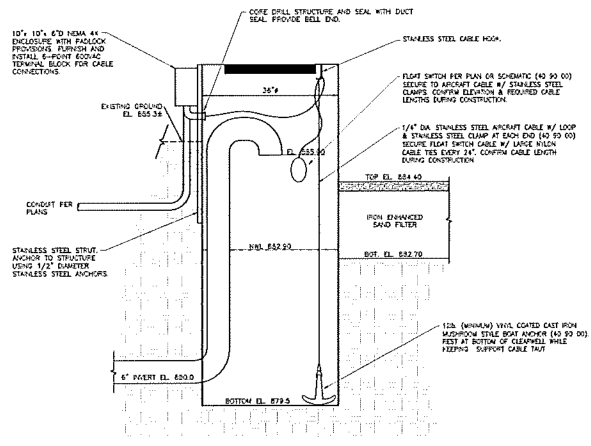
LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE

TREATMENT SYSTEM
ELECTRICAL PLAN

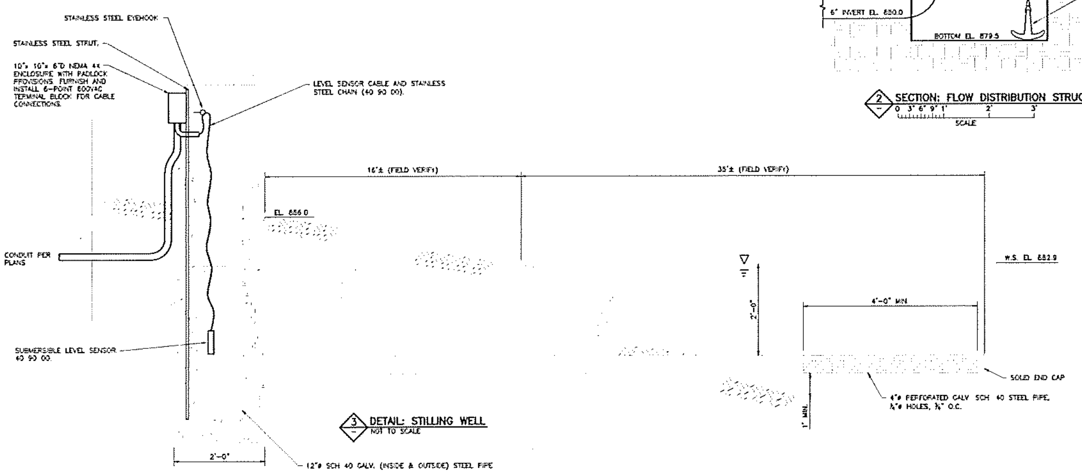
BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. E-02 REV. No. 0


QUAZITE 18" x 18" x 24" HIGH PULLBOX W/ #PG1818HG00 HEAVY-DUTY COVER & TWO (2) STAINLESS STEEL COVER BOLTS.
SILICONE CAULK TOP AT PROJECT COMPLETION
SLOPE GRADE AWAY FROM BOX IN ALL DIRECTIONS
SILICONE CAULK ALL CONDUITS AFTER CABLE INSTALLATION TYP.
NOTE CONDUCTORS NOT SHOWN
PROJECT CONDUITS 3" (NOMINAL) INTO BOX, TYPICAL
24"
CONDUIT(S) PER PLAN
CONDUIT(S) PER PLAN
12" THICK COMPACTED GRAVEL BASE

1 AT-GRADE HANDHOLE DETAIL
NO SCALE TYPICAL


CORE DRILL STRUCTURE AND SEAL WITH DUCT SEAL. PROVIDE BELL END.
10"x 10"x 6"D NEMA 4X ENCLOSURE WITH PADLOCK PROVISIONS. FURNISH AND INSTALL 6-POINT 600VAC TERMINAL BLOCK FOR CABLE CONNECTIONS.
STAINLESS STEEL CABLE HOOK.
36"Ø
FLOAT SWITCH PER PLAN OR SCHEMATIC (40 90 00) SECURE TO AIRCRAFT CABLE W/ STAINLESS STEEL CLAMPS. CONFIRM ELEVATION & REQUIRED CABLE LENGTHS DURING CONSTRUCTION.
EXISTING GROUND EL. 885.3±
EL. 885.90
1/4" DIA. STAINLESS STEEL AIRCRAFT CABLE W/ LOOP & STAINLESS STEEL CLAMP AT EACH END (40 90 00) SECURE FLOAT SWITCH CABLE W/ LARGE NYLON CABLE TIES EVERY 24". CONFIRM CABLE LENGTH DURING CONSTRUCTION.
TOP EL. 884.40
CONDUIT PER PLANS
IRON ENHANCED SAND FILTER
NWL 882.90
BOT. EL. 882.70
STAINLESS STEEL STRUT. ANCHOR TO STRUCTURE USING 1/2" DIAMETER STAINLESS STEEL ANCHORS.
12lb (MINIMUM) VINYL COATED CAST IRON MUSHROOM STYLE BOAT ANCHOR (40 90 00). REST AT BOTTOM OF CLEARWELL WHILE KEEPING SUPPORT CABLE TAUT
6" INVERT EL. 880.0
BOTTOM EL. 879.5

2 SECTION; FLOW DISTRIBUTION STRUCTURE
0 3" 6" 9" 1' 2' 3'
SCALE


STAINLESS STEEL EYEHOOK
STAINLESS STEEL STRUT.
10"x 10"x 6"D NEMA 4X ENCLOSURE WITH PADLOCK PROVISIONS. FURNISH AND INSTALL 6-POINT 600VAC TERMINAL BLOCK FOR CABLE CONNECTIONS.
LEVEL SENSOR CABLE AND STAINLESS STEEL CHAIN (40 90 00).
16'± (FIELD VERIFY)
35'± (FIELD VERIFY)
EL. 886.0
CONDUIT PER PLANS
W.S. EL. 882.9
2'-0"
4'-0" MIN
SUBMERSIBLE LEVEL SENSOR 40 90 00.
SOLID END CAP
4"Ø PERFORATED GALV. SCH. 40 STEEL PIPE, ¼"Ø HOLES, ¾" O.C.
1" MIN.
2'-0"
12"Ø SCH 40 GALV. (INSIDE & OUTSIDE) STEEL PIPE

3 DETAIL: STILLING WELL
NOT TO SCALE

ISSUED FOR CONSTRUCTION

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	CML2	ZMN	PJL	2/9/2018	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME PATRICK J. LEHNHERR
SIGNATURE
DATE 2/9/2018 LICENSE # 25033

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION — DATE RELEASED: A B C 0 1 2 3

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Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277

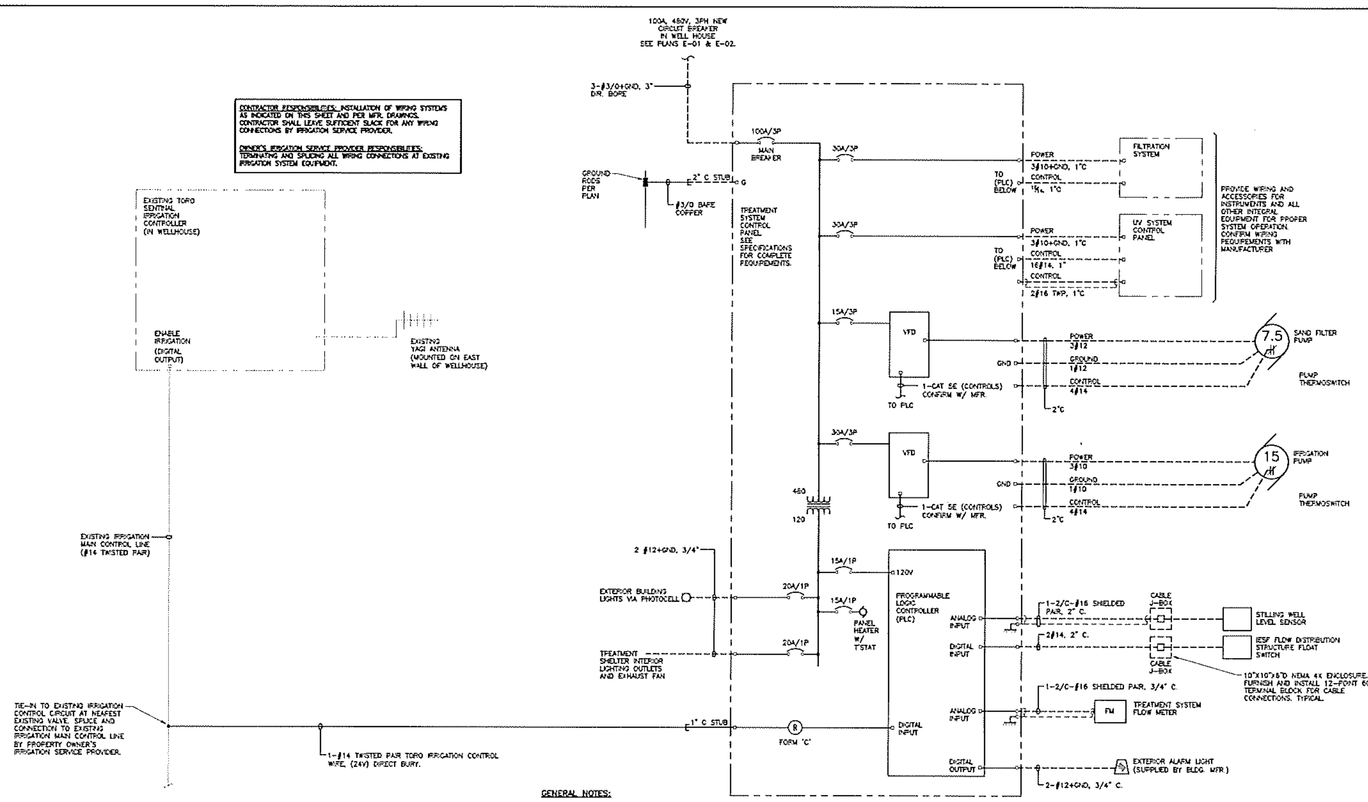
Scale	AS SHOWN
Date	10/17/2017
Drawn	CML2
Checked	ZMN
Designed	ZMN
Approved	PJL

RPBCWD
CHANHASSEN, MN

LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE

ELECTRICAL DETAILS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. E-03 REV. No. 0


100A, 480V, 3PH NEW CIRCUIT BREAKER IN WELL HOUSE SEE PLANS E-01 & E-02.
3-#3/0+GND, 3" DIR. BORE
100A/3P MAIN BREAKER
GROUND RODS PER PLAN
2" C STUB
#3/0 BARE COPPER
TREATMENT SYSTEM CONTROL PANEL SEE SPECIFICATIONS FOR COMPLETE REQUIREMENTS.
30A/3P
POWER
3#10+GND, 1"C
CONTROL
TO (PLC) BELOW
FILTRATION SYSTEM
UV SYSTEM CONTROL PANEL
16#14, 1"
2#16 TWP, 1"C
PROVIDE WIRING AND ACCESSORIES FOR INSTRUMENTS AND ALL OTHER INTEGRAL EQUIPMENT FOR PROPER SYSTEM OPERATION. CONFIRM WIRING REQUIREMENTS WITH MANUFACTURER
15A/3P
VFD
GND
GROUND
1#12
4#14
2"C
1-CAT 5E (CONTROLS) CONFIRM W/ MFR.
TO PLC
7.5 HP SAND FILTER PUMP
PUMP THERMOSWITCH
3#10
1#10
15 HP IRRIGATION PUMP
480
120
EXISTING TORO SENTINAL IRRIGATION CONTROLLER (IN WELLHOUSE)
ENABLE IRRIGATION (DIGITAL OUTPUT)
EXISTING YAGI ANTENNA (MOUNTED ON EAST WALL OF WELLHOUSE)
EXISTING IRRIGATION MAIN CONTROL LINE (#14 TWISTED PAIR)
2 #12+GND, 3/4"
EXTERIOR BUILDING LIGHTS VIA PHOTOCELL
20A/1P
15A/1P
PANEL HEATER W/ T'STAT
TREATMENT SHELTER INTERIOR LIGHTING OUTLETS AND EXHAUST FAN
120V
PROGRAMMABLE LOGIC CONTROLLER (PLC)
ANALOG INPUT
DIGITAL INPUT
DIGITAL OUTPUT
1-2/C-#16 SHIELDED PAIR, 2" C.
2#14, 2" C.
CABLE J-BOX
STILLING WELL LEVEL SENSOR
IESF FLOW DISTRIBUTION STRUCTURE FLOAT SWITCH
10"X10"x6"D NEMA 4X ENCLOSURE. FURNISH AND INSTALL 12-POINT 600V TERMINAL BLOCK FOR CABLE CONNECTIONS. TYPICAL.
1-2/C-#16 SHIELDED PAIR, 3/4" C.
FM
TREATMENT SYSTEM FLOW METER
TIE-IN TO EXISTING IRRIGATION CONTROL CIRCUIT AT NEAREST EXISTING VALVE. SPLICE AND CONNECTION TO EXISTING IRRIGATION MAIN CONTROL LINE BY PROPERTY OWNER'S IRRIGATION SERVICE PROVIDER.
1" C STUB
FORM 'C'
1-#14 TWISTED PAIR TORO IRRIGATION CONTROL WIRE, (24V) DIRECT BURY.
EXTERIOR ALARM LIGHT (SUPPLIED BY BLDG. MFR.)
2-#12+GND, 3/4" C.

CONTRACTOR RESPONSIBILITIES: INSTALLATION OF WIRING SYSTEMS AS INDICATED ON THIS SHEET AND PER MFR. DRAWINGS. CONTRACTOR SHALL LEAVE SUFFICIENT SLACK FOR ANY WIRING CONNECTIONS BY IRRIGATION SERVICE PROVIDER.

OWNER'S IRRIGATION SERVICE PROVIDER RESPONSIBILITIES: TERMINATING AND SPLICING ALL WIRING CONNECTIONS AT EXISTING IRRIGATION SYSTEM EQUIPMENT.

GENERAL NOTES:

1. CONFIRM WIRING REQUIREMENTS FOR ALL EQUIPMENT DURING SUBMITTAL REVIEW.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EQUIPMENT WIRING. ADDITIONAL WIRING REQUIRED SHALL BE PROVIDED AT NO ADDITIONAL COST TO OWNER.

ISSUED FOR CONSTRUCTION

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	CWL2	ZMN	PJL	2/3/2018	ISSUED FOR CONSTRUCTION

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.
PRINTED NAME PATRICK J. LEHMANN
SIGNATURE ____
DATE 2/3/2018 LICENSE # 23033

RELEASED TO/FOR: CLIENT / BID / CONSTRUCTION — DATE RELEASED: A B C 0 1 2 3

BARR
Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE SUITE 200 MINNEAPOLIS, MN 55435
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277 Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com

Scale	AS SHOWN
Date	10/17/2017
Drawn	CWL2
Checked	ZMN
Designed	ZMN
Approved	PJL

RPBCWD
CHANHASSEN, MN

LAKE SUSAN PARK POND
WATERSHED TREATMENT & STORMWATER REUSE
ELECTRICAL SCHEMATIC

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. E-04
REV. No. 0

Contract Documents

Lake Susan Park Pond Watershed Treatment and Stormwater Reuse Project

Chanhassen, Minnesota

Prepared for:
Riley Purgatory Bluff Creek Watershed District

February 7, 2018

CONTRACT DOCUMENTS

LAKE SUSAN PARK POND WATERSHED TREATMENT AND STORMWATER REUSE PROJECT
RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
CHANHASSEN, MINNESOTA

TABLE OF CONTENTS

Minutes: Monday, January 29, 2018

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

CAC Members

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

Others

Michelle Jordan	District Liaison	P

Summary of key actions/motions for the Board of Managers:

1. **Addition of bylaw change procedures** (See #8 below): Currently the CAC Bylaws do not include information on how those bylaws may be amended. After consulting with our Legal Council and reviewing language used by the Board, we agreed upon the following language. **The CAC requests that this wording get incorporated into the CAC Bylaws.**

   These bylaws may be amended by a majority of the CAC on 30 days written notice of the proposed change(s), unless such notice is waived by all CAC Members. Notice of any amendment is to be contained in the notice of the meeting at which the proposed amendment is to be considered. An amendment to these bylaws must be approved by a four-fifths majority of the CAC. Proposed bylaw amendments are to be provided to RPBCWD Board of Managers for review 30 days before amendments are made.

2. **Support of sustainability event on water.** (See 11d below) The CAC believes that it is a good idea for the Watershed District to sponsor the Beginner's Guide to Sustainability Water Class that Lori Tritz has outlined, and we recommend further discussion with staff to determine if this is feasible.

3. **The CAC requests the same type of help/assistance from the District Staff** related to storm drain and gutter clean-up for Chanhassen and Shoreview that Sharon McCotter received last year. (See 11a below) This would include a few hours of Michelle's time (estimated 3-4 hours1).

Agenda

1. **Call CAC Meeting** to order at 6:12 PM

2. **Attendance** as noted above

3. **Matters of general public interest**
   a. No members of the public were present.

4. Approval of Agenda: Joan made motion, seconded by Lori, to delay the elections until February, so more members, including the new members can be present. Motion passed and agenda approved as modified.

5. Welcome New Members (All) Lori Tritz, new member of CAC was introduced. She is a Master Water Steward, a Master Naturalist and on the Eden Prairie Conservation Commission. She introduced herself and spoke of her interest in working on storm drains in particular.

6. Approval of previous (December) CAC Meeting Minutes: Joan motioned and Matt seconded to approve minutes of the December meeting as amended, indicating that Matt was present.

7. Election of Officers: This is being delayed until next month, when more members and more new members will be here.

8. Addition of bylaw change procedures (David, Michelle) see proposed bylaw amendment procedure below. Currently our bylaws do not include any wording on how to amend them.

Motion was made Joan and Lori to submit the recommendation that this wording gets incorporated into the CAC bylaws. Passed, unopposed and agreed to call this to the attention of the Board in our minutes.

> *These bylaws may be amended by a majority of the CAC on 30 days written notice of the proposed change(s), unless such notice is waived by all CAC Members. Notice of any amendment is to be contained in the notice of the meeting at which the proposed amendment is to be considered. An amendment to these bylaws must be approved by a four-fifths majority of the CAC. Proposed bylaw amendments are to be provided to RPBCWD Board of Managers for review 30 days before amendments are made.*

9. Review 10-year plan (All), Update on public comments for 10-year plan (Michelle):
The comment period is closed. Comments were received from individual citizens as well as agencies, cities, etc. Staff created a giant spreadsheet of the comments and are reviewing them now. Michelle will check on the process. Joan feels strongly that several CAC members provided specific comments, (e.g. related to the creation of SMART goals) and we would like to hear how our ideas were incorporated, or not. If they are not in the plan, how might they be included? In the end it was decided that we would request Administrator Claire come to the Feb. CAC meeting and give us an update, if possible. March 15 is the public meeting to discuss the plan the CAC would like to and we would like to have a chance to discuss changes before it is locked down. Michelle will confirm date of public meeting and next steps and let the CAC know.

10. Input on Education & Outreach for 2018, including proposed interface with other watershed CACs.
At MAWD Sharon talked to some others representatives and discussed the idea of doing a "CAC Swap" to discuss common issues. Lori said the Conservation Commission has discussions with other sister cities, and they get together to share ideas, etc. She thinks such an exchange with other CAC's would be a great idea. Paul suggested getting together at Unmapped Brewery, as it includes a map of the watershed as part of its decor. Michelle will get an update from Claire on the status of this idea.

Update from Michelle:

- Focus topics for E and O have been chosen for the year and they are wetlands, chloride, and restoration. Terry and Zach will be leading a Wetland Walk May on 19 which will include small groups and an interpretive walk discussing healthy vs. unhealthy wetlands, etc.
- This year (2018) Michelle's efforts are targeting outreach to professional community through series of workshops for realtors, property managers, and builders (on chloride, rule changes, etc.)
- Also, next year is our 50th anniversary, July 31, 2019. If the CAC wants to get involved in that, we can. Overall theme will be Come Explore with Us as well as Water Conservation and Ground Water.

Request was made to get a calendar updated for 2018. Michelle will provide examples to David and he will draft one for the next meeting.

11. Updates from subcommittees as available

a. **Storm Drains (Sharon, Matt):** Sharon requests the same type of help/assistance from the District related to storm drain and gutter clean-up for Chanhassen and Shoreview that she received last year. This would include a few hours of Michelle's time (estimated 3-4 hours or less). See attached request from Sharon. Matt will continue to work on the placards piece, but he hopes that ideally, we could get cities involved in the construction part of the road piece—as storm drains are replaced every 5 years. He also indicated we might be worth working the city on testing different types of drains. As an aside, Joan got information from Leslie on what was involved cleaning it up the runoff that created a small island on Red Rock Lake. Michelle will ask staff to see if they can use this to estimate what the dollar cost might be.

b. **Ground Water (Paul):** Barr did an initial report/groundwater survey of groundwater vulnerability.

c. **Silt Sock (Anne):** Trying to get in touch with Terry Jeffries and will talk with him including discussing ideas from MAWD.

d. **Speaker's Bureau (Joan):** Met with Michelle and Claire and discussed the vision for this and possible topics. She distributed the original proposal and notes from that meeting to Matt and Anne who are interested in helping. The group will get together after the Feb. Meeting. Others are welcome to join. We will be starting with creating presentations for the three focus E and O topic areas and perhaps one other. Also, we have narrowed the target audiences to adults, as work with K-12 is well established. Lori suggested that one of our topics also be what you can do to be more sustainable in your own back yard.

Additional (great) idea Sustainability: Lori has been trying to do a sustaining Eden Prairie programs/class, and has some volunteers to create presentations on two-hour sessions. The review process by the City is taking longer than expected, and they can't be ready this Spring. She has one event coming up on March 11, at Pax Christi with Paul Douglas. Two-hour sessions, with adult learning principles. Needs sponsorship for one of these, wondering if Watershed can sponsor one. She has a presentation on water she will share with us. Focus how can you be sustainable. What can you do. Want to capitalize on this March 11 event, and run Water - Sustainability event in Mid-April, but members need to be present. May need a location for all four events. Can use the Outdoor Center on Sundays. The working title is "The Beginner's Guide to Sustainability in Your

Topic". Open on time frame. To make it happen, Lori needs official blessing and perhaps use of Watershed Demonstration Board.

A motion was made (Joan/Matt) and approved, as follows: The CAC believes that it is a good idea for the Watershed District to sponsor the Beginner's Guide to Sustainability water class that Lori has outlined, and good idea and should warrant further discussion with staff to determine if this is feasible.

e. **Lake Associations (David)**: David reported that the lake associations are quite varied, have different purposes, and he is not sure that this sub-committee is necessary. Upon discussion we agreed that the purpose of this was to try to engage with lake associations, educate and inform them (as they already had some vested interest in our waters) and potentially get volunteers from them. Paul volunteered to work with David on what this sub-committee should be addressing and potentially dove tailing with Lori's ideas on sustainability, etc. Michelle also confirmed that the leaders of several of these associations are on Michelle's list and receive news from us.

Matt added that, as we add new people we should revisit the subcommittees, and their scope as well as welcoming new people onto them. Perhaps we should also have a wetlands subcommittee.

Priorities for Education and Outreach for the year: Restorations, wetlands and chloride. To set goals, we need to know where we are starting, e.g. what shape are the wetlands in now, or they may be a like, etc.

Suggest that we also look at the website:

1. To get an update on where it is
2. To use the website effectively as a source and promote community events, to use it as a social media mechanism

12. Topics for 2018 agenda items and next meeting and pre-meeting/orientation:

1. New Member orientation workshop, introductions, what I care about
2. Bylaw changes,
3. Subcommittee updates and review to determine if new ones are needed, some should be disbanded, and committee membership
4. Update on public comments on 10-year plan (Claire)
5. Draft calendar for 2018 (David will do a draft, with input/examples from Michelle)
6. Review of priorities for 2018: 10-year plan implementation, Ground Water conservation and reuse, wetlands, chloride reduction, creek restoration, 50th Anniversary planning, E&O, Scenic Heights
7. Input on E&O for 2018 including how to interface with other CAC's (moved to March meeting month)
8. Update on Website and how we use the website in 2018.
9. Update on status of Sustainability Class sponsorship requested by Lori and supported by CC

13. Upcoming events

a. RPBCWD Board of Managers Workshop on 10-year plan Feb 7th at 5:30 PM, 18681 Lake Drive East
b. RPBCWD Board of Managers CAC Meet and Greet February 7th at 6:30 PM, 18681 Lake Drive East
c. RPBCWD Board of Managers regular board meeting February 7th at 7:00 PM, 18681 Lake Drive East
d. Annual Road Salt Symposium February 8, 2018 | Plymouth Creek Center

d. February 26th CAC meeting at 6:00 PM, 18681 Lake Drive East
e. March 15 public comment hearing for 10-year plan.

Upcoming CAC 2018 Meeting Dates (2018), Feb 26, March 19, April 16, May 21, June 18, July 16, Aug 20, Sep 17, Oct 15, Nov 19, Dec 17) at 6:00PM

14. Adjourn CAC meeting: Motion was made Pete/Lori to adjourn, at 7:55.

Respectfully submitted,

Joan Palmquist
2017 Recorder
ALLELULIA

Request for presentation at the January 29th CAC meeting
sharon.a.mccotter@wellsfargo.com
Thu 1/25/2018, 10:52 AM
To:david_ziegler@outlook.com <david_ziegler@outlook.com>;
Hello David,

If time permits, can you present the following to the CAC for a vote/motion to the managers? Thank you.

I would like to request the same assistance, from the board of managers, I received in 2017 from RPBC watershed staff (Michelle) as I coordinate a Spring leaf clean-up campaign and adopt-a-drain program for Shorewood and a fall leaf clean-up campaign in conjunction with the Environmental Commission for Chanhassen. Below are the updates with where I am with both cities as well as next steps. If the CAC supports the expanded storm drain program, can you make a motion requesting the managers support the programs? I'm hoping the managers would approve the work at their February meeting.

Shorewood

- Meet with Dorothy Pedersen week of January 29th to discuss her ideas and what ideas her lake association have around implementing a storm drain adoption program and annual leaf clean-up
- City personal changed last year; new person is anxious to work with us on a Spring cleanup; meeting will be scheduled once Dorothy and Sharon have met
- Opportunity to pilot the revised "Clean Streets Clean Water Neighborhood Cleanup" kit from the cleanwatermn.org in conjunction with the Freshwater Society
- Opportunity to add a composting element to a clean-up
- Opportunity to set up a "shadow" adopt-a-drain program until the state expands the state program to the western suburbs

Chanhassen

- Meeting scheduled for February 12th with Jill Sinclair, Chanhassen's Environmental Specialist and Arborist and Vanessa Strong (the new Terry Jeffrey) to talk through details
- Jill is also the liaison with between the city of Chanhassen and the Environmental Commission; the commission would like to include the Chanhassen fall leaf clean-up as part of their 2018 volunteer work
- Opportunity to expand the clean-up work we did in fall of 2017 to a larger audience with more advance notice and the help of the commission

Sharon McCotter

Business Initiatives Manager
Customer and Branch Experience

Wells Fargo Bank, N.A.
MAC N2998-010
Tel 952-949-8845

Sharon.a.mccotter@wellsfargo.com

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

Treasurers Report

December 31, 2017

REPORT INDEX

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
Cash Disbursements ☐
December 31, 2017

Accounts Payable	**Amount**
Barr Engineering Company	61,796.60
CAPREF Eden Prairie LLC	6,930.00
Carver Soil & Water	7,590.21
CenterPoint Energy	551.60
CenturyLink	100.25
City of Chanhassen	11.87
City of Minnetonka	25,000.00
Claire Bleser	43.34
Coverall of the Twin Cities	213.68
CSM Financial LLC.	7,258.11
DVS Renewal	48.00
Erdahl Aerial Photos	1,688.13
Freshwater Society	1,000.00
HDR Engineering, Inc.	637.00
HealthPartners	3,045.17
Iron Mountain	89.90
Jason Phillips	5,000.00
Jill Crafton	1,551.35
JMSC Futurity, PLLC	2,130.00
Josh Maxwell	54.96
Klein Bank Visa	18,418.81
LimnoTech	10,392.58
Richard Chadwick	287.75
Safe-Fast Inc	758.00
Science Museum of Minnesota	1,900.00
Smith Partners PLLP	8,950.52
Spee-Dee Delivery Service Inc.	192.53
SRF Consulting Group	444.30
Sunrise Hills Civic Assoc	2,727.68
Wenck Associates Inc	388.00
Total Accounts Payable☐	**169,200.34**

Payroll Disbursements	**Amount**
Payroll Processing Fee	145.00
Manager Payroll Taxes	(17.21)
Employee Salaries	31,786.77
Employee Payroll Taxes	2,583.92
PERA Match	2,052.54
Total Payroll Disbursements	**36,551.02**

Total Disbursements	**205,751.36**

Memos
The 2016 mileage rate is $.54 per mile. The 2017 mileage rate is $53.5.
Klein Bank Visa will be paid online.

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
Fund Performance Analysis - Table 1
December 31, 2017

	2017 Budget	Month Ended 12/31/2017	Year to Date 12/31/2017
REVENUES			
Interest Income	0.00	13,779.17	15,239.98
Bluff Creek Grant Income	0.00	0.00	0.00
Other Income	0.00	96.00	1,885.06
Other Income - Refunds	0.00	0.00	5,485.18
Other Income - District Floodplain	0.00	0.00	22,080.00
Plan Implementation Levy	2,859,000.00	1,354,768.38	2,815,901.75
Permit Income	15,000.00	3,300.00	47,400.10
TOTAL REVENUES	**2,874,000.00**	**1,371,943.55**	**2,907,992.07**
EXPENDITURES			
Administration			
Accounting/Audit	39,500.00	2,222.50	39,530.80
Advisory Committee	4,000.00	908.76	5,694.50
Engineering Services	103,000.00	4,984.50	82,712.20
Insurance and Bonds	12,000.00	843.42	10,587.22
Legal Services	75,000.00	3,798.23	71,017.59
Manager Expenses	18,500.00	2,870.77	18,526.80
Dues and Memberships	8,000.00	0.00	6,734.00
Office Costs	155,000.00	10,012.84	156,031.87
Permit Review and Inspection	140,000.00	5,962.16	187,739.66
Recording Services	15,000.00	0.00	12,233.47
Employee Cost	450,000.00	42,422.65	395,619.65
Total Administration Costs	**1,020,000.00**	**74,025.83**	**986,427.76**
Programs and Projects			
District Wide			
‡ Education & Outreach	114,000.00	17,790.92	98,653.27
AIS Inspection and Early Response	75,000.00	0.00	18,572.30
Cost Share Program	200,000.00	10,317.89	47,509.65
District Wide Floodplain Eval- Atlas 14	30,000.00	0.00	2,285.45
Data Collection	180,000.00	18,029.47	165,526.96
U of M Plant Restoration	75,000.00	0.00	52,500.55
TMDL	10,000.00	0.00	1,028.00
District Floodplain Vulnerability	0.00	361.40	1,346.81
○ Watershed - 10 Year Plan	82,000.00	0.00	107,115.25
○ Repair and Maintenance	100,000.00	25,000.00	25,000.00
○ ♦ Community Resilience MPCA	0.00	0.00	28,426.55
Creek Restoration Action Straegies Phase 2	20,000.00	0.00	11,487.00
District Groundwater Assessment	30,000.00	1,785.50	29,568.50
Total District Wide Costs	**916,000.00**	**73,285.18**	**589,020.29**
Bluff Creek One Water			
○ ♦ Fish Passage Bluff Creek	0.00	55.20	29,666.68
○ Bluff Creek Tributary	0.00	5,596.50	54,621.46
○ ♦ Chanhassen HS reuse	68,000.00	21.37	99,384.77

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
Fund Performance Analysis - Table 1
December 31, 2017

	2017 Budget	Month Ended 12/31/2017	Year to Date 12/31/2017
Total District Wide Costs	**68,000.00**	**5,673.07**	**183,672.91**
Riley Creek One Water			
Lake Riley EWM Treatment	25,000.00	0.00	22,325.20
○ Lake Riley Alum Treatment	0.00	194.00	2,598.31
○ ♦ Lake Susan Improvement Phase 2	0.00	19,355.50	93,292.64
○ ♦ Chanhassen Town Center	0.00	0.00	12,605.56
Lake Riley - CLP Treatment	10,000.00	0.00	7,173.37
Lake Susan - CLP Treatment	10,000.00	0.00	3,074.30
Rice Marsh Lake WQ Improvement - Phase 1	20,000.00	0.00	0.00
Rice Marsh Lake Winter Fish Kill Prevention	10,000.00	0.00	1,008.68
○ Riley Creek Restoration	600,000.00	14,899.50	61,225.60
Total Riley Creek One Water Costs	**675,000.00**	**34,449.00**	**203,303.66**
Purgatory Creek One Water			
○ Purgatory Creek Restoration	0.00	0.00	39,098.00
Mitchell Lake Plant Management	15,000.00	0.00	2,261.83
Red Rock Lake Plant Management	15,000.00	0.00	4,064.89
Starring Lake Plant Management	20,000.00	0.00	9,823.98
○ ♦ Fire Station 2 Water Reuse	20,000.00	444.30	19,025.36
○ Purgatory Creek Rec Area	50,000.00	0.00	0.00
Hyland Lake UAA	20,000.00	1,835.45	20,247.45
Lotus Lake - Phase 1	20,000.00	194.00	1,197.96
Silver Lake Restoration - Phase 1	20,000.00	1,629.50	8,996.88
○ ♦ Scenic Heights	0.00	3,244.58	51,042.94
Total Purgatory Creek One Water Costs	**180,000.00**	**7,347.83**	**155,759.29**
Contingency Reserve			
Contingency Reserve	0.00	0.00	0.00
Total Contingency Reserve Costs	**0.00**	**0.00**	**0.00**
TOTAL EXPENDITURES	**2,859,000.00**	**194,780.91**	**2,118,183.91**
Excess (Deficiency)	**15,000.00**	**1,177,162.64**	**789,808.16**

○ Denotes Multi-Year Project - See Table 2 for details
♦ Grants are supplementing the projects - See table 3 for further details
* Denotes the project will be overlapping by one year as it was not fully complete by year end.
‡ Includes the Master Design items - See Table 2 to details

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
Multi-Year Project Performance Analysis - Table 2
December 31, 2017

	Total for Project	2017 Budget	Month Ended 12/31/2017	Year to Date 12/31/2017	Lifetime Costs	Remaining
Projects						
○ ♦ Chanhassen Town Center	63,000.00	0.00	0.00	12,605.56	35,196.56	27,803.44
○ ♦ Fish Passage Bluff Creek	415,000.00	0.00	55.20	29,666.68	73,637.74	341,362.26
○ Lake Lucy Iron Enhanced	85,000.00	0.00	0.00	0.00	62.32	84,937.68
○ Lake Riley Alum Treatment	260,000.00	0.00	194.00	2,598.31	237,575.87	22,424.13
○ Lake Susan Improvements	275,000.00	0.00	0.00	0.00	267,894.28	7,105.72
○ ♦ Lake Susan Improvement Phase 2	383,400.00	0.00	19,355.50	93,292.64	110,034.42	273,365.58
○ Purgatory Creek Restoration	661,094.00	0.00	0.00	39,098.00	414,835.60	246,258.40
○ ♦ Chanhassen HS reuse	250,000.00	68,000.00	21.37	99,384.77	110,521.87	139,478.13
○ ♦ Community Resilience MPCA	47,000.00	0.00	0.00	28,426.55	41,221.18	5,778.82
○ ♦ Scenic Heights	260,000.00	0.00	3,244.58	51,042.94	51,042.94	208,957.06
○ Bluff Creek Tributary	200,000.00	0.00	5,596.50	54,621.46	54,621.46	145,378.54
○ Riley Creek Restoration	600,000.00	600,000.00	14,899.50	61,225.60	61,225.60	538,774.40
○ Purgatory Creek Rec Area	50,000.00	50,000.00	0.00	0.00	0.00	50,000.00
○ ♦ Fire Station 2 Water Reuse	113,715.00	20,000.00	444.30	19,025.36	19,025.36	94,689.64
Total Multi-Year Project Costs	**3,663,209.00**	**738,000.00**	**43,810.95**	**490,987.87**	**1,476,895.20**	**2,186,313.80**
Programs						
○ Watershed - 10 Year Plan	175,000.00	82,000.00	0.00	107,115.25	177,338.09	(2,338.09)
○ Repair and Maintenance	102,005.00	100,000.00	25,000.00	25,000.00	25,000.00	77,005.00
○ Survey and Analysis	37,257.00	0.00	0.00	0.00	23,792.63	13,464.37
Total Program Costs	**314,262.00**	**182,000.00**	**25,000.00**	**132,115.25**	**226,130.72**	**88,131.28**
Other						
Total Other	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Total Multi-Year Project Costs	**3,977,471.00**	**920,000.00**	**68,810.95**	**623,103.12**	**1,703,025.92**	**2,274,445.08**

Grant and Other Income Performance Analysis - Table 3
December 31, 2017

	Total Available for Project	Total Grant	Required	Additional	Partner	
○ ♦ Chanhassen Town Center	63,000.00	48,000.00	12,000.00	3,000.00		0.00
○ ♦ Fish Passage Bluff Creek	415,000.00	150,000.00	37,500.00	77,500.00	150,000.00	0.00
○ ♦ Lake Susan Improvement Phase 2	383,400.00	233,400.00	58,350.00	91,650.00		0.00
♦ Metropolitan Council - WOMP	5,000.00	5,000.00	0.00			0.00
○ ♦ Chanhassen HS reuse	250,000.00	200,000.00	50,000.00			0.00
○ ♦ Fire Station 2 Water Reuse	113,715.00	73,715.00		20,000.00	20,000.00	0.00
○ ♦ Community Resilience MPCA	47,000.00	27,000.00	10,000.00		10,000.00	0.00
○ ♦ Scenic Heights	260,000.00	50,000.00	0.00	165,000.00	45,000.00	0.00
Total Grants and Other Income	**1,537,115.00**	**787,115.00**	**167,850.00**	**357,150.00**	**225,000.00**	0.00

○ Denotes Multi-Year Project - See Table 2 for details
♦ Grants are supplementing the projects - See table 3 for further details
* Denotes the project will be overlapping by one year as it was not fully complete by year end.
‡ Includes the Master Design items - See Table 2 to details

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

Balance Sheet

As of December 31, 2017

ASSETS	
Current Assets	
Checking	2,538,108.55
Money Market Savings	-
Investments	1,488,799.54
Standing Cash in Investment Account	995,423.27
Total Current Assets	5,022,331.36
Other Assets	
Security Deposit	9,744.00
Prepaid Expenses	38,906.63
Delinquent Property Taxes	17,622.16
Accounts Receivable	8,353.00
Taxes Receivable	-
Total Other Assets	74,625.79
Total Assets	**5,096,957.15**
LIABILITIES AND NET ASSETS	
Liabilities	
Current Liabilities	
Accounts Payable	323,898.80
Payroll Withholding	252.52
Accrued Payroll	15,129.68
PERA Withholding	2,181.47
Total Current Liabilities	341,462.47
Other Current Liabilities	
Retainages Payable	13,469.38
Total Other Current Liabilities	13,469.38
Long-Term Liabilities	
Deferred Revenues	17,622.16
Unearned Revenue	143,389.16
Permit Escrows	704,352.00
Total Long-Term Liabilities	865,363.32
Total Liabilities	1,220,295.17
Net Assets	
Cumulative Fund Balance	3,086,853.82
Excess (Deficiency) Current	789,808.16
Total Net Assets	3,876,661.98
Total Liabilities and Net Assets	**5,096,957.15**

See Accountants Compilation Report

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
Klein Bank Visa Activity
December 31, 2017

seq	DATE	PURCHASE FROM	AMT	DESCRIPTION	ACCT #	Receipt
23	1-Dec	ARROWWOOD RESORT AND C 320-76211	$ 294.69	Advisory Committee	92002	y
24	1-Dec	ARROWWOOD RESORT AND C 320-76211	$ 294.69	Advisory Committee	92002	y
26	4-Dec	ARROWWOOD RESORT AND C 320-76211	$ 319.38	Advisory Committee	92002	y
			$ 908.76	**Advisory Committee Total**		
2	22-Nov	OREILLY AUTO #1509 CHANHASSE	$ 185.75	Data Collection	100802	y
3	22-Nov	AMAZON MKTPLACE PMTS AMZN.COM/	$ 543.75	Data Collection	100802	y
6	24-Nov	HACH COMPANY 970663137	$ 248.19	Data Collection	100802	y
7	24-Nov	CABELAS.COM 800-237-4	$ 327.26	Data Collection	100802	y
8	24-Nov	CABELAS.COM 800-237-4	$ 21.38	Data Collection	100802	y
9	24-Nov	AMAZON MKTPLACE PMTS AMZN.COM/	$ 23.97	Data Collection	100802	y
10	24-Nov	THE HOME DEPOT #2812 EDEN PRAI	$ 48.52	Data Collection	100802	y
14	28-Nov	SUPERAMERICA 4159 EDEN PRAI	$ 55.78	Data Collection	100802	y
17	30-Nov	THE HOME DEPOT #2812 EDEN PRAI	$ 129.27	Data Collection	100802	y
42	11-Dec	HOLIDAY STNSTORE 0337 BLOOMINGT	$ 35.96	Data Collection	100802	y
48	12-Dec	THE UPS STORE 0323 EDEN PRAI	$ 409.94	Data Collection	100802	y
51	13-Dec	AMAZON MKTPLACE PMTS AMZN.COM/	$ 11.49	Data Collection	100802	y
53	14-Dec	THE HOME DEPOT #2812 EDEN PRAI	$ 124.20	Data Collection	100802	y
55	18-Dec	THE HOME DEPOT #2812 EDEN PRAI	$ 7.62	Data Collection	100802	y
61	18-Dec	AMAZON MKTPLACE PMTS AMZN.COM/B	$ 280.14	Data Collection	100802	y
62	18-Dec	AMAZON MKTPLACE PMTS AMZN.COM/B	$ 42.18	Data Collection	100802	y
63	18-Dec	Amazon.com AMZN.COM/B	$ 42.90	Data Collection	100802	y
71	22-Dec	SUPERAMERICA 4159 EDEN PRAI	$ 37.84	Data Collection	100802	y
73	26-Dec	DAN S SOUTHSIDE MARINE 952-88100	$ 931.45	Data Collection	100802	y
77	28-Dec	THE UPS STORE 0323 EDEN PRAI	$ 60.37	Data Collection	100802	y
			$ 3,567.96	**Data Collection Total**		
4	22-Nov	AMAZON.COM AMZN.COM/BI AMZN.COM/	$ 161.04	Education & Outreach	93002	y
11	24-Nov	BARNES&NOBLE.COM-BN 800-843-2	$ 141.46	Education & Outreach	93002	y
12	24-Nov	BARNES&NOBLE.COM-BN 800-843-2	$ 192.02	Education & Outreach	93002	y
15	29-Nov	WALGREENS #6280 EDEN PRAI	$ 36.56	Education & Outreach	93002	y
28	1-Dec	SHUTTERFLY 800-986-1	$ 80.58	Education & Outreach	93002	y
29	6-Dec	M.W. WIREWORKS M.W. WI WWW.MWWIR	$ 400.00	Education & Outreach	93002	y
31	7-Dec	TARGET.COM * 800-591-3	$ 43.00	Education & Outreach	93002	y
33	8-Dec	OFFICEMAX/OFFICE DEPOT 800-463-3	$ 12.02	Education & Outreach	93002	y
34	8-Dec	OFFICE DEPOT #1090 800-463-3	$ 133.07	Education & Outreach	93002	y
35	8-Dec	EDDIE BAUER.COM 800-426-8	$ 258.00	Education & Outreach	93002	y
36	11-Dec	EDDIE BAUER.COM 800-426-8	$ 48.00	Education & Outreach	93002	y
37	13-Dec	EDDIE BAUER 911 EDEN PRAI	$ (36.00)	Education & Outreach	93002	y
38	13-Dec	EDDIE BAUER 911 EDEN PRAI	$ 40.00	Education & Outreach	93002	y
40	8-Dec	IKEA BLOOMINGTON BLOOMINGT	$ 211.74	Education & Outreach	93002	y
45	11-Dec	ZOHO CORPORATION 877-834-4	$ 420.00	Education & Outreach	93002	y
49	13-Dec	THE PROP SHOP EDEN PRAI	$ 12.90	Education & Outreach	93002	y
50	13-Dec	HOTWIRE-SALES FINAL 866-468-9	$ 218.30	Education & Outreach	93002	y
52	14-Dec	THE HOME DEPOT #2812 EDEN PRAI	$ 281.05	Education & Outreach	93002	y
54	14-Dec	EDDIEBAUER.COM 800-426-8	$ 120.00	Education & Outreach	93002	y
56	18-Dec	Quetopia Bbq Supply & MINNETONK	$ 160.00	Education & Outreach	93002	y
58	18-Dec	FULLY INC 888-508-3	$ 840.00	Education & Outreach	93002	y
59	18-Dec	BENT CREEK GOLF CLUB 952-93707	$ 1,495.84	Education & Outreach	93002	y
66	20-Dec	BESTBUYCOM805521766518 888-BESTB	$ 86.01	Education & Outreach	93002	y
67	20-Dec	BESTBUYCOM805521766518 888-BESTB	$ 150.52	Education & Outreach	93002	y
68	20-Dec	BESTBUYCOM805521766518 888-BESTB	$ 212.89	Education & Outreach	93002	y
70	21-Dec	HOOPS AND THREADS CHANHASSE	$ 64.13	Education & Outreach	93002	y
79	2-Jan	Amazon.com AMZN.COM/	$ 622.57	Education & Outreach	93002	y
80	2-Jan	SEACHANGE PRINTING AND 763-58637	$ 1,579.25	Education & Outreach	93002	y
81	2-Jan	BESTBUYCOM805524578718 888-BESTB	$ 20.42	Education & Outreach	93002	y
82	2-Jan	BESTBUYCOM805524578718 888-BESTB	$ 967.71	Education & Outreach	93002	y
83	2-Jan	Amazon.com AMZN.COM/	$ 47.32	Education & Outreach	93002	y
			$ 9,020.40	**Education & Outreach Total**		
5	24-Nov	MINNESOTA ASSOC OF WAT SAINT PAU	$ (200.00)	Managers General Expense	70402	y
16	30-Nov	KOWALSKI'S MARKET EDEN PRAI	$ 192.85	Managers General Expense	70402	y
25	4-Dec	ARROWWOOD RESORT AND C 320-76211	$ 294.69	Managers General Expense	70402	y
27	4-Dec	ARROWWOOD RESORT AND C 320-76211	$ 312.69	Managers General Expense	70402	y
30	7-Dec	LUNDS&BYERLYS CHANH CHANHASSE	$ 101.78	Managers General Expense	70402	y
74	26-Dec	VP MN LAKES RIVERS A 952-854-1	$ 169.00	Managers General Expense	70402	y

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
Klein Bank Visa Activity
December 31, 2017

seq	DATE	PURCHASE FROM	AMT	DESCRIPTION	ACCT #	Receipt
			$ 871.01	**Managers General Expense Total**		
32	8-Dec	OFFICEMAX/OFFICEDEPOT6 800-463-3	$ 8.95	Office Expense	170402	y
39	8-Dec	U OF M- REUSE CENTER MINNEAPOL	$ 129.63	Office Expense	170402	y
41	8-Dec	CARVER COUNTY ENVIRONM CHASKA	$ 32.00	Office Expense	170402	y
43	11-Dec	MSFT * E050050M6Z 800-642-7	$ 80.64	Office Expense	170402	y
44	11-Dec	OFFICE DEPOT #1090 800-463-3	$ 21.49	Office Expense	170402	y
46	11-Dec	GIH*GLOBALINDUSTRIALEQ 800-645-2	$ 91.40	Office Expense	170402	y
47	12-Dec	LAKEWINDS - CHANHASSEN CHANHASSE	$ 14.83	Office Expense	170402	y
57	18-Dec	VZWRLSS*MY VZ VB P 800-922-0	$ 785.02	Office Expense	170402	y
60	18-Dec	GENERAL DELIVERY SERVI 612-78124	$ 125.68	Office Expense	170402	y
64	18-Dec	Amazon.com AMZN.COM/B	$ 107.51	Office Expense	170402	y
65	19-Dec	RANDYS SANITATION DELA 763-97233	$ 51.58	Office Expense	170402	y
69	20-Dec	APL*APPLE ONLINE STORE 800-676-2	$ 32.20	Office Expense	170402	y
75	27-Dec	RANDYS SANITATION DELA 763-97233	$ 54.92	Office Expense	170402	y
76	28-Dec	AMAZON MKTPLACE PMTS W WWW.AMAZO	$ 71.48	Office Expense	170402	y
			$ 1,607.33	**Office Expense Total**		
1	21-Nov	ALASKA AI0272156540759 SEATTLE	$ 208.80	Conferences & Training - Staff	71002	y
13	27-Nov	PASTURE PRIDE LLC CASHTON	$ 21.12	Conferences & Training - Staff	71002	y
18	1-Dec	HOLIDAY STNSTORE 0029 ALEXANDRI	$ 32.08	Conferences & Training - Staff	71002	y
19	1-Dec	ARROWWOOD RESORT AND C ALEXANDRI	$ 556.28	Conferences & Training - Staff	71002	y
20	1-Dec	ARROWWOOD RESORT AND C ALEXANDRI	$ 556.28	Conferences & Training - Staff	71002	y
21	4-Dec	ARROWWOOD RESORT AND C 320-76211	$ 14.21	Conferences & Training - Staff	71002	y
22	5-Dec	ARROWWOOD RESORT AND C ALEXANDRI	$ (185.42)	Conferences & Training - Staff	71002	y
72	26-Dec	AMER SOC CIVIL ENGINEE RESTON	$ 620.00	Conferences & Training - Staff	71002	y
78	29-Dec	AMER SOC CIVIL ENGINEE RESTON	$ 620.00	Conferences & Training - Staff	71002	y
			$ 2,443.35	**Conferences & Training - Staff Total**		
			$ 18,418.81	**Grand Total**		

Note: some items were purchased in 2017, but on charged on the credit card until 2018

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Riley Purgatory Bluff Creek
Watershed District
Eden Prairie, MN

To the Board of Managers:

Accountant's Opinion

The Riley Purgatory Bluff Creek Watershed District is responsible for the accompanying December 31, 2017 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 the 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 outside 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.

JMSC, PLLC

JMSC, PLLC
St. Louis Park, MN
January 29, 2018

2018 Road Salt Symposium Agenda

8:30 a.m. – 2:45 p.m. (registration begins at 8:00 a.m.)

Registration/Continental Breakfast
Coffee/tea/water; light breakfast

REGISTRATION COST
$135

Welcome and Introductions
Leslie Yetka, Program Director, Freshwater Society
Connie Fortin, President, Fortin Consulting

Mayor's Welcome
Paul Soglin, Mayor of Madison, Wisconsin
Chronic high chloride levels in water resources. How is Madison addressing this situation both short and long term?

Presentation – Salting our Freshwater Lakes
Hilary Dugan Ph.D. Limnologist, University of Wisconsin, Madison
Research update on lake salinization, including long-term chloride trends in over 500 lakes in North America and Europe. Many urban lakes in North America have undergone considerable salinization stemming from road salt application. What are the short and long-term impacts? Can we reverse course? Is it too late?

Innovations in Application – Reducing Chloride Use
Winter Plowing and Deicing: Saving Money, Salt and Labor by Distinguishing Best Practices From Urban Legends
Stephen Druschel, Minnesota State, Mankato

Plow Blades and other Optimizations for Reducing Salt Use
Dr. William Schneider, Associate Professor, University of Ohio, Akron

Keeping the Weather on Your Side: Making Sense of Available Weather Data
Mike Adams, Meteorologist, Wisconsin DOT

Environmental Leadership Awards
Recognizing innovation and advancement in chloride reduction and best practices

Lunch

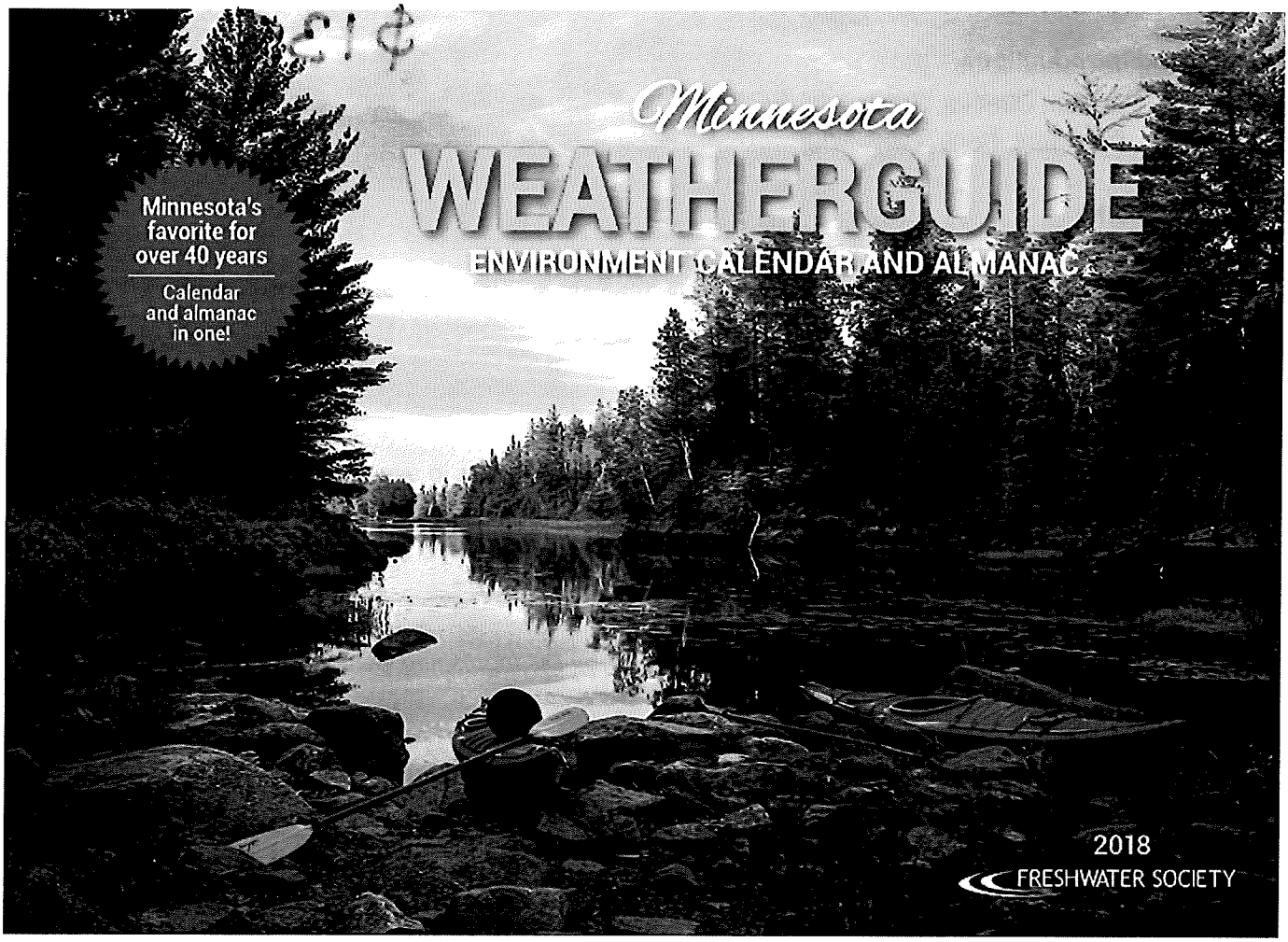
Emerging Issues in Application – Where Are We Headed?
Recent Advances in Understanding the Performance of Liquid Deicers
Scott Koefod, Cargill

Reusing Water Softener Discharge for Winter Maintenance
Mike Gresch, Madison, Wisconsin

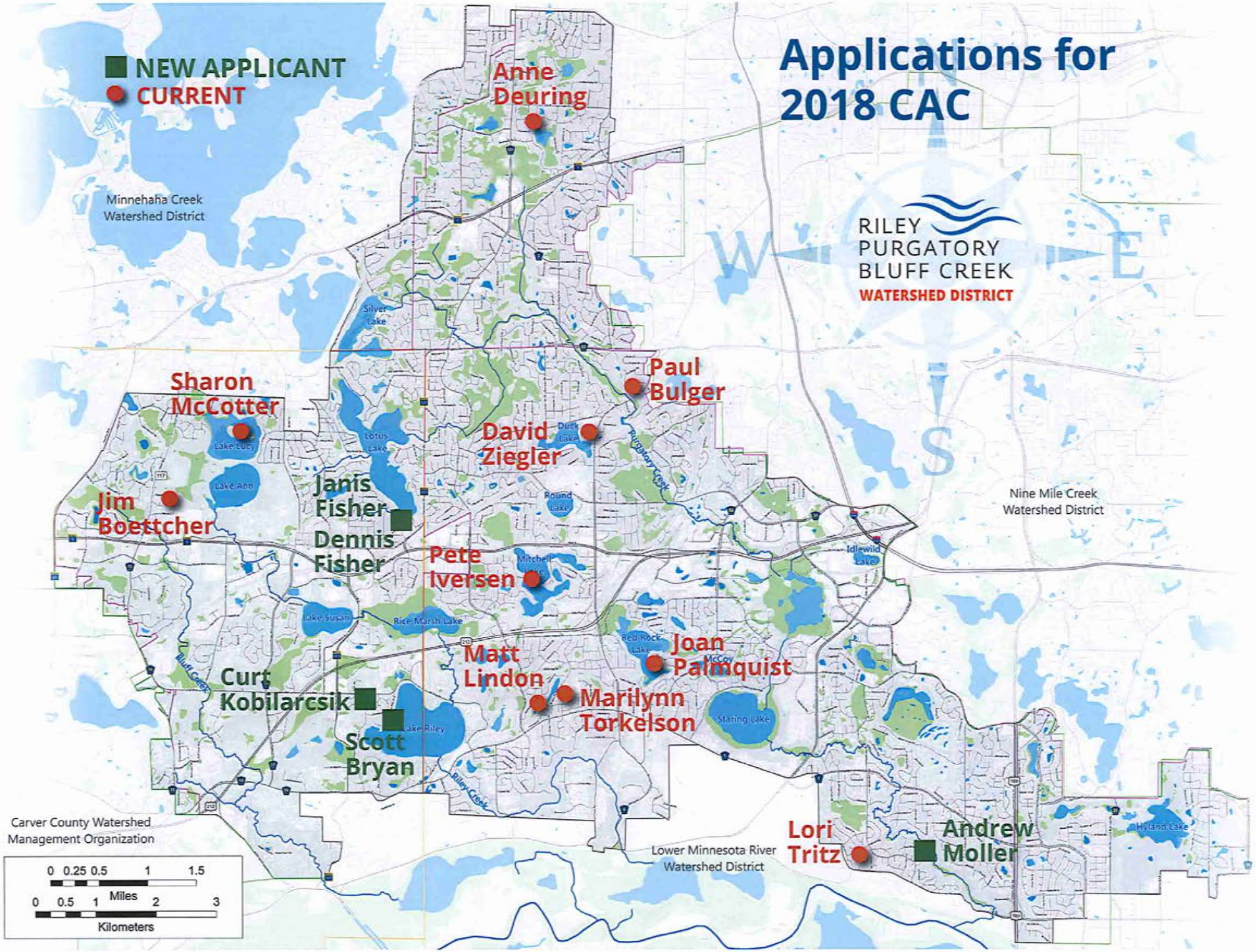
Interactive session on emerging issues
Connie Fortin, Fortin Consulting and Leslie Yetka, Freshwater Society

Local Chloride Initiatives
MPCA Statewide Updates
Brooke Asleson and Rachel Olmanson, MPCA

Wrap Up and Closing Remarks



Info | Purchase


NEW APPLICANT
CURRENT
Applications for 2018 CAC
Anne Deuring
Minnehaha Creek Watershed District
RILEY PURGATORY BLUFF CREEK
WATERSHED DISTRICT
Sharon McCotter
Paul Bulger
David Ziegler
Jim Boettcher
Janis Fisher
Dennis Fisher
Pete Iversen
Nine Mile Creek Watershed District
Matt Lindon
Joan Palmquist
Curt Kobilarcsik
Marilynn Torkelson
Scott Bryan
Lori Tritz
Andrew Moller
Carver County Watershed Management Organization
Lower Minnesota River Watershed District
0 0.25 0.5 1 1.5
Miles
0 0.5 1 2 3
Kilometers

Please send via email to mjordan@rpbcwd.org, or to the address below:
18681 Lake Drive East, Chanhassen MN 55317

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

Deadline: **26 January 2018**

Application:
Citizen Advisory Committee (CAC)

Name: Scott Bryan

Address where you reside: *(if you are employed in the District, please also list address of employment)*

9211 Lake Riley Blvd., Chanhassen, MN 55317

Email: srbryan@comast.net Phone Number: (612) 804-3823

Why are you interested in becoming a Citizen Advisor for the Watershed District?

I moved onto Lake Riley about 18 months ago. I want to learn more about the watershed and the activities that are being done to improve it. I think it is important that the homeowners on Lake Riley have a representation on this advisory committee and that we work together with the Watershed District.

What do you hope to accomplish while serving on the committee?

To improve two-way communication between Lake Riley land owners and the Watershed District.

What are the strengths and/or qualifications you can bring to help this committee fulfill its purpose and duties?

I have a Ph.D. in Analytical Chemistry and am interested in the understanding the chemical treatments and other projects being done to improve water quality and manage invasive species. I can understand the science behind the projects and help explain it to the other stakeholders on the lake.

One of the roles of CAC members is to identify education needs in the community. What is one need, related to water, that you have seen?

I want to better understand and educate the other lakefront property owners on opportunities to partner with the watershed district to jointly fund projects to reduce phosphorous levels in the lake. I am on the LRIA executive committee

Are you able to commit to attending monthly meetings and special topical meetings as needed?

Yes, I have a fairly flexible schedule and will only miss if I am traveling out of town for work.

☐ ☐

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

Position description:
Citizen Advisory Committee (CAC)

deadline: 26 Jan 2018

Position: Citizen Advisor on a committee of the Riley Purgatory Bluff Creek Watershed District (RPBCWD)
Type: Volunteer

Term: CAC memberships are renewed annually; no term limits

Time Commitment: CAC members meet on a regular basis. This may include monthly meetings and special topical meetings as needed. Citizen advisors are expected to attend at least 2/3 of these meeting and show commitment to the duties of the committee.

Reports to: The RPBCWD Board of Managers

Purpose: The CAC meets monthly to advise the RPBCWD Board of Managers, to assist in developing programs and activities that help improve and protect the water resources of the RPBCWD. The CAC fulfills legislative requirements for watershed districts (Minnesota Statutes: Section 103D.331).

Scope of duties: In accordance with Minnesota Statutes § 103D.331, the CAC is organized to advise and assist the Riley-Purgatory-Bluff Creek Watershed District Board of Managers on all matters affecting the interests of the watershed, and to make recommendations to the managers on all projects and improvements. The duties of the CAC include: supporting the mission and goals of the RPBCWD; reviewing and commenting on reports, minutes, activities, programs and projects of the RPBCWD; considering issues pertinent to the functions and purposes of the RPBCWD; advising in decision-making; raising issues of concern from the public; providing guidance on and assisting with coordination of volunteer activities; reporting to the Board of Managers on the content of CAC meetings and resulting recommendations.

Membership Policy
Preference is given to applicants who:

- Are residents of the RPBCWD (check our website for district boundaries, or call 952-607-6512)
- Represent a balance of areas across the watershed district, and diversity of backgrounds
- Are property owners, employers or employees in the RPBCWD

Desired Qualifications:

- Interest in natural resource protection/management, education & outreach, planning, etc, and fulfilling the duties of the CAC
- Ability to serve as a liaison to the RPBCWD for the area where you live/work
- Ability to work and communicate effectively with others

Benefits:

- Learn more about the watershed and issues facing our land and water resources
- Become an engaged citizen and meet other community-minded people
- Participate in watershed activities and trainings

For more information on the actions and activities of the CAC, visit:
http://rpbcwd.org/about/citizen-advisory-committee/

Please send via email to mjordan@rpbcwd.org, or to the address below:
18681 Lake Drive East, Chanhassen MN 55317

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

Deadline: **26 January 2018**

Application:
Citizen Advisory Committee (CAC)

Name: Janis Fisher

Address where you reside: *(if you are employed in the District, please also list address of employment)*
7501 Erie Ave., Chanhassen

Email: jilshome@gmail.com

Phone Number: 612-386-0979

Why are you interested in becoming a Citizen Advisor for the Watershed District?
Like to see cleaner water
less crowding on weeck-ends

What do you hope to accomplish while serving on the committee?
Find a way to get clearer water
Also have seen large carp - Do we want these?

What are the strengths and/or qualifications you can bring to help this committee fulfill its purpose and duties?
Grew up around lakes - 2 cabins as a kid
Daily beach time, etc.
Concern about zebra mussels

One of the roles of CAC members is to identify education needs in the community. What is one need, related to water, that you have seen?
Lotus water is cloudy not clear
Used to live on Parkers Lake in Plymouth & traced styrofoam run-off from truck unloading station

Are you able to commit to attending monthly meetings and special topical meetings as needed?

[X] yes [ ] no

Please send via email to mjordan@rpbcwd.org, or to the address below:
18681 Lake Drive East, Chanhassen MN 55317

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

Deadline: **26 January 2018**

Application:
Citizen Advisory Committee (CAC)

Name: DENNIS C. FISHER

Address where you reside: *(if you are employed in the District, please also list address of employment)*
7501 ERIE AVE., CHANHASSEN, MN 55317

Email: FISHERCORP@QWESTOFFICE.NET

Phone Number: 952-451-6121

Why are you interested in becoming a Citizen Advisor for the Watershed District?

CONCERN ON LAKE QUALITY OF WATER

What do you hope to accomplish while serving on the committee?

HOPE TO BRING UNDERSTANDING OF PROTECTING THE LAKE. (LOTUS)

What are the strengths and/or qualifications you can bring to help this committee fulfill its purpose and duties?

OWNED CONSTRUCTION COMPANY FOR NEARLY 20 YEARS. MEMBER OF CIVIC GROUP/LION'S CLUB OF CHANHASSEN.

One of the roles of CAC members is to identify education needs in the community. What is one need, related to water, that you have seen?

ENSURING ZEBRA MUSSELS DON'T INFECT LIKE LAKE MINNETONKA.

Are you able to commit to attending monthly meetings and special topical meetings as needed?

☒ yes ☐ no

Please send via email to mjordan@rpbcwd.org, or to the address below:
18681 Lake Drive East, Chanhassen MN 55317

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

Deadline: **26 January 2018**

Application:
Citizen Advisory Committee (CAC)

Name: Curt Kobilarcsik

Address where you reside:
9149 Springfield Drive, Chanhassen MN 55317

Email: thekobilarcsiks@mchsi.com Phone Number:952-237-0828

Why are you interested in becoming a Citizen Advisor for the Watershed District?

As a resident of Chanhassen since 1999 and before that a resident of Eden Prairie since 1996, I have a long history in the area. As an avid user of the parks and trails in the area and an appreciation of the lakes, rivers, creeks, wetlands, and streams, I would like to see us protect the resources that we have, while also providing improvements in the areas of flood control and water quality. It is possible to not only maintain what we have, but to improve upon it to safeguard these resources.

What do you hope to accomplish while serving on the committee?

I would like to be a part of not only protecting our water resources but also improving the resources that we have within the framework of the Board's priorities. With appropriate planning and oversight, development and redevelopment brings opportunity for enhancement of these resources and could result in a better overall resource in the future.

What are the strengths and/or qualifications you can bring to help this committee fulfill its purpose and duties?

I feel that I have the background and the interests to add benefit to the Watershed District and the community. I have always had an interest in public service and am currently working for Scott County as the Assistant County Engineer and am serving on the Carver County Parks Commission. I have worked with various Watershed Districts as a civil engineering consultant and in County government in meeting the requirements for permitting for stormwater ponding for highway construction projects. I believe that I have the technical background and background in communicating issues with property owners that would help the committee fulfill its purpose and duties.

Please send via email to mjordan@rpbcwd.org, or to the address below:
18681 Lake Drive East, Chanhassen MN 55317

One of the roles of CAC members is to identify education needs in the community. What is one need, related to water, that you have seen?

I believe that with communication and education that certain property owners in the district could be willing to allow improvements on their property for the benefit of water resources. It would be important to identify key locations that would see the most benefit to the water resources while also providing some benefit to the property owner.

Are you able to commit to attending monthly meetings and special topical meetings as needed?

[x] yes [ ] no

Please send via email to mjordan@rpbcwd.org, or to the address below:
~~14500 Martin Drive, Suite 1500, Eden Prairie 55344~~18681 Lake Drive East, Chanhassen MN 55317

For more information on the actions and activities of the CAC, visit:

- http://rpbcwd.org/about/citizen-advisory-committee/

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

Deadline:

2~~8 November~~ 2016 January

Application:
Citizen Advisory Committee (CAC)
~~deadline: 28 Nov 2016~~

Name: Andrew Moller

Address where you reside: *(if you are employed in the District, please also list address of employment)*:

11037 Branching Horn Eden Prairie, MN 55347

Email: uskiumah@comcast.net

Phone Number: 952-294-8057

~~Which sub-watershed are you part of? (example: Duck Lake, Riley Creek, etc. Don't know? leave blank)~~

Why are you interested in becoming a Citizen Advisor for the Watershed District? I live on the bluff overlooking Purgatory Creek. I believe I have taken steps to manage my bluff land carefully and am interested in bluff preservation efforts.

What do you hope to accomplish while serving on the committee? Park land owned by the City of Eden Prairie has been over grown with buckthorn. This limits the new growth of desirable oak trees. Other cities have tried using goats and citizen volunteers to control buckthorn. I support the RPBCWD efforts to educate Eden Prairie city staff about the harmful effects of uncontrolled buckthorn growth.

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Please send via email to mjordan@rpbcwd.org, or to the address below:
~~14500 Martin Drive, Suite 1500, Eden Prairie 5534~~18681 Lake Drive East, Chanhassen MN 55317

What are the strengths and/or qualifications you can bring to help this committee fulfill its purpose and ~~goals~~duties?
I grew up on a farm where we had some acreage of wooded land with a lot of oak trees. This land has been preserved by my brother Robert who now owns the family farm. I received an MBA from the University of Minnesota in 1990 so I understand cost constraints. I was CFO, Vice President and Corporate Secretary of Christopher & Banks Corporation for 10 years so I have experience working with boards.

One of the roles of CAC members is to identify education needs in the community. What is one need, related to water, that you have seen? In 2014, a city water pipe burst and resulted in extensive costly bluff work and a house being condemned on Burr Ridge Lane. There is seemingly a need to work with the City of Eden Prairie to identify other water pipes which are located on the bluff and gain assurance that these pipes are in good condition.

Are you able to commit to attending monthly meetings and special topical meetings as needed? Yes

☐ yes ☐ no

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RILEY PURGATORY BLUFF CREEK
WATERSHED DISTRICT

14500 Martin Drive | Suite 1500
Eden Prairie, MN 55344
952-607-6512
www.rpbcwd.org

Date: Friday, February 2, 18
To: Cities, Counties, Met Council, and State Review Agencies
From: Claire Bleser, Riley-Purgatory-Bluff Creek Watershed District
Re: Watershed Management Plan

The Riley-Purgatory-Bluff Creek Watershed District has reviewed comments for it's 4th generation Watershed Management Plan.

Plans were made available on November 15, 2017 with the comment period ending on January 15, 2018. The District received comments from16 members of the community, agencies and cities. After careful review of all the comments, the Riley-Purgatory-Bluff Creek Watershed District has compiled and made some changes to it's the 10-year plan. Please find compiled comments and response enclosed to this document.

The public hearing is scheduled for March 7, 2018 at 7:00pm at the District office located at 18681 Lake Drive East in Chanhassen.

Thank you for taking part in the review process of the District's plan.

Sincerely,

Claire Bleser

Claire Bleser

Public Notice
(Official Publication)
Notice of Public Hearing
Riley Purgatory Bluff Creek Watershed District
Watershed Management Plan

PLEASE TAKE NOTICE that the Board of Managers of the Riley Purgatory Bluff Creek Watershed District will hold a public hearing consistent with Minnesota Statutes section 103B.231, on March 7, 2017, at 7:00 p.m. at District Office, 18681 Lake Drive East, Chanhassen to receive comments and consider the Districts Fourth Generation Water Management Plan (Plan).

The hearing will be held as part regular meeting of the Board of Managers. The amendment is to provide a structure for each watershed city to adopt updates to its ordinance to maintain conformity to the RPBCWD rules or defer exercise of regulatory authority to RPBCWD. At the conclusion of the public hearing, the Board of Managers will weigh all comments received in writing and offered at the public hearing before considering submittal of the Plan for MN Board of Water and Soil Resources final 90-day review.

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To review the full text of Plan and written comments, please visit the District's website at www.rpbcwd.org.

Dated: February 7, 2018

BY ORDER OF THE BOARD OF MANAGERS

Richard Chadwick, Secretary

60-Day Review Draft RPBCWD 10-Year Plan Review Comment Tracking Form

TABLE 1 - Document Information

Document #	"Document" Information			
	Document Name	Type	Date	Description
1	60-Day Review Draft Planning for the Next Ten Years 2018-2027	Report	11/15/2017	DRAFT version of the RPBCWD 10-year Watershed Management Plan released for 60-day public and agency review between (60-day review period 11/15/17-1/5/18)

TABLE 2 - Comments

Comment #	Date	Reviewer Name	Document # [see TABLE 1]	Document Element [Report, Figure, Appendix, etc.]	Reference [Section #]	Page/Sheet	Comment	Response to comment
Example	9/12/2017	John Doe	1	Figure 2.3.4	2	45	I'm having a hard time differentiating between the colors.	
1	1/15/2018	Ryan Majkrzak			Watershed Plan		On behalf of the Lake Riley Improvement Association (LRIA) Board, I would like to thank the RPBCWD Watershed Staff and Managers for putting this 10 Year Plan together. Our LRIA Board has reviewed the Plan and had the opportunity to speak with the District Administrator at length regarding its contents. It is our view that the process used to develop the plan was thorough, public visibility of the process was high, and the projects identified for implementation are appropriate. We specifically reviewed with great interest the projects planned for the Riley Creek Watershed, and are generally pleased to see a number of beneficial projects planned for the next 10 years. This includes: completion of alum treatment on Lake Riley, alum treatments for Rice Marsh Lake and Lake Susan, stabilization and restoration of Upper and Middle Riley Creeks, and a few watershed load control projects for the Lake Susan and Rice Marsh Lake watersheds. Our one concern is the absence of specific watershed load control projects planned for the Lake Riley watershed during the plan period. We look forward to understanding more about how the boat ramp project completed on Lake Riley in 2017 may have achieved some level of reduction in loading for LR_88 and LR_90. We also look forward to working with the RPBCWD Staff to help identify Opportunity and Cost Share projects to benefit the Lake Riley watershed as we move forward. On behalf of the LRIA Board, Ryan Majkrzak President, LRIA	Thank you for your comments. We look forward to continued collaboration with our partners and the LRIA to manage, protect and restore our resources.
2	1/10	Sharon McCotter			Watershed Plan		Paul Bulger, from the CAC, submitted comments on the overall plan that had some very specific SMART goals. Overall I agree with Paul's comments and the idea of SMART goals. I am not an expert in these areas and am not sure that the specific goals he has stated are attainable. With that said, if Paul's goals are attainable, I would support them. If a goal is too far out of reach, I would recommend staff offer an alternate SMART goal that would be attainable within the scope of the plan. Thanks for listening and for all your hard work at bringing the plan to life.	The District has incorporated in page 1 of section 9 a plan outcomes that highlight the water improvements we intend to implement in the next ten years.
3	1/5	Joan Palmquist			Chapter 1		This is a general comment, not just about the introduction. As a member of the CAC I support the detailed comments made by another CAC member, Paul Bulger. In particular, I strongly believe the plan would be greatly strengthened by incorporating specific, measurable, actionable, reasonable and time bound (SMART) goals. The exact wording can be determined by staff, but as currently worded much of this is open ended, with no way of really measuring the impact. I hope these comments are taken to heart. Thank you.	The District has incorporated in page 1 of section 9 a plan outcomes that highlight the water improvements we intend to implement in the next ten years.
4	12/13	David Ziegler			Chapter 1		1-11 Section 1.4. With all of the agencies involved in water protection, it would be helpful to have a chart with answers to frequently asked questions like: 1. Which agencies are responsible for developing and maintaining the storm water drains and pipes? 2. Which agencies are responsible for monitoring and managing the aquifers, and managing water usage drawn from the aquifers? 3. Which agencies are responsible for managing native and invasive aquatic plant groth in lakes in the watershed district?	The District modified Figure 1-3 to incorporate answers to questions 2 and 3. We added a "did you know box" to answer question1.
5	12/15	David Ziegler			Chapter 3		In Chapter 3, section 3.2.6.1 Water Quality Goals. WQual 1. Protect, manage, and restore water quality of District lakes and creeks to maintain or achieve designates uses. Protect and manage water quality of all lakes in the district that are not currently listed as impaired by the DNR. Implement BMPs to restore all impaired lakes to meet or exceed DNR standards for each lake by the end of 2025. Implement BMPs and regulations to protect, manage, and restore all creeks in the district so 95% of the creek water meets or exceeds DNR standards for non-impaired creeks by the end of 2025. In chapter 3, section 3.2.6.3 Ground Water Goals. Ground 1. Promote the sustainable management of groundwater resources. Implement programs to reduce then eliminate aquafer drawdown to zero by the end of 2025.	*The District has incorporated in page 1 of section 9 a plan outcomes that highlight the water improvements we intend to implement in the next ten years.*
6	12/21	Paul Bulger					The District is to be commended for taking a leadership position and multiple accomplishments in recent years. This includes: • Hiring and development of talented District Staff to actively manage the District activities. This is a cost effective means to collect, maintain and analyzed the data needed to guide district decisions. • Implementation of Regulations. • Development and implementation of the CRAS. • 2016 Watershed District of the Year • Climate Adaptation seminar and planning • AIS Rapid Response efforts • Hosting a Minnesota's 25% by 2025 Water Quality Improvement Forum • 10 Year Plan – Developing a comprehensive framework for resource management. In particular obtaining stakeholder input and incorporate this input into the plan is greatly appreciated. I encourage the Board continue this progress and in taking a strong leadership position.	Thank you for your support.
7	12/22	Paul Bulger					In the Introduction Section, it states that Hyland Lake was cited to have algal problems in 1971. Later in the Plan, Table 5-5 list Hyland Lake as impaired for nutrients, suggesting there is minimal improvement almost 50 years later, despite establishing a Watershed District and the above cited accomplishments. Further, in 2018 at least four lakes and creeks in the District are being added to the impaired waters list.	Comment noted

Comment #	Date	Reviewer Name	Document # [see TABLE 1]	Document Element [Report, Figure, Appendix, etc.]	Reference [Section #]	Page/Sheet	Comment	Response to comment
8	12/23	Paul Bulger					The District has a 2018 annual levy of approximately $3,400,00, for the estimated 80,000 residents in the district. This amounts to ~$42/person annually, approximately one beverage from Starbucks/Caribou per month. Eden Prairie and Chanhassen have been ranked highly in Money magazines as one of the top places to live in the country, with the aesthetic natural resources considered to be an asset. Your role and efforts to protect and enhance these resources is appreciated.	Thank you
9	12/24	Paul Bulger					The Board is encouraged to adopt more proactive, numerical and time bound measures into the District 10 Year Plan to protect, manage and restore these resources for the current and future generations. To achieve the priorities stated by the public during the 10 Year Plan input process, this may include increasing the levy in future years. I recognize budget decisions are made annually. Yet the Board is setting the District priorities and intention in this Plan, so it is important to be clear about what steps the District may take to measure and achieve responsible environmental stewardship.	Thank you for your comment.
10	12/25	Paul Bulger					p. 16-19 – The addition of more projects post-2005 benefits to show District activities.	The district history is intended to be a high level overview of past efforts.
11	12/26	Paul Bulger			Chapter 1		p. 20 add brief timeline for creation of the 2011 - 10 Year Plan. While it is mentioned over the various years in section 1.5, the text seems to jump to section 1.6 "10 Year Plan accomplishments".	References to the 3rd generation plan in section 1.5 where revised to tied to the 2011 plan.
12	12/27	Paul Bulger			Chapter 3		The clarification of goals vs. strategies is appreciated. Please consider how to include measurable goals and strategies, both numerical and time bound, criteria in this section. I provided this comment on the previous draft yet it does not seem to be incorporated. Also, I have heard Administrator Bleser say 'the Pan includes guidelines for the district', yet in other statements 'capital improvement projects cannot be initiated unless they are included in the Plan'. Thus, I take this to mean the Plan should include all potential projects and the target the district is seeking. The projects are then selected based on science and budget. The redline text below is important to make it clear what the target criteria the District will use to ensure adequate progress toward – ' protect, restore, preserve'. Without adding more explicit criteria to the strategies, I am concerned meeting water quality standards will not be obtained for decades.	The Plan is indeed a guide for the District on how to manage activities in the watershed. The District has limited funds to implement projects and programs. In order to determine which projects would be a higher priority to implement, the district developed a prioritization tool that looked at all possible project at the time of the evaluation. All these are included in the plan but not all of them have been incorporated into the implementation table 9-1. Yes, you are correct in stating that we would need a plan amendment in the possibility that they became a priority for the District.
13	12/28	Paul Bulger			Chapter 3		(p. 2) 3. Design, maintain, and implement Education and Outreach programs to educate, inform and engage the public, to facilitate protecting, managing and restoring water resources. (EO 1)	Thank you for your comments. EO1 has been revised. Design, maintain, and implement Education and Outreach programs to educate the community and engage them in the work of protecting, managing and restoring water resources.
14	12/29	Paul Bulger			Chapter 3		(p. 9, Pollution) WQual S13. The District will continue to minimize pollutant loading to water resources through implementation of the District's regulatory, education and outreach, and incentive programs. This includes establishing specific targets for water bodies, following the criteria of the proposed Minnesota's 25% by 2025 Water Quality Improvement goal. Using 2017 as baseline data: • 25% reduction in phosphorus levels in streams and lakes, by 2025 • 25% reduction in sediment streams and lakes, by 2025 • 25% reduction in nitrogen in surface water and groundwater by 2025 • 25% improvement in lake water clarity, by 2025 • Alternatively each of the above goals could be revised to 15% by 2025 and an additional 10% by 2030.	For the last two years, the District has been reporting this pollutant load reductions and other improvements through it's annual reporting system under the regulatory section. The District currently working on streamlining this process of reporting to be included in our incentive programs. Our education and outreach program will use a reporting mechanism that falls into line with the Education and Outreach Plan that can be found in Appendix B. The District plans on developing a web interface where the community will be able to track where we are in the 10 year plan in the implementation of our projects and view the many benefits of these projects. A draft of the report card is included in the section 10. The District has incorporated in page 1 of section 9 a plan outcomes that highlight the water improvements we intend to implement in the next ten years. Thank you for your comment.
15	12/30	Paul Bulger			Chapter 3		WQual S14. The District will continue to identify opportunities and actions to protect, restore, and enhance District-managed resources. For creeks and lakes monitoring data that show increased pollutant concentration more than three consecutive years and/or reach 90% of the applicable state water quality standard , the BMP and treatment plans listed in the UAA for that water body will be initiated within one year.	As part of the data collection program the District intends to continue to monitor and assess the lake using its adaptive management approach described in Figure 9-1 and the District's lake management decision tree (see Figure 9-2).
16	12/31	Paul Bulger			Chapter 3		WQual S17. The District will cooperate with member cities, the MPCA and other stakeholders in the development of total maximum daily load (TMDL) and watershed restoration and protection strategies (WRAPS) studies. This strategy includes the following objectives: • All District lakes and creeks on the impaired waters list in 2017 will have a TMDL developed prior to 2020 for each pollutant listed on Table 5-5 • All District lakes and creeks on the impaired waters list in 2017 will implement treatment programs to attain water quality that allows delisting of 50% of the water bodies by 2025 and the remaining 50% by 2035. • The District has a primary objective of using monitoring and regulatory programs to avoid the addition of more lakes and creeks to the impaired waters list after 2018. Lakes / creeks with results that are 90% of the State WQ standards will implement the appropriate treatment and BMP programs, as identified in the UAA, to avoid further impairment. (Note: this rapid response would be comparable to the capability shown by the District during AIS rapid response completed in 2016/2017).	The Minnesota Pollution Control Agency is the authority that is developing TMDLs and incorporating them into the WRAPS program. We will continue to assist the MPCA in this effort. However, we do not know their time frame. The District will be evaluating the plan every two to determine if adjustments are needed in the plan's course of action. These adjustment would be in line with our management decision trees.
17	1/1	Paul Bulger			Chapter 3		Ground S1. The District will promote the conservation of groundwater resources through its education and outreach program and will work with cities to encourage conservation practices (e.g., reduced consumption, water reuse). This includes working with Cities to adopt practices to reduce/minimize groundwater withdrawls and prevent aquifer depletion below 2015 water levels, as measured in the proximity (i.e. <1000 feet) of each city supply well.	Thank you for your comment. The Department of Health and the Department of Natural Resources are the agencies that have regulatory authority in the management of groundwater specifically municipal drinking water. The District has identified in their plan a groundwater management decision tree that identifies the importance of connectivity between surface and groundwater but also the importance of water conservation.
18	1/2	Paul Bulger			Chapter 3		Ground S2. The District will develop, or cooperate with others to develop and update annually, a groundwater action plan in an effort to gain a better understanding of groundwater-surface water interaction and develop management strategies that consider the protection of both resources. The role of the District may include:...	Thank you for your comment. The District is in the early phase of engaging with its community on this topic.
19	1/3	Paul Bulger			Chapter 3		(p. 10 Climate Adaptation) Add strategy for low water levels in lakes, similar to the following, WQuan S10. The District will work with cities and other stakeholders to encourage conservation practices while avoiding/prohibiting use of groundwater resources to supplement water levels in creeks, lakes and wetlands, during periods of dry climatic conditions (i.e. drought).	The District has strategies WQuanS9 that encourage conservation practices to protect the water resource as well WQuanS2 that minimizes base flow impacts. Our regulatory program also regulates small users for both appropriation of surface and groundwater.
20	1/4	Paul Bulger			Chapter 5		p. 17 Protecting groundwater quality has become complicated by the increased use of infiltration as a means to improve surface water quality and promote sustainable groundwater supplies. Figure 5-5 shows the delineated wellhead protection areas within the RPBCWD. This diagrams illustrate that the WHP areas cover the entire District and that the most of the WHP area for each city is overlapping.	Thank you for your comment. We have change accordingly.

Comment #	Date	Reviewer Name	Document # [see TABLE 1]	Document Element [Report, Figure, Appendix, etc.]	Reference [Section #]	Page/Sheet	Comment	Response to comment
21	1/5	Paul Bulger			Chapter 5		(p.30) Several waterbodies within the District have been listed on the MPCA impaired waters (303(d)) list for a variety of impairments. Waterbodies on the impaired waters list are required to have an assessment completed that addresses the causes and sources of the impairment. This process is known as a total maximum daily load (TMDL) analysis. The TMDL analysis includes the recommended treatment program for the water body and the target goals for water quality improvement.	*Thank you for your comments. The TMDL does not recommend a treatment program for water bodies. The TMDL implementation plan does. However, the MPCA has in recent years changed their approach- instead of doing a TMDL and then a TMDL implementation plan for individual water bodies, the MPCA is looking at resources on a watershed scale using the WRAPS process. Section changed accordingly.*
22	1/6	Paul Bulger		Table 5-5	Chapter 5		Table 5-5 foot note 6 Lake specific water quality data, impairments, and TMDLs are presented in greater detail in the major watershed sections for Purgatory Creek (Section 7.0) and Riley Creek (Section 8.0). Information used to determine the impairments is available from the MPCA. (add link to specific section on MPCA website)	Link was added to the table.
23	1/7	Paul Bulger		Figure 5-9	Chapter 5		Figure 5-9 confirm this graphic shows all of the impaired creek sections listed in 2017/18. Also label the Minnesota River.	The figure was updated to incorporate the Minnesota River Label and is reflective of the 2018 impaired waters list.
24	1/8	Paul Bulger		Table 6-2	Chapter 6		Table 6-2 – should the projects identified as TMDL be given a higher score? Clarify what TMDL means on this table. The table would be more clear to add the information on Table 9-6, into Table 6-2. Splitting into different tables makes it hard to decipher what pollutant is being addressed by each project.	Impairment criteria was not of the prioritization tool developed in collaboration with the CAC , TAC and Board. The intent of this chapter is to identify all the different water quality projects and practices identified as a means to improve the resource. The intent of the table is to highlight the multiple benefits of the projects. If the primary purpose of the project is pollution reeducation and reduction have been calculated, the project description will reflect the pollutant of concern.
25	1/9	Paul Bulger		Table 7-2	Chapter 7		Table 7-2 – should the projects identified as TMDL be given a higher score? Clarify what TMDL means on this table. The table would be more clear to add the information on Table 9-6, also on Table 7-2. Splitting into different tables makes it hard to decipher what pollutant is being addressed by the project.	Impairment criteria was not of the prioritization tool developed in collaboration with the CAC , TAC and Board. The intent of this chapter is to identify all the different water quality projects and practices identified as a means to improve the resource. The intent of the table is to highlight the multiple benefits of the projects. If the primary purpose of the project is pollution reeducation and reduction have been calculated, the project description will reflect the pollutant of concern.
26	1/10	Paul Bulger					(p. 4) Proposed projects the District may implement within the Purgatory Creek watershed are listed in Table 7-2; additional details are provided in the District's overall implementation program (see Table 9- 1). Table 9-1 adds budget and dates, it does not provide more detail on how these projects were selected. i.e. Silver lake has 1 project, while Lotus lake has 5 projects listed – yet all projects have similar scores and Lotus project names are all basically the same. Add more detail or revise the statement that details are provided.	Selection projects were based on scoring as well as our management decision trees as well as logistical factors. We have added clarification within page 7.4.
27	1/11	Paul Bulger			Chapter 8		Table 8-2 – should the projects identified as TMDL be given a higher score? Clarify what TMDL means on this table. The table would be more clear to add the information on Table 9-6, also on Table 8-2. Splitting into different tables makes it hard to decipher what pollutant is being addressed by the project.	Impairment criteria was not of the prioritization tool developed in collaboration with the CAC , TAC and Board. The intent of this chapter is to identify all the different water quality projects and practices identified as a means to improve the resource. The intent of the table is to highlight the multiple benefits of the projects. If the primary purpose of the project is pollution reduction and reduction have been calculated, the project description will reflect the pollutant of concern.
28	1/12	Paul Bulger			Chapter 9		Section 9.16 and would be more appropriate as Section 9.1, given that UAA and TMDL should be the fundamental criteria to determine project priorities. Table 9-6 and Table 9-1 should be merged. I find it very hard to correlate the projects listed on Table 9-1 with the estimated % reduction listed on Table 9- 6. For non-technical readers the benefits for each project in Table 9-1 should be illustrated more clearly.	Impairment criteria was not of the prioritization tool developed in collaboration with the CAC , TAC and Board. The intent of this chapter is to identify all the different water quality projects and practices identified as a means to improve the resource. A note was added to Table 9-1 to direct the reader to the individual watershed chapters that provide details on the multiple benefits of the projects as identified the variable scorings.
29	1/13	Paul Bulger			Chapter 9		Table 9-1 – for each project, clarify whether this helps to Protect, Manage or Restore	Some of the projects identified actually do all of them as they might protect another resource. For example, a Lake Lucy watershed load project might help in the restoration of Lake Lucy but it also protect Lake Ann which in turn benefits the whole Riley Creek watershed.
30	1/14	Paul Bulger			Chapter 9		Table 9-2 paragraph below discusses lakes meeting the goal…add 2nd paragraph and/ or table to address lakes that are already impaired. Consider including specific actions beyond monitoring to address the impairment to demonstrate the District will be taken action to address impairment, not just study data.	thank you for your comment. We have added language that outlines the actions the District will take if the numerical goals are not achieved.
31	1/15	Paul Bulger			Chapter 9		Section 9.1.1.1.2 add time table for LVMP for lakes (i.e. prior to 2022)	The Department of Natural Resources is responsible for developing and improving the LVMP. The District will assist in the development but can not guarantee a year as it is based on the resource need and agencies authority.
32	1/16	Paul Bulger			Chapter 9		Sect 9.1.1.1.3 If water quality is poor or exhibits a declining trend, the District may will implement a series of watershed and/or in-lake management practices to improve the lake health based on recommendations from the lake-specific UAA updates…	Projects still need to go through our prioritization tool and management decision trees in order to determine if the project is a priority for the District. Thus a project may or may not qualify.
33	1/17	Paul Bulger			Chapter 9		p. 10 Based on public input, no preference is given to impaired lakes over non-impaired lakes as the Managers recognize the importance of protecting and preserving the resource as way to cost effectively achieve the established goals. Comment: Given the addition of lakes and creek sections to the impaired waters list in 2018, suggests the past efforts have not met the Protect and Preserve objectives, thus cumulative / multifaceted efforts need to be increased and more effective. It would benefit to include a threshold to trigger further actions by the district. Other regulated industries have pre- established criteria that drive the organization to 'require' a response action.	As per section 9.14, the District will review it's implementation program at least every two years as part of its evaluation and reporting duties and revised its implementation program as needed and identified in Table 9-1.
34	1/18	Paul Bulger			Chapter 9		The District will consider internal load control measures after considering prioritize the impacts of carp, non-native vegetation and uncontrolled or unmitigated external sources (e.g., streambank/shoreline erosion, watershed development, etc.), all of which are key elements considered in the District's Lake Management Decision Tree to address internal and external nutrient sources. After these external sources are mitigated, internal load control measures will be considered. These considerations are critical because failure to address external sources them could lead to the internal measure being compromised and reducing the effective life of the treatment	Thank you for your comments, however the changes you have made do not reflect the lake management decision tree as identified in Figure 9-2.
35	1/19	Paul Bulger			Chapter 9		Fig 9-6 --- modify this diagram to include a. generate management plan, b. add conservation and reduced consumption, c. add E&O as part of solution and management program, d. clarify or revise what is meant by "solution" since there are no capital improvement projects planned for groundwater	Thank you for your comment. The diagram was modified to add language" identify, prioritize and implement solutions".
36	1/15	City of Eden Prairie			Chapter 3		a. 3.2.6.2 – The City would like to see the District take an active interest in the quantitative accounting of estimated pollutant reductions to assist cities and the MPCA in meeting TMDL goals. Given the large, multiple agency, government regulation of surface water, agencies should be looking to achieve common goals wherever possible.	Please see section 9.16. The District will be tracking pollutant reduction realized by the District's implementation of capital projects. This information will be available to partner city to assist in meeting TMDL goals.

Comment #	Date	Reviewer Name	Document # [see TABLE 1]	Document Element [Report, Figure, Appendix, etc.]	Reference [Section #]	Page/Sheet	Comment	Response to comment
37	1/15	City of Eden Prairie			Chapter 3		b. 3.2.6.2 – The City appreciates the management of carp throughout the District. We would however like to work with the District on a more sustainable solution for the Purgatory Creek Recreation Area carp gate. Given it was supposed to be a temporary application, it is an ongoing maintenance and flood concern to have a trash rack in line with the creek.	According to the maintenance plan approved by the DNR, the carp barrier was not attended to be a temporary fixture. We are however, working on identifying an alternative solution.
38	1/15	City of Eden Prairie			Chapter 3		c. 3.2.6.4 – The City has some concern over the District looking to develop a "groundwater budget" for the watershed. Focusing on protecting the interaction of surface water and groundwater should be of a higher concern as Drinking Water Supply Management Areas cross city boundaries but can be looked at more comprehensively at a watershed scale.	The District's intents to work cooperatively with others to develop, a groundwater action plan focused on gaining a better understanding of groundwater-surface water interaction and develop management strategies that consider the protection of both resources. This effort is intended to look across governmental boundaries to result in a holistic look.
39	1/15	City of Eden Prairie			Chapter 3		d. 3.2.6.6 – Alternative strategies should be investigated in lieu of infiltration to more productively promote volume reduction in areas of Type D soils and other areas not conducive to standard infiltration BMPs.	We added strategy WQuandS10 to reflect that the District will investigate alternatives to infiltration practices to promote volume reduction in areas that are not conducive to standard infiltration techniques.
40	1/15	City of Eden Prairie			Chapter 5		a. 5.9 – Since the majority of the District lacks a detailed FEMA Flood Insurance Study with defined base flood elevations, The City would like the District to consider leading the effort on a District Wide Map Revision. The current maps, consisting of primarily outdated and inaccurate Zone A Special Flood Hazard Areas, are a burden for property owners and lessens the value of the National Flood Insurance Program.	The District will facilitate a meeting with the DNR and LGUs in the District to discuss improvement in the layering of Zone A.
41	1/15	City of Eden Prairie			Chapter 6		b. 5.10 – The City has interest in partnering and sharing resources to complete a comprehensive wetland inventory.	We look forward to working with you.
42	1/15	City of Eden Prairie			Chapter 9		a. General – The City needs to be involved early on large capital projects with ongoing maintenance needs. Having clear long-term maintenance plans as well as project acceptance criteria is key to the ongoing success of the projects.	The District looks forward in continuing our discussion and partnerships for projects.
43	1/15	City of Eden Prairie			Chapter 9		b. Table 9-1 – Cost share money is level for 10 years, consider increasing annually to support partnering goals.	The cost-share funds will be assessed on an annual bases and potentially increase if all resources are used.
44	1/15	City of Eden Prairie			Chapter 9		c. Table 9-1 – Most programs have flat budgets with increases only identified in soft costs.	The District will assess every year cost to determine additional needs.
45	1/15	City of Eden Prairie			Chapter 9		d. 9.4 – While the City understands the importance of the regulatory program, we want to reiterate the need for a streamlined process including increased flexibility for restricted sites.	The District will continue to work with the City and TAC to identify potential flexibilities and new technologies for restricted site that protect the water resources.
46	1/15	City of Eden Prairie			Chapter 9		e. 9.4 – The City looks forward to working with the District over the upcoming rules update to establish a general permit and programmatic maintenance agreement.	Thank you for you comment.
47	1/15	City of Eden Prairie			Chapter 9		f. 9.4.2 - The WMP should address that cities within the District are also regulated by the PCA and their Municipal Separate Storm Sewer System general permits. In addition, the City has multiple watershed districts within its boundaries. Adopting rules at least as restrictive as all of the agencies involved is not always practical. Watersheds should aim to establish regulatory strategies that are consistent with the City, the MPCA and the other neighboring watershed districts so a collaborative goal is met.	The District will work with watershed cities and counties, as well as state and regional agencies, to develop an efficient and effective regulatory program that achieve these goals. Every watershed district is unique in that they have different resource vulnerabilities.
48	1/15	City of Eden Prairie			Chapter 9		g. 9.5.3 – The City would like to partner on expanding the detail of the floodplain model throughout the City. The goal is to provide an accurate, calibrated model with surveyed critical points.	The District looks forward to working with you.
49	1/15	City of Eden Prairie			Chapter 9		h. 9.11.12 – Permanent Easements may not always be needed to enhance or restore wetlands. We suggest you add in other alternatives to permanent easements rather than applying a strict no to the project.	Thank you for your comment. The District are financed by public dollars and thus, the public's investment needs to protected. This can be done either through a permanent protection, sell fee title or other mechanism.
50	1/15	City of Eden Prairie			Chapter 9		i. 9.15 – The City has just recently updated and adopted its Local Water Management Plan (LWMP) and received approval from the Met Council for inclusion in our Comprehensive Plan update. The District will have the opportunity to review the Comprehensive Plan and the corresponding LWMP during the agency review period. The City understands there may be some minor updates to the LWMP needed as part of this District WMP update, but the City is confident that our recent collaboration to complete the plan will make this a relatively small effort.	Thank you for your comment.
51	1/9	Bloomington Sustainability Commission					The Bloomington Sustainability Commission commends District staff, the Board of Managers, the Technical Advisory Committee, the Citizens Advisory Committee, plan writers, reviewers, the public and others that have played a role in the drafting of the plan. The plan is comprehensive, clear, well written and organized, and encompasses and addresses many issues relating to our shared water resources and our environment. The Bloomington Sustainability Commission looks forward to working with you on many of these issues.	Thank you for your comment. We look forward to working with the Bloomington Sustainability Commission.
52	1/9	Bloomington Sustainability Commission					The Bloomington Sustainability Commission specifically looks forward to working with the District on improving the water quality of Hyland Lake and other water bodies that lay within the District and the City of Bloomington. As improving water resources is one of the goals of the Commission, we are happy to provide education and outreach, including the promotion of the Adopt a Stormdrain program in order to meet the shared water quality improvement goals of the District and Commission.	We look forward to working with the Bloomington Sustainability Commission in improving Hyland Lake.
53	1/15	MN DNR					The plan is well thought out and aligns well with DNR goals and policies.	Thank you for you comment
54	1/16	MN DNR					We appreciate the regulatory authority they've undertaken and that they are continuing to develop that role with cities and other stakeholders in the district.	Thank you for your continued support of the District regulatory authority
55	1/16	MN DNR					Their goal to promote sustainable management of groundwater resources is important and we are glad to see that they've identified it and have develop strategies to provide education and outreach about it.	Thank you for your comment.
56	1/16	BWSR					There are a large number of goals (thirteen) many of which are strategic and difficult to measure. The District should identify quantifiable goals to best measure its progress toward water resource improvement/protection. A quantified resource change should be considered and could be included in the District's Report Card.	The District has incorporated in page 1 of section 9 a plan outcomes that highlight the water improvements we intend to implement in the next ten years.
57	1/16	MPCA					We have no additional comments as part of the official 60-day review and comment period, and recommend it for approval	Thank you for reviewing the draft plan, participating in its development, and continued supporting its approval.
58	1/15	Bill Satterness					What is the mission of the district? Your new mission has just three words - protect, manage, restore. But WHAT will you protect, manage and restore? To answer that, one has to look beyond the mission statement, to the vision, goals, and budget.	Thank you for your comment. State Statue direct us in our mission.
59	1/15	Bill Satterness					The vision says you aim to protect, manage, and restore water resources. You're all about water resources! That's great.	Thank you for you comment.
60	1/15	Bill Satterness					Then I looked at the goals in Section 3. There are six goals. The first five all have to do with protecting, managing, and growing the district itself: admin, data, education, planning, regulation.	Goals listed in Section 3.2 were listed in alphabetical order. The goals are not listed in prioritized order. The first 7 goals are related to administration, data collection, education and outreach, planning and regulations - All of which were identified in the public input process and support the mission of the District.
61	1/15	Bill Satterness					Water resources - the only reason for the district to exist - get the sixth and final goal. But our water resources should be our first and only goals. The district's activities should support our water resources goals. I'm suggesting a restructuring of the goals, so all the district's activities can be listed as subsets of the water resources goals.	Goals listed in Section 3.2 were listed in alphabetical order. The goals are not listed in prioritized order. The first 7 goals are related to administration, data collection, education and outreach, planning and regulations - All of which were identified in the public input process and support the mission of the District.

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62	1/15	Bill Satterness					Then I looked at the proposed budget. You know, five years ago we had one contractor who served as coordinator, recorder, and attorney, all for a flat fee that was less than 10% of the total budget. Now you have double the budget, but only half of it will be spent on practical actions - that is, long-term capital projects in the three watersheds and short-term treatments around the district. The other half of your budget is overhead - 27% admin, 9% education, 8% assessments, 3% reserve, 3% regulations.	Thank you for your comments. The District changed directions on how they wanted to operate five years ago and believes that the current structure has greater benefits then the past structure.
63	1/15	Bill Satterness					And unfortunately, this proposed plan sidesteps accountability. It does not set specific, measurable goals for the conditions of each water body. It avoids discussion of the city storm water system - which is the source of most of the water, and most of the water problems.	The District has added a plan objective outlining outcomes for the District. The District through a series of study updates for the whole District has identified projects that identified areas in need of further treatment and not. The areas in need of treatments were included when the District prioritized projects.
64	1/15	Bill Satterness					For years I, and others, have been asking you to spend your money in ways that will be cost-effective - to prioritize by comparing costs versus practical benefits. But now you intend to make decisions according to an overgrown, overblown point system, with factors and weights that are far removed from what ordinary citizens want you to do.	The capital project prioritization process is based on the extensive input from the public, the District's Citizen and Technical Advisory Committees and Manager input
65	1/15	Bill Satterness					Where in your plan are boating, fishing, and swimming - the so-called beneficial human uses? Well, they're one subset of one subset of one of the district's six goals, which in turn are just one of the nine categories that have assigned points. Your point scheme is heavily biased against lakes and recreation.	The Goals were developed based on the public input process. The prioritization tool was developed based on the public input process as well as interactions with the CAC, TAC and Board.
66	1/15	Bill Satterness					I think the taxpayers want you to spend their money doing things that will actually improve their quality of life.	The plan was developed based on the public input process.
67	1/15	Bill Satterness					In summary, there is considerable room for improvement in this draft plan.	No comment
68		Lotus Lake Conservation Alliance					The LLCA commends the RPBCWD on the tremendous amount of work that has gone into the rewriting of the 10-Year Plan and the resulting draft plan. The Plan is well thought out, organized, and easy for a non-water professional to understand.	Thank you for you comment.
69		Lotus Lake Conservation Alliance			Chapter 1		The plan should state how the Citizen Advisory Committee volunteers are chosen – what criteria is used by the Managers to choose CAC members. Since they make recommendations based on the community interests and influence strategy and decisions for the district, it would be helpful to learn how they are appointed and about their backgrounds. It would also be good to have a goal for which types of water the CAC members represent – do they live on a wetland, creek, lake, or none? Do the CAC members represent concerns of all types of people?	The Board of managers select the CAC members in accordance of state statute.
70		Lotus Lake Conservation Alliance			Chapter 3		The District's number one vision objective is to administrate well, whereas its last objective is to improve water bodies. We would prefer a focus on improvement and protection supported by adequate administration. Please consider reordering these goals, to put water quality improvement as the main goal of the District.	Goals listed in Section 3.2 were listed in alphabetical order. The goals are not listed in prioritized order. The first 7 goals are related to administration, data collection, education and outreach, planning and regulations - All of which were identified in the public input process and support the mission of the District.
71		Lotus Lake Conservation Alliance			Chapter 3		We feel that goals 8,9,10,11, and 13 be moved higher in ranking and goals 1, 4, 6 and 7 moved down or eliminated.	Goals listed in Section 3.2 were listed in alphabetical order. The goals are not listed in prioritized order. The first 7 goals are related to administration, data collection, education and outreach, planning and regulations - All of which were identified in the public input process and support the mission of the District.
72		Lotus Lake Conservation Alliance			Chapter 3		Goal #2 could be construed to focus on the district generating data rather than taking action, and should be restated.	Data Collection is an important element in understanding how healthy the resource is. It allows the District to base actions/decisions on sound science. Goal 2 is about collecting scientific data to use the best available science to recommend and support management decisions.
73		Lotus Lake Conservation Alliance			Chapter 3		Goal #4 could be eliminated. If the watershed district believes in the vision, then there is no need to set a goal to try to develop plans that support the vision	Continued planning is an important element to adaptive management of our resources.
74		Lotus Lake Conservation Alliance			Chapter 3		There are no measurable aspects to these goals. Further into the goal section, the language is really oriented to more how the district plans to conduct business rather than how they will strive to accomplish the goals. Governance is a good thing but would probably be better stated somewhere else rather than intermixed with the goals.	The first 7 goals are related to administration, data collection, education and outreach, planning and regulations - All of which were identified in the public input process and support the mission of the District. The rest of the goals are resource related and are reflective of the input gathered during the initial public input process. The District has added a plan objective text outlining outcomes for the District into section 9.
75		Lotus Lake Conservation Alliance			Chapter 3		Goals should be clearly stated, actionable, and measurable. Because the goals, as they arecurrently stated, are hard to measure, it will be hard to track progress towards the goals. Please consider restating the goals so the work of the District can be measured against each goal.	The District has added a plan objective outlining outcomes for the District. The District also will be reporting progress through the required annual reporting as discussed in Section 9.14.
76		Lotus Lake Conservation Alliance		5.7	Chapter 5		5.7: The Watershed plan needs more concrete detail on drainage ditches flowing into bodies of water in the district. These are major sources of the pollutants listed in Section 5. Are there plans/goals for improvement of drainage ditches into the lakes and streams? If so, where in the plan is this stated?	There are several public ditches within the Purgatory Creek Watershed as shown on Figure 5-7. However, the District is not a drainage ditch authority as identified in Chapter 103 E.
77		Lotus Lake Conservation Alliance		5.7	Chapter 5		The Watershed plan states that cities have jurisdiction over the lateral (primary) stormwater systems and are responsible for maintenance and improvement. What encompasses a "public ditch"?	A public ditch is defined through Chapter 103E of Minnesota Statutes
78		Lotus Lake Conservation Alliance		5.7	Chapter 5		There are MANY more ditches flowing into Lotus Lake (for example) than the three listed in the plan. Some were constructed many years ago and have been neglected and disowned by the cities. Road runoff is flowing though private properties into our lakes. The plan should address how these major sources of pollution will be addressed over the next 10 years.	Public ditches are defined under Chapter 103 E. Lotus Lake has many ravines due to the steep topography and how the land was developed around it. These natural drainage ways are technically not a public ditch. The District over the years has worked with homeowners in providing them tools and grants to help stabilize and restore the land for the benefit of the resource. The District continues to have cost-share resources available for both city, residents and lake associations.
79		Lotus Lake Conservation Alliance		5.8	Chapter 5		5.8: What concrete steps are being taken to improve our water quality? What are the hard deadlines? Are there plans to improve the quality of the bodies of water within the district that are listed on the MCPA impaired water's list and to prevent more from being placed on the list?	All the projects identified in the plan are projects that were recommended through studies the District and partners have identified. All the projects meet at least one of the Water Quantity or Water Quality goals. Projects identified in the plan protect, manage, or restore the resources.
80		Lotus Lake Conservation Alliance			Chapter 6, 7 & 8		In the table that shows potential projects, there is a column called "Funding Partner Opportunity". Is there a goal/strategy to get partners for the Funding Partner Opportunity? Does Minnesota have an "Adopt a Lake" program? This might be something to consider to secure partners.	Funding Partner Opportunities category related to agencies or local partners that would financially partner on the different initiative. This allows us to leverage are funds farther. The Minnesota Department of Natural Resources has an Adopt a River program, where volunteers walk along the river to clean it up from trash. An Adopt a Lake program has yet to be developed but seems like a great idea.

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81		Lotus Lake Conservation Alliance			Chapter 6, 7 & 8		It would be good, for the information brochures done for each body of water, to include community survey statistics that are relevant to that body of water. 90% of survey respondents said lakes were very important to their communities. This information should be shared with the community on the information sheets for lakes that are developed by the District.	The District publish survey results and fact sheet on our website. http://rpbcwd.org/news/community-survey-results-are/ Please note that Purgatory Creek was identified as the most highly valued resource and was identified by about 60% of survey respondents. Over 40% of respondents identified Wetlands as valuable. No other resources were identified as most valuable by more than 40% of survey respondents. Forty-one respondents provided an open-ended response. Of these, 9 responses indicated "all" District waterbodies are important. Several responses identified waterbodies outside or downstream of the District (e.g., Lake Minnetonka, Minnesota River). Furthermore, the majority of the 403 respondents considered each of the listed resources as very important. Nearly 90% of all respondents identified each waterbody type as somewhat or very important. Respondents generally considered lakes to be most important, followed by the creeks, wetlands, and ponds (all scoring similarly).
82		Lotus Lake Conservation Alliance			Chapter 8		It would help if table 8-2 had footnotes/descriptions on the various indices/scoring plan rather than having to look elsewhere	A footnote was added to Tables 6-2, 7-2, and 8-2 to direct the reader to Section 4 which describes in detail the scoring variables.
83		Lotus Lake Conservation Alliance		Table 9-1:	Chapter 9		It would be more appropriate to use project figures that account for inflation. A project that is planned to require $100,000 in 2018 would probably cost at least $130,000 in 2028 (with 3% inflation). All of the Administration categories account for inflation, but the CIP section, AIS prevention spending, and Lake Vegetation Management do not account for inflation – this should be changed. To ignore inflation is to build problems into the plan.	The Plan is a guiding document. The District will review the status of all projects and programs and the priority for budget and levy purposes, and will allocate funds for the following year accordingly.
84		Lotus Lake Conservation Alliance		Table 9-1:	Chapter 9		The projects that have been selected for Lotus Lake on the middle-western side of the lake are addressing water that is already being well treated prior to entering the lake. The water flowing into Lotus from this creek is moderate in flow and clear. We would like to see a change in priorities away from these projects and instead, see a project or projects to do significant work on the south-western creek that is a large source of pollutants and silt entering the lake. We feel that priority should be put on the major source of loading issues.	The District completed in 2017 a study specifically looking at the sources of phosphorus load for the Lotus Lake subwatershed. The projects identified in the plan are those project identified as phosphorus sources to Lotus Lake, including a project on the south-western drainage way.
85		Lotus Lake Conservation Alliance		Table 9-1:	Chapter 9		We feel that it is important to put a waiting period between the first creek restoration projects and later projects, to see how time affects the desired results. Do these projects provide the predicted benefits for an acceptable period of time, or are the efforts washed away by large rain events?	Creek stabilization projects are designed to withstand the typical erosional forces expected at the site including reconnection with the adjacent floodplain. This results in a robust system that slow velocities and restore habitat for storms of various duration and intensities. The sequence in creek restoration rotates between the three major watershed.
86		Lotus Lake Conservation Alliance		9.1.1	Chapter 9		9.1.1: We agree that stopping the spread of AIS should be a high priority of the District.	Thank you for your support in this effort.
87		Lotus Lake Conservation Alliance		9.1.1.2	Chapter 9		9.1.1.2: We agree that emphasis should be placed on controlling plant AIS. Furthermore, we would like to see the District and all contractors hired by the District and partners working with the District to implement a strict AIS "hygiene" protocol, which prohibits boats belonging to or working for/with the District from traveling from water infested with any AIS, to water that does not have that same AIS, without following a stringent decontamination program, in order to avoid further spread of AIS throughout the District.	The District is a certified lake service provider. The District follows decontamination protocols, as established by the MnDNR, between any water resources. In addition, the District's regulatory program requires that work done within waterbodies be conducted in a manner to minimize the potential transfer of aquatic invasive species (e.g., zebra mussels, Eurasian Watermilfoil, etc.) to the maximum extent possible.
88		Lotus Lake Conservation Alliance		Figure 9-2	Chapter 9		Figure 9-2: The final phase of any project should be an assessment of the overall impact on water quality – i.e. how much improvement was actually achieved. We should assess how much "bang" we are getting for our "bucks", and determine whether or not the type of project undertaken would be a good or poor project to attempt again in the future. Without assessment, we could end up just doing projects for the sake of doing projects.	As part of our adaptive management strategy, the district will assess if projects are successful or not as outlined in Section 9-1.
89		Lotus Lake Conservation Alliance		Table 9-3	Chapter 9		Table 9-3: We are glad to see that the District is monitoring a wide variety of factors affecting water quality, and would like to see an explanation as to why projects are done primarily to lower one pollutant (phosphorus) and not other pollutants.	At the time of identifying water quality projects, most studies have focused on phosphorus for UAA but also sediment transport for creeks. As other pollutants of concerns are identified the District intends to determine possible solutions. Projects can be evaluated and assessed using the prioritization tool to determine if the District should implement the project.
90		Lotus Lake Conservation Alliance		9.5.5	Chapter 9		9.5.5: If the TMDL's are completed for the impaired waters of the District, this would be a good place to refer to those plans. If not, information on when the plans will be completed for each water body should be in this section.	Table 5-5 identifies the target start and completions years for the various impaired waters in the District. The table also lists the year the TMDL study was approved by the MPCA and EPA.
91		Lotus Lake Conservation Alliance			Chapter 10		We agree that the use of a scorecard to measure the watershed's work in relation to state level assessments and a district scorecard to report their progress to the watershed constituents are a good idea, but believe the District should state more than that they will develop a report card. This report card should be developed now, and be part of the 10- Year Plan, so it can be used during 2018 to measure progress against goals. As we stated earlier, this is why it is critical to have goals that are measurable, particularly regarding water quality improvement. We would like to see at least a draft report card included in the 10-Year Plan.	Thank you. The report card is located in Appendix G.
92		Lotus Lake Conservation Alliance			Chapter 10		This chapter (one page long) is very light in detail, and should be given the same level of attention as the other chapters. It is arguably the second most important feature of the plan after goals – the methods that will be used to figure out whether or not the District ismeeting its goals.	The District has added a plan objective text outlining outcomes for the District into Section 9.
93		Lotus Lake Conservation Alliance			Chapter 10		When the District conducted its survey of people's priorities, 90% (the highest ranking) of people stated that lakes are very important to the quality of life in their communities, as compared to 66% for creeks, 62% for wetlands, and 54% for ponds. The most critical feature of the lakes to District residents, according to the survey, is the ability to recreate IN the lake – swim, boat, fish, ski, paddleboard, etc. In its efforts to rebalance the plan from an over-focus on the lakes, it seems as though the District has weighted the scale too far away from lakes.	Furthermore, the majority of the 403 respondents considered each of the listed resources as very important. Nearly 90% of all respondents identified each waterbody type as somewhat or very important. Respondents generally considered lakes to be most important, followed by the creeks, wetlands, and ponds (all scoring similarly). Wildlife watching and recreation adjacent to waterbodies were the most popular uses and were selected by about 80% of survey respondents. Other recreational activities such as boating, swimming, and fishing were each selected by more than half of the survey respondents. The District also conducted public workshops that help identify all the concerns for lakes, creeks, groundwater and wetlands. All 4 resources were identifies as important and hence goals were identified for all four resources.
94		Lotus Lake Conservation Alliance			Chapter 10		The lakes are the bodies of water that are most used, most enjoyed by, and most important to the taxpaying residents of the District. They are significant feeders of Riley and Purgatory creeks. Without healthy lakes, we cannot have healthy waters in the District. Lakes importance to the community and overall health of the District should not be minimized.	Lakes are one of four resources that the District is protecting, managing and restoring. Purgatory Creek was identified as the most highly valued resource and was identified by about 60% of survey respondents. Over 40% of respondents identified Wetlands as valuable. Because there are many wetlands and creek reaches tributary to the lakes in the District, these resources are critical to the health of the lakes and cannot be overlooked. The plan recognizing this important interaction between water resources.

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95		Lotus Lake Conservation Alliance			Chapter 10		Also in the survey, it was revealed that Lotus Lake is the body of water that most respondents were concerned about. Their chief concern was pollutants entering the water, and reducing pollutants from stormwater was their highest priority for addressing the pollutant issue.However, the projects selected to do over the next 10 years for Lotus Lake do little to address the pollutant loading from untreated stormwater entering the lake. We would like to see the District and Chanhassen work together with the LLCA to identify and complete a series of smaller projects that address stormwater gullies and direct runoff into Lotus Lake from the streets surrounding the lake – projects beyond the traditional District cost-share program. This type of work may well be necessary on other lakes in the District too. We would like the District to think outside of the UAA box, and consider these smaller types of projects – not just the larger engineering projects typically identified in the UAA's, and allow for budget over the next 10 years to accomplish some of these small but important pollutant-reducing programs.	Yes, it is true that in question 12 where survey takers were asked Are there one or more water resources you are worried about. 26 out of 251 responses identified all waterbodies and Lotus Lake. Question 13 of the survey identifies the concerns about the conditions of lakes, creeks and wetlands in the community. Three concerns were identified by over 70% of survey respondents, including: 1. Pollutant loading to water bodies (81% of respondents) 2. Aquatic invasive species (75% of respondents) 3. Clarity of water (75% of respondents) Other concerns were selected by no more than 53% of survey respondents. Flooding was identified as a concern by only 16% of survey respondents. The District provides technical assistant and has a cost-share program to help cities and homeowners with projects linked to helping improve water quality. The District is also working with the LLCA to educate and inform residents of the
96		Lotus Lake Conservation Alliance			Chapter 10		Finally, we would like to suggest the District set a goal for itself in the new 10-Year Plan, that at least 45% of each yearly budget go to water quality improvement projects. We understand that the goal might not be reached every year, but the current plan calls for spending only 38% of the budget on actual projects, and we feel this is too low. The setting of this goal should be a topic of discussion for an upcoming Board meeting.	Thank you for your comment.
97		Lotus Lake Conservation Alliance			Chapter 10		Thank you for considering these comments as you work to finalize the new 10-Year Plan. Again, overall, we think the Plan is well done, with our primary concerns being a reorientation of the major goals away from administration and towards water quality improvement, and a restating of goals so progress can be measured.	The goals identified in the plan are not a prioritized list but are simply present alphabetically by category. The District's overarching mission is to protect, manage and restore the water resources (Ie., wetlands, creeks, lakes, and groundwater). Text was added to describe overarching district-wide outcomes of implementing this plan over the next 10 years into Section 9.
98	1/15	Mitchell Lake Association					The overall plan is well put together with good data collection and a strong process for prioritization and development of strategies. Compared with previous plans however, this iteration is lighter on specific details about projects which makes it sometimes difficult to connect the strategies to action	Thank you for your comment.
99	1/15	Mitchell Lake Association					We are very concerned about the lack of any funding for Mitchell Lake from 2018 thru 2027. Our lake was recently delisted despite inconsistent water clarity measures and an upward trend in both Chlorophyll and Phosphorus measures. The later two being above the MPCA standard for the last two years. After years of investment by both of our organizations and the city, we are worried that the "plug" is being pulled too early and we will see regression without consistent maintenance.	As part of the data collection program the District intends to continue to monitor and assess the lake using its adaptive management approach described in Figure 9-1 and the District's lake management decision tree (see Figure 9-2). The District has also identified the importance of protecting resources as identified in Water Quality Goal 1. Thank you for your comment.
100	1/15	Mitchell Lake Association					The budget and implementation plan (section 9) is generally clear and transparent. Our concern is about the percentage of funding allocated to Administration and Planning. It is 24% of the overall budget in 2018 growing to 29% in 2026 and 32% in 2028. It may not be a good comparison, but by non-profit standards this is decent currently, but the consistent upward trend is cause for concern over time. It would be good to understand opportunities and strategies to reduce overhead and potentially set a target of holding costs in check. This would allow more of the public money to go towards programs and direct action.	The District's administrative goal identifies operating in a manner that used uses District resources and capacity efficiently. One strategy to accomplish this is to periodically assess the it capacity and resources as identified in Administrative strategy 2. Thank you for your comment
101	1/15	Barb Spilane					As a resident of Lotus Lake, I read your 10 Year Plan with great interest. The level of work necessary to achieve such a project is evident in the document and I commend you on this. I believe water quality improvement should be a high, if not the top, priority of the plan and allocation of funds towards this goal should be commensurate. To that end, storm water runoff directly into lakes should be addressed in greater detail. Lotus Lake, among others, has a number of culverts and gullies that drain into the lake so that pollutants enter freely. Water quality is difficult to achieve without some sort of filtering process. I would like to see a greater emphasis and recognition of this in your plan.	While assessing Lotus Lake for water quality projects the District thoroughly assesses the stormwater pipesheds as well as major ravines discharging into Lotus Lake. Through that effort numerous water quality y improvement projects were identified (see Section 7 for list of studies and project) . The District also has a cost share project for residents interested in improving water quality or stabilizing their shoreline. Please contact the us if you would like to learn more about these opportunities. Thank you for your comment.
102	1/15	Wendi Moffly					As newer residents of Chanhassen and Lotus Lake, we are unfamiliar with the history of issues surrounding the area watershed. However, we can share some observations and concerns from our past two summers here: We definitely noticed a decrease in the water clarity from 2016 to 2017. We noticed clusters of dead fish in the water and washing up on shore in 2017 that we had not seen in 2016. We have been sad to see trash and debris including human waste left by ice fishing enthusiasts. One of the greatest assets of Minnesota is its 10,000 plus lakes and the natural beauty and recreational oportunities associated with them. Please protect and maintain both through thoughtful planning, and the setting of measurable criteria and outcomes. Please present this information to the community for periodic review. Please prioritize water health and clarity as an overall objective. Please do all possible to stay within the budget set forth — with respect for the limits of the tax revenues.	Thank you for you comment. The District will continue to monitor the water quality in Lotus Lake. The District published an e-newsletter, annual report and annual communication highlighting the District efforts in managing, protecting and restoring the water resources. Please let us know if you would like to be included on our distribution list. Through the web and our reporting we present the benefits of our projects and programs. The District intends to further develop the report card identified in Section 10.
103	1/10	Chaska			Section 3	3-7	Page 3-7: Strategy 3.2.5.2 states that the "District will implement its regulatory program by reviewing projects for compliance with applicable District rules, policies, and standards." -No specific standards are provided in the plan, only relatively general strategies. Standards are instead provided only in the watershed rules. An update to the rules was distributed early in the process attended by the City's agent where comments were provided. Chaska requests to also provide comments on any proposed rule updates they may not have been received.	Thank you for your comments and participating in our Technical Advisory Committee. The city of Chaska is on our list of reviewers. Also, any changes to the rules are required to go through a public review process.
104	1/10	Chaska			Section 9		Sections 9.4 and 9.15.1.1 states the City must adopt water resource protections at least as effective as the RPBCWD's or defer sole regulatory authority to the District. -The City of Chaska does not choose to exercise sole regulatory authority over water resources in its portion of the RPBCWD but rather will share regulatory authority with the RPBCWD, with each enforcing its water resource requirements.	Thank you for your comment.

Comment #	Date	Reviewer Name	Document # [see TABLE 1]	Document Element [Report, Figure, Appendix, etc.]	Reference [Section #]	Page/Sheet	Comment	Response to comment
105	1/10	Metropolitan Council					The Metropol itan Council (Council) has completed its review of the Riley-Purgatory-Bluff Creek Watershed District's (District) draft water management plan, entitled "Planning /or the Next Ten Years 2018-2027 ." The District has prod uced an excellent plan that is consistent with Council policies and the Cou ncil 's Water Resources Policy Plan . The plan is thorough and well organized, and uses a "one water approach" describing the water resources of each major (creek) subwatershed, their condition, and proposed subwatershed projects. The plan was formulated using several elements and processes including: • Evaluation of long-term monitoring data from multiple points throughout the watershed. • A comprehensive pu blic engagement and outreach process to define issi.1es important to the citizens of the watershed and set goals to address them. • A project ranking and prioritization process to quantitatively compare project benefits and use of additional logistical factors to set implementation priorities. • A commitment to adaptive management to continue to assess progress in meeting goals usi ng up- to-date monitoring data. The d istrict is a progressive organization that has evolved and adapted to changing conditions and needs in the watershed, and the plan reflects this.	Thank you for you comment. We look forward to our continued partnership and working to gather to protect the water resources.