LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, October 20, 2021

Agenda Item
Item 6. H. – Education & Outreach

Prepared By
Linda Loomis, Administrator

Summary
The tour of watershed projects turned out to be a great day. The weather cooperated and we were able to visit all the sites. Thank you to everyone that turned out. On the following Tuesday, October 5th, Greg Genz, a member of the Citizen Advisory Committee, was kind enough to provide his boat for a tour of the river. The CAC met Mr. Genz at the Lyndale boat landing and toured upriver to Shakopee. It was a very informative meeting for the CAC. (And the weather was beautiful!)

Staff has been working on permanent signage for the LMRWD according to the work plan approved by the Board of Managers. The LMRWD issued an RFP for design and fabrication of two signs. Two proposals were received and staff recommendations are attached.

Students at Jefferson High School have contacted the LMRWD about signage for the Cost Share Project and the LMRWD may offer to include signage for the project with the order for other signs.

Staff also met with Mr. Ted Suss of the Friends of the Minnesota Valley to discuss getting more schools engaged in the River Watch program.

Attachments
Interpretive Signage Consultant Recommendation dated October 15, 2021.
Proposal from Barr Engineering
Proposal from Studio Lola

Recommended Action
Motion to accept the proposal from and award contract to Studio Lola

Young Environmental Consulting Group, LLC

Technical Memorandum

To: Linda Loomis, Administrator
Lower Minnesota River Watershed District

From: Jen Dullum, Education and Outreach Coordinator
Della Schall Young, CPESC, PMP

Date: October 15, 2021

Re: Interpretive Signage Consultant Recommendation

On July 21, 2021, the Lower Minnesota River Watershed District (LMRWD or District) authorized Young Environmental Consulting Group's (Young Environmental) to release a request for proposal (RFP) for interpretive signs at East Chaska Creek and Eagle Creek. Following consultation with other water management organizations and development of the RFP, on September 27, 2021, Young Environmental emailed the RFP directly to the following eight recommended firms with experience on similar projects:

1. Barr Engineering Company (Barr)
2. Dogtooth Design
3. Gopher Signs
4. KORT Signs
5. Sign Minds
6. Split Rock Studios
7. Studio Lola
8. Tūhura Communications

Two proposals were received from Studio Lola and Barr by the October 8, 2021, which was the due date. Split Rock Studios sent a message to the District, wishing it the best while stating they would not be submitting a proposal because of their current workload. Below is a summary of the review process and our recommendation.

Review Process

Linda Loomis, LMRWD administrator, and Jennifer Dullum and Della Young, Young Environmental, reviewed the proposals received based on experience, qualifications, and cost and individually scored them based on the following factors:

Completeness and clarity of the response	20 percent
Qualifications and experience of the firm	15 percent
Qualifications of key personnel	15 percent
Demonstrated expertise in creating interpretive signs or exhibits	20 percent
Ability to complete the project by March 31, 2022	15 percent
Estimated cost	15 percent

To account for the differences in evaluation approaches and to present an objective final score, each firm's individual reviewer scores were averaged. The final scoring for the proposals received are presented below.

Firm	Final Score	Rank
Barr Engineering	85	1
Studio Lola	83	2

Recommendations

Based on the scoring outlined above, Barr scored slightly higher than Studio Lola. However, Barr's proposed cost came in over three times higher than Studio Lola. As a result, we recommend Board approval of Studio Lola, a firm that has worked with and received positive reviews from several watershed districts, including Nine Mile Creek and Ramsey–Washington Metro Watershed District, as the firm to design the Eagle Creek/Savage Fen and East Chaska Creek Stabilization Project interpretive signs.

proposal for

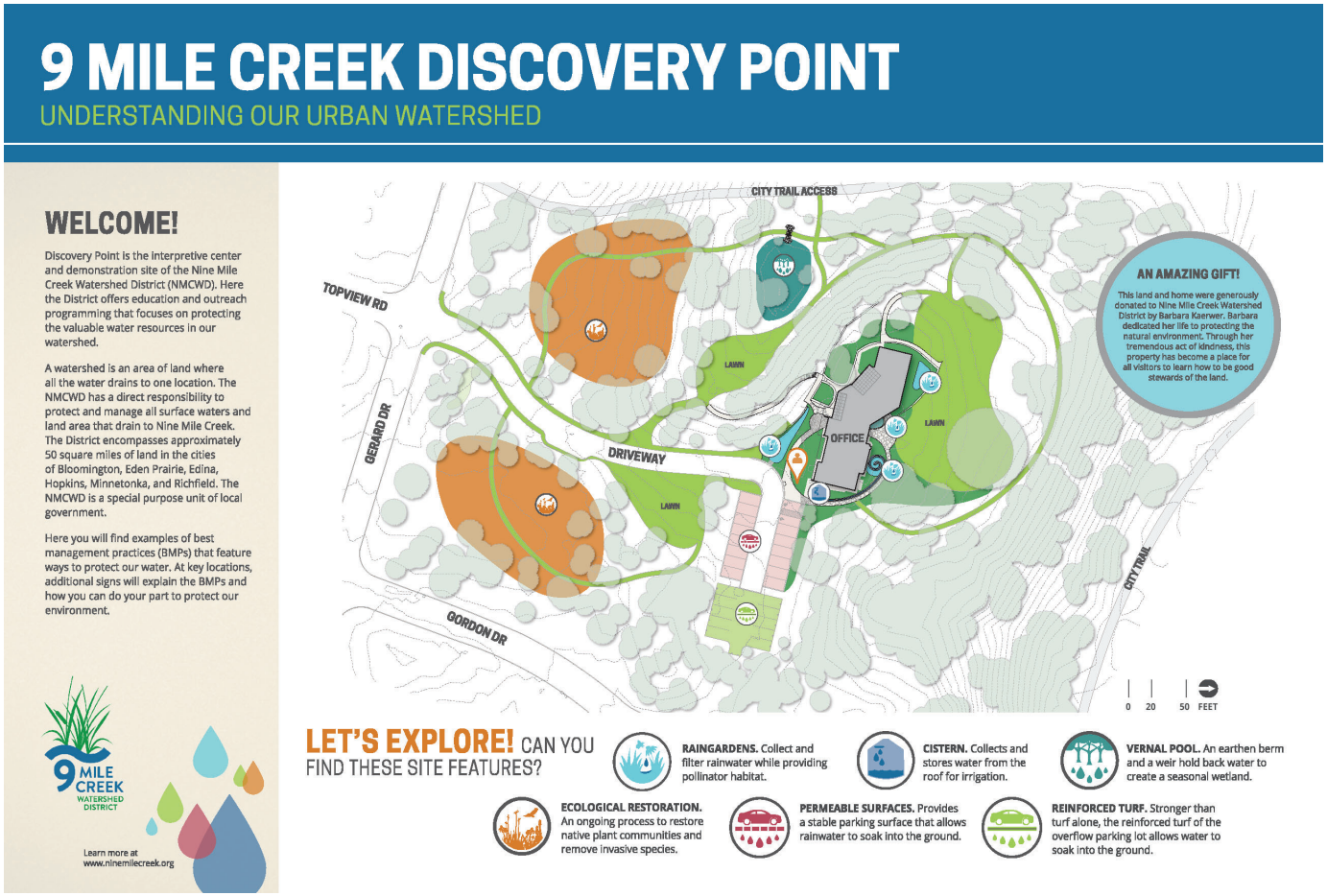
Interpretive Signs

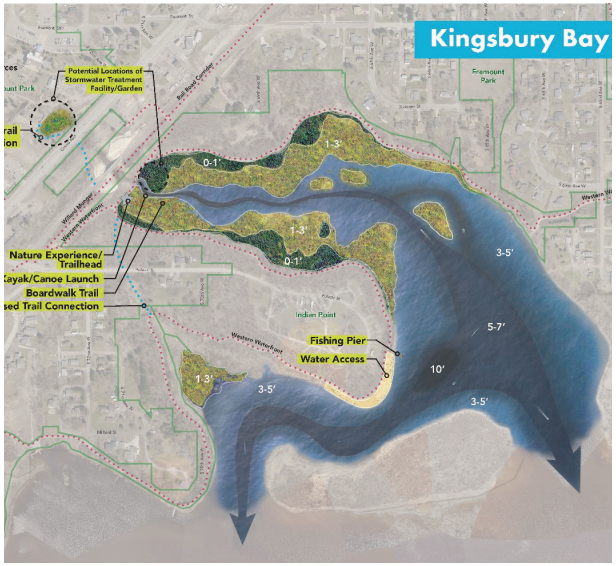
prepared for Young Environmental Consulting Group and the Lower Minnesota River Watershed District

submitted by Barr Engineering Co.

October 8, 2021

BARR





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engineering and environmental consultants

BARR

October 8, 2021

Jen Dullum
Education & Outreach Coordinator
Young Environmental Consulting Group
P.O. Box 43933
Minneapolis, MN 55443

Re: Request for proposal for interpretive signs: design and fabrication services for the Lower Minnesota River Watershed District

Dear Ms. Dullum:

Barr Engineering Co. is pleased to present our proposal to Young Environmental Consulting Group (Young Environmental) and the Lower Minnesota River Watershed District (LMRWD) to provide graphic design, illustration, and fabrication facilitation services in the watershed.

For this project, we will likely combine mapping, diagramming, and illustration to communicate complex ecosystem processes and engineering in an approachable, informative, and compelling manner. The fen and creek stabilization project sign suite needs to be grounded in good science and be visually appealing and informative. We have formed a team of graphic and ecological design specialists well-versed in restoration practices and with the design expertise needed to present these concepts to the general public. Our proposal also includes communications staff who can help to take the signs to a level of understanding critical for addressing equity within the watershed.

For this project, we have broken down tasks into three phases: communication, graphics, and fabrication. With decades of community engagement projects, our team understands the critical task of thoughtful cooperation between the community, designers, and stakeholders to deliver a successful project.

Thank you for the opportunity to propose on this project. Please contact Marcy Bean, project manager (952-457-5467, mbean@barr.com) or Karen Chandler, principal in charge (612-247-6666, kchandler@barr.com) if you have any questions about this proposal.

Sincerely,

Karen L. Chandler

Karen Chandler, PE
Vice President, Senior Water Resources Engineer

Marcy R Bean

Marcy Bean, PLA
Senior Landscape Architect

Table of contents

Barr has successfully designed and supported fabrication of dozens of installed projects throughout the Twin Cities, including interpretive signage for Mississippi Watershed Management Organization (top) and the Green Line light rail corridor and rain gardens in St. Paul (bottom).

1. Company profile

Barr Engineering Co. is an employee-owned consulting company that integrates engineering and environmental expertise to help clients develop, manage, and restore natural resources.

Barr's engineers, ecologists, and landscape architects work together to develop a wide range of innovative solutions to water-resource problems. Our big-picture approach, combined with an eye for the small details, allows us to create solutions and designs that also incorporate beautiful landscapes that conserve water and energy, lower chemical use, and reduce maintenance—and provide public green spaces and healthy habitat for native plant and wildlife populations.

We also develop interpretive graphics and signage, education programs, and manuals on a variety of topics such as implementing stormwater management practices on small, urban sites; maintaining environmentally sound lawns; and managing invasive nonnative plant species.

Firm information:
Barr Engineering Co.
4300 MarketPointe Drive, Suite 200
Minneapolis, MN 55435

Proposal contact:
Karen Chandler
Vice President, Principal in Charge
952.832.2813
kchandler@barr.com

2. Project team qualifications

Barr has had the opportunity to partner with Young Environmental and the Lower Minnesota River Watershed District (LMRWD) for a variety of engineering projects over the last few years. Building on these experiences, our team will be led by Karen Chandler, principal in charge, and Marcy Bean, project manager. Karen and Marcy will work together to provide open communication and collaboration with project partners. We have built a team that has broad expertise in graphics and communications, including Melanie Upchurch, Barr's new Visual Communication Designer, who specializes in transforming complex concepts into clear and persuasive visuals. This expertise, matched with engineers and landscape designers who have studied, designed, and constructed similar ecosystem-based projects will support a science-based underpinning of all graphics and communications developed for this project.

Marcy will lead the Barr team internally, with several key meetings to introduce Barr staff listed below to the project partners. We envision a collaborative design process with visioning sessions and storyboarding to build from ideas generated by everyone on the team and jumpstart creativity while ensuring that LMRWD goals are met.

Our clients cite customer service and project communication as key factors in their satisfaction with Barr—reasons that returning clients make up more than 76% of our client base.

Our proposed team has designed educational, interpretive signage for numerous high-profile green infrastructure sites around the Twin Cities, including the Mississippi Watershed Management Organization's Stormwater Park and Learning Center; Nine Mile Creek Watershed District's Discovery Point (interpretive center and demonstration site); Maplewood Mall; the Minnehaha Creek corridor; and the Green Line light rail corridor on University Avenue in Saint Paul. We use a variety of tools (illustrations, diagramming, mapping, and interactive media) and easily understood text to create powerful visuals and educational materials that make complex topics comprehensible.

Project team bios

Karen Chandler, PE, Vice President, Senior Water Resources Engineer
MS, Civil Engineering

role: principal in charge

Karen has 34 years of experience working with watershed organizations and cities to complete and implement watershed and stormwater management plans. She has developed and led development of dozens of watershed management plans and updates for urban and rural water management organizations and cities. She assists these clients with designing and constructing stormwater projects as well as hydrologic, hydraulic, and water-quality analyses. Karen uses her extensive community and stakeholder engagement experience to guide and support clients with facilitating public processes.

She provides ongoing engineering services to the Bassett Creek Watershed Management Commission and Black Dog Watershed Management Organization. Karen is the principal-in-charge of Barr's ongoing work with Young Environmental Consulting Group to provide services to the LMRWD.

relevant project experience:

- Public-facing executive summaries for watershed management plans; various watershed management organizations; project principal or project manager
- Watershed newsletter; Black Dog Watershed Management Organization; project manager
- Watershed tour documents; Bassett Creek Watershed Management Commission; project manager
- Graphic-based water quality summaries; Bassett Creek Watershed Management Commission: project manager

Marcy Bean, PLA, Sr. Landscape Architect **role: project manager**

Bachelor of Architecture

Marcy has 18 years of experience focusing on innovative stormwater management, native landscaping and maintenance, and green infrastructure design in urban environments. Her work has involved urban ecosystem restoration, stormwater reuse, BMP design and maintenance, and stakeholder facilitation. Prior to joining Barr, Marcy managed capital projects and supported community-based efforts to manage stormwater at the MWMO. Marcy manages projects in a range of scales, from large-scale capital projects to community-based projects.

relevant project experience:

- Various projects; Young Environmental Consulting Group and Lower Minnesota River Watershed District; Education and Outreach support
- Powers Lake stormwater BMP with integrated passive-park use and landscape restoration; South Washington Watershed District; project manager
- "Eco-mosque" transformation, including sustainability, environmental justice, and rain gardens; Masjid An-Nur, North Minneapolis; grant support and facilitation (prior to Barr)

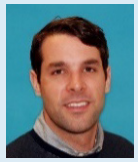
Melanie Upchurch, Visual Communications Designer **role: visual communications**

Masters of Science, Biomedical Visualization; BFA, Drawing and Graphic Design, Human Biology (minor)

Melanie specializes in transforming complex concepts into clear and persuasive visuals tailored to audiences. Her areas of focus include art direction, 2D illustrations and animations, graphic design, infographics and process diagrams. Prior to Barr began her career helping Fortune 500 companies tell their stories at various stages of litigation. While in the legal industry, Melanie was involved in numerous prominent and high-profile cases.

relevant project experience:

- Beef Product Inc., v. ABC News, Inc., (the largest defamation settlement in the United States)
- Paramount Pictures Corporation, et al. v. Axanar Production, Inc., et al.
- United States v. BP Exploration & Production, Inc. (Deepwater Horizon)
- Mobile Electronic Devices and Radio Frequency and Processing Components (Qualcomm)



Brendan Dougherty, PLA, Sr. Landscape Architect **role: graphics specialist**

MLA, Landscape Architecture

Brendan has over 12 years of experience in sustainable landscape design, alternative stormwater management, and environmental site restoration. He creates infographics, icons, templates, diagrams, 3D drawings, and visualizations for master plans, interpretive signage, and public meetings. He specializes in developing signage that reinforces a sense of place and a site history. He also designs and develops construction plans for green infrastructure, landscapes, and urban ecology regeneration. Brendan designed interpretive signage for the Mississippi Watershed Management Organization and Nine Mile Creek Watershed District headquarters and various Capitol Region Watershed District projects. He also provided layout and graphic design for the Ford site and Hiawatha Golf Course reports.

relevant project experience:

- Stormwater Park and Learning Center stormwater practices interpretive signage; Mississippi Watershed Management Organization; graphic designer (templates, icons, themes, and 3D drawings)
- Discovery Point interpretive signage; Nine Mile Creek Watershed District; graphic designer (illustrative graphics, BMP icons, layout and design)
- Central Corridor Light Rail Transit (Green Line) green infrastructure stormwater practices; Capitol Region Watershed District; graphic designer (3D drawings)

Shiyue Zhang, Landscape Designer

role: graphics specialist

MLA, Landscape Architecture

Shiyue has four years of experience in graphic design and landscape design. He develops project renderings, educational signage, and public outreach materials and provides construction documentation development on a variety of projects, from small-scale, community-based rain gardens and other integrated stormwater practices to large, regional parks and urban redevelopment projects. Specifically, his responsibilities include assisting with the production of construction plans, illustrative renderings, and infographics and developing detailed cost estimates and technical specifications for project designs. Shiyue contributes to a range of design and planning projects, including park design, campus master planning, trails and open-space design, green infrastructure design, innovative stormwater treatment design, native plant community restoration, and natural resource management planning.

relevant project experience:

- Morningside flood mitigation; City of Edina; graphic designer (concept landscape design and site plan, park-space 3D renderings)
- Metropolitan Council sustainable landscape master plan; City of Minneapolis; graphic designer
- County government center planting design; Salt Lake County; landscape designer (planting concept and landscape design)

Annie Breitenbucher, Reports Specialist

role: communications specialist

MLS, Liberal Studies

Annie has two decades of experience in journalism and communications. Her responsibilities include writing, editing, and designing technical publications, marketing materials, and reports. Prior to Barr, Annie reported and wrote nearly 200 byline stories and coordinated promotions for the Star Tribune's education department. She has co-authored and designed dozens of community education summaries, overviews, and reports for cities and natural resource management organizations, including the former Ford Plant sustainable stormwater master plan.

relevant project experience:

- 2017–2026 watershed management plan strategic overview; Ramsey-Washington Metro WD; editor and designer
- Ford Plant sustainable stormwater master plan; City of Saint Paul; writer and co-designer
- Hiawatha Golf Course water management alternatives community education report; Minneapolis Park & Recreation Board; writer, designer
- District infrastructure Emergency Action Plan; Capitol Region Watershed District; plan writer and designer

3. Scope of work

In this section of the proposal, Barr presents our approach to producing two high-quality interpretive signs (about 36 inches by 24 inches) for the Eagle Creek/ Fen and the East Chaska Creek Stabilization Project. We have broken out the project scope into three phases, combining both sites into each phase and meeting: 1.) communication; 2.) graphics; and 3.) fabrication. For Phase 1, Barr's team would meet with experts from Young Environmental, LMRWD, and others as requested to learn more about the vision for the signs, key aspects of each project, and important messages that the partners want to communicate. Together, we will begin to storyboard concepts, including key educational aspects, for each site and begin conceptualizing graphics that can help communicate the identified messages to the public. Barr will then take the storyboard concepts a step further and develop graphic layout mockups for each sign so that the partners can review and comment. Our communications team will draft written components to support messages developed during this phase of work.

In Phase 2, the Barr team will create detailed graphics for use with sign frameworks. Graphic art creation and illustrations may include plan diagrams, illustrative renderings describing scientific processes, or other graphics to help support the educational goals of each sign. Written components will be finalized. Barr will incorporate the LMRWD's graphic standards into the sign design. Project partners will have an opportunity to review and comment. Barr will then address comments and finalize the design for each sign.

During Phase 3, Barr will obtain proposals for signage fabrication. As shown in Appendix A, Barr has experience working with fabrication vendors to develop professional-grade signage that will withstand harsh Minnesota weather. Based on the proposal evaluation timeline, we anticipate the project kickoff meeting would occur in early November 2021. As a preliminary schedule, we recommend having Phase 1 occur in November, kicking off Phase 2 in December and aiming for completion of graphics by mid-February 2022. We'll use our experience and efficiencies to support sign fabrication by March 31, 2022.

Phase 1: communication development for interpretive signage

The scope of professional consulting services for Phase 1 includes:

1. Attend one kickoff meeting (virtual or in person) to discuss vision, science and engineering of each project, and key educational messaging.
2. Prepare draft outline of storyboard concepts for review/comment by Young Environmental/LMRWD team.
3. Develop storyboard concepts (based on outline developed above) with key messaging, and hold one virtual meeting with the Young Environmental/LMRWD team to review and discuss.
4. Prepare graphic mockup of signage, including LMRWD graphic standards and logos, fonts, color schemes, border and other elements (excluding graphics developed in Phase 2).

Phase 2: graphic development for interpretive signage

The scope of professional consulting services for Phase 2 includes:

1. Further development of signage layout.
2. Prepare illustrations and create graphic art to support messaging developed in Phase 1.
3. Hold one virtual meeting with Young Environmental/LMRWD team to review preliminary sign design with graphics.
4. Complete design of sign prior to fabrication and provide to Young Environmental/LMRWD team for final review.
5. Complete final design of sign and develop sign fabrication details for construction, as needed.

Phase 3: fabrication of interpretive signage

The scope of professional consulting services for Phase 3 includes:

1. Solicit sign fabrication quotes from up to three vendors, and coordinate with the Young Environmental/LMRWD team to make formal vendor selection.
2. Coordinate with vendor and Young Environmental/LMRWD team in signage fabrication.

Assumptions

1. Phase 1 and 2 each include up to two opportunities to review and comment. One round of review is included in Phase 3.
2. Development of a 3D model will not be required for renderings. This service is available but would be at an additional cost.
3. Installation of signage is not included.

4. Fee estimate

The proposed cost of the services would be billed on a time and expenses basis, not to exceed $16,670. Invoices are payable pursuant to our subcontract agreement with Young Environmental.

Project phase	Estimated fee per sign	Estimated total fee
Phase 1: communication development for interpretive signage	$3,025	$6,050
Phase 2: graphic development for interpretive signage	$3,680	$7,360
Phase 3: fabrication of interpretive signage	$1,630*	$3,260
Subtotal	**$8,335 (per sign)**	
Total project fees		**$16,670**

* Includes $380 Barr fee and $1,250 for fabrication

5. Ownership and copyright terms

Pursuant to our subcontract agreement with Young Environmental, all drawings, specifications, technical data, documents, and other information furnished to Barr either by Young Environmental or LMRWD or developed by Barr or others in connection with the services is the property of Young Environmental or LMRWD. It appears that young's contract with the District requires that all work product become the property of the District. Therefore, all Barr work product will become the property of LMWWD.

Appendix A:
work samples

BARR

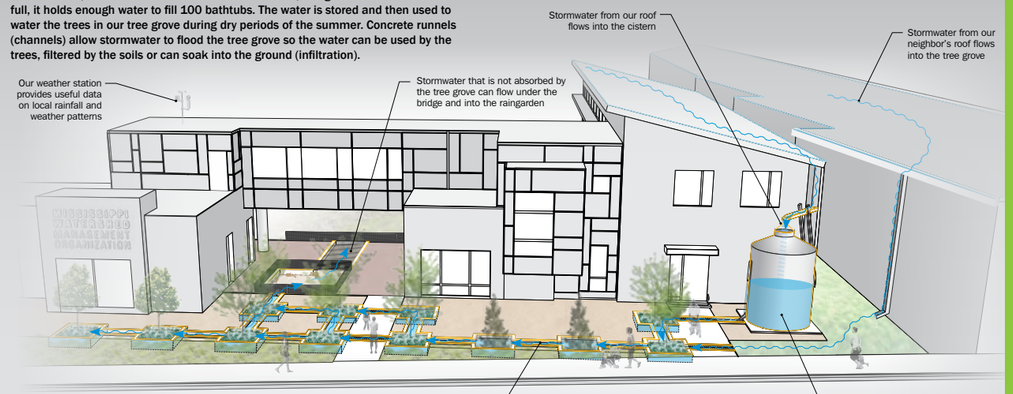
Barr Engineering Co.

Graphic Design and Illustration Services Work Examples

RAIN AS A RESOURCE
STORMWATER TREE GROVE & CISTERN

A BIG WATERING CAN

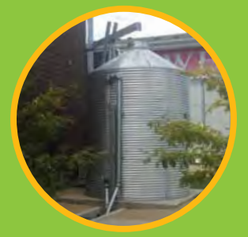
When it rains, water from our roof is collected in our 4,000-gallon cistern. When full, it holds enough water to fill 100 bathtubs. The water is stored and then used to water the trees in our tree grove during dry periods of the summer. Concrete runnels (channels) allow stormwater to flood the tree grove so the water can be used by the trees, filtered by the soils or can soak into the ground (infiltration).



HOW IT WORKS

Cisterns are the oldest form of rainwater collection and storage and are very similar to a rainbarrel that you might have at your home. Water in a cistern or rainbarrel can be stored until it is needed, often when it hasn't rained in a while.

Using stored rain for watering your plants helps to preserve drinking water because the water from your garden hose is the same water you drink from your tap.



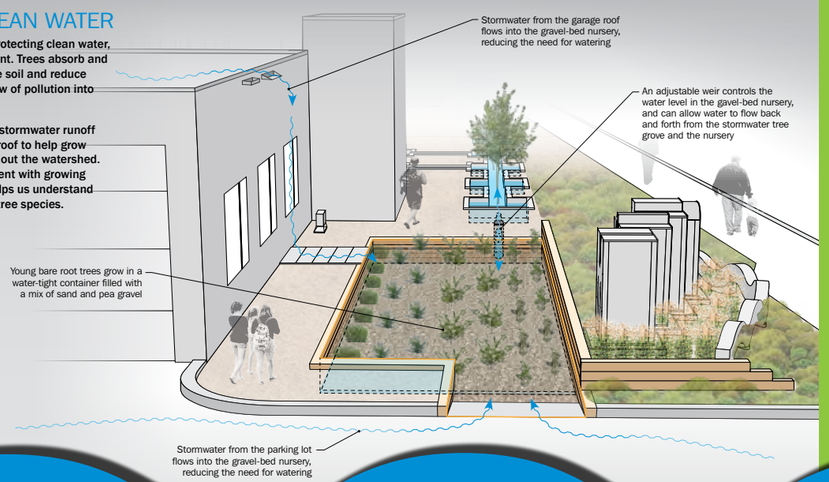
The clear pipe on the front of the cistern shows how much water is inside. Can you tell how full the cistern is today?

STORMWATER FOR HEALTHY TREES
GRAVEL-BED TREE NURSERY

ROOTING FOR CLEAN WATER

Trees are an important tool for protecting clean water, especially in an urban environment. Trees absorb and clean stormwater runoff, stabilize soil and reduce erosion. This helps to stop the flow of pollution into our rivers, lakes and streams.

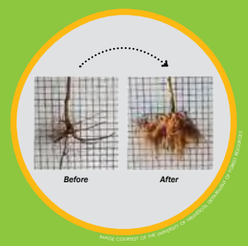
Our gravel-bed tree nursery uses stormwater runoff from our parking lot and garage roof to help grow trees that will be planted throughout the watershed. Our nursery allows us to experiment with growing different types of trees, which helps us understand how climate change is affecting tree species.



HOW IT WORKS

Gravel-bed nurseries are an inexpensive way to grow healthy trees in a small amount of space.

Growing trees in a gravel-bed rather than soil can result in trees with 200 percent more roots. These extra roots help the trees grow larger in shorter amounts of time. They also make the trees tougher and healthier when planted. The more roots a tree has, the better it can absorb water and nutrients.



As our climate changes, what types of trees will grow best?

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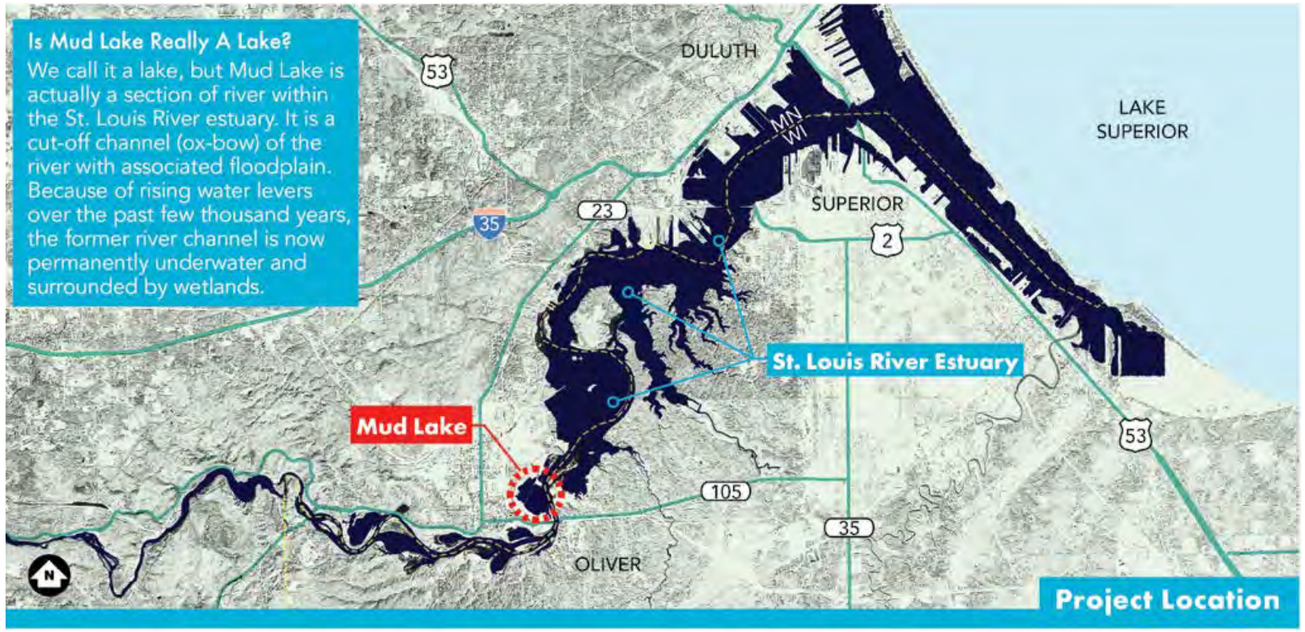
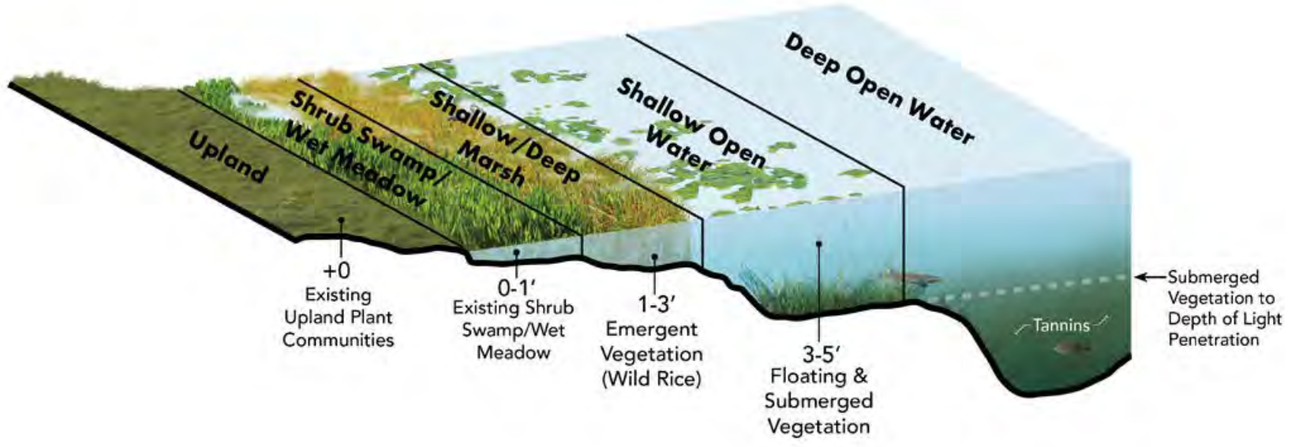
MWMO - Headquarter Interpretive Signage



Shallow Sheltered Bay Habitat Types

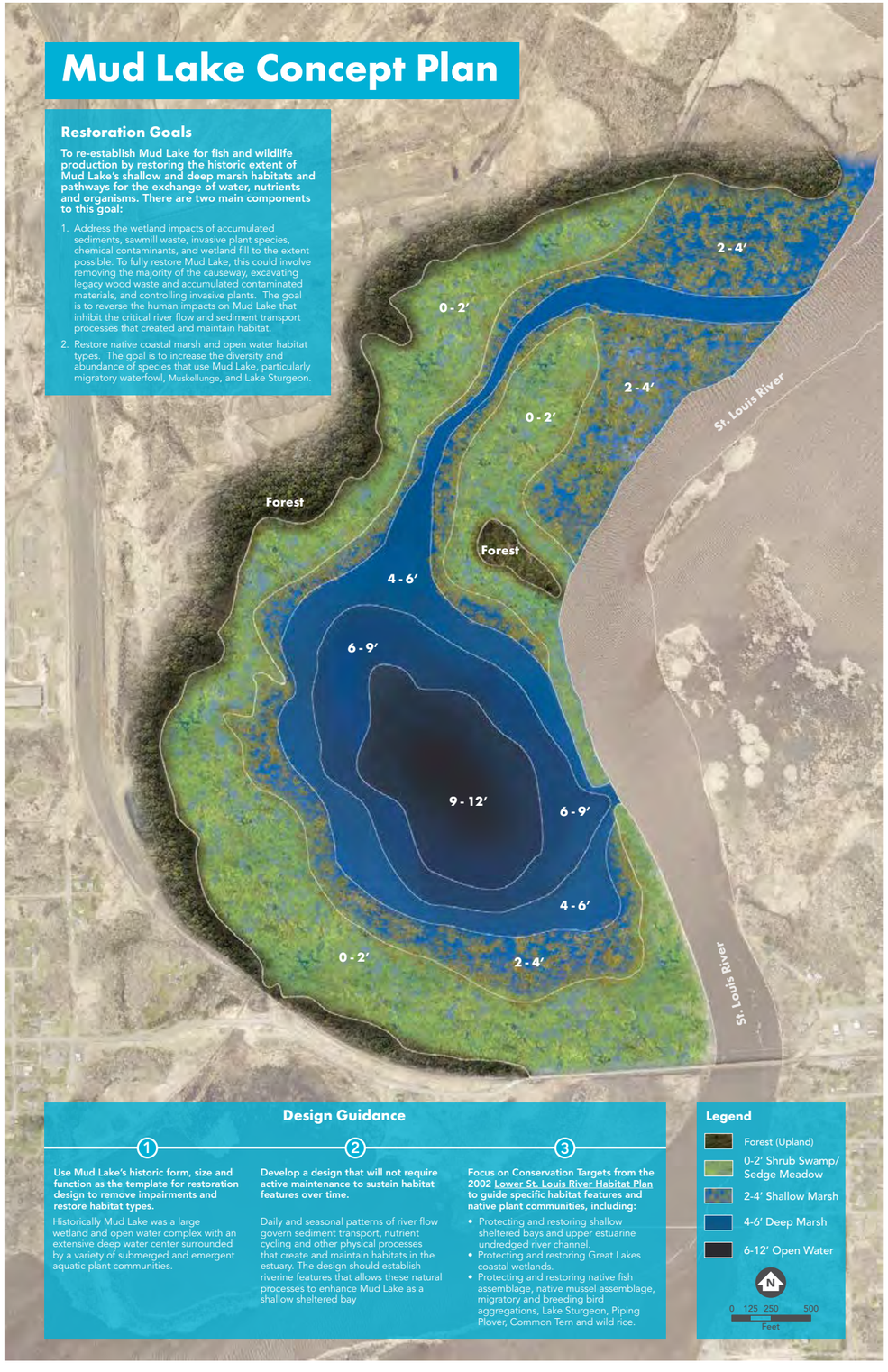


Mud Lake Concept Plan

Restoration Goals

To re-establish Mud Lake for fish and wildlife production by restoring the historic extent of Mud Lake's shallow and deep marsh habitats and pathways for the exchange of water, nutrients and organisms. There are two main components to this goal:

1. Address the wetland impacts of accumulated sediments, sawmill waste, invasive plant species, chemical contaminants, and wetland fill to the extent possible. To fully restore Mud Lake, this could involve removing the majority of the causeway, excavating legacy wood waste and accumulated contaminated materials, and controlling invasive plants. The goal is to reverse the human impacts on Mud Lake that inhibit the critical river flow and sediment transport processes that created and maintain habitat.
2. Restore native coastal marsh and open water habitat types. The goal is to increase the diversity and abundance of species that use Mud Lake, particularly migratory waterfowl, Muskellunge, and Lake Sturgeon.



Design Guidance

1

Use Mud Lake's historic form, size and function as the template for restoration design to remove impairments and restore habitat types.

Historically Mud Lake was a large wetland and open water complex with an extensive deep water center surrounded by a variety of submerged and emergent aquatic plant communities.

2

Develop a design that will not require active maintenance to sustain habitat features over time.

Daily and seasonal patterns of river flow govern sediment transport, nutrient cycling and other physical processes that create and maintain habitats in the estuary. The design should establish riverine features that allows these natural processes to enhance Mud Lake as a shallow sheltered bay

3

Focus on Conservation Targets from the 2002 Lower St. Louis River Habitat Plan to guide specific habitat features and native plant communities, including:

- Protecting and restoring shallow sheltered bays and upper estuarine undredged river channel.
- Protecting and restoring Great Lakes coastal wetlands.
- Protecting and restoring native fish assemblage, native mussel assemblage, migratory and breeding bird aggregations, Lake Sturgeon, Piping Plover, Common Tern and wild rice.

Legend

- Forest (Upland)
- 0-2′ Shrub Swamp/ Sedge Meadow
- 2-4′ Shallow Marsh
- 4-6′ Deep Marsh
- 6-12′ Open Water

0 125 250 500
Feet

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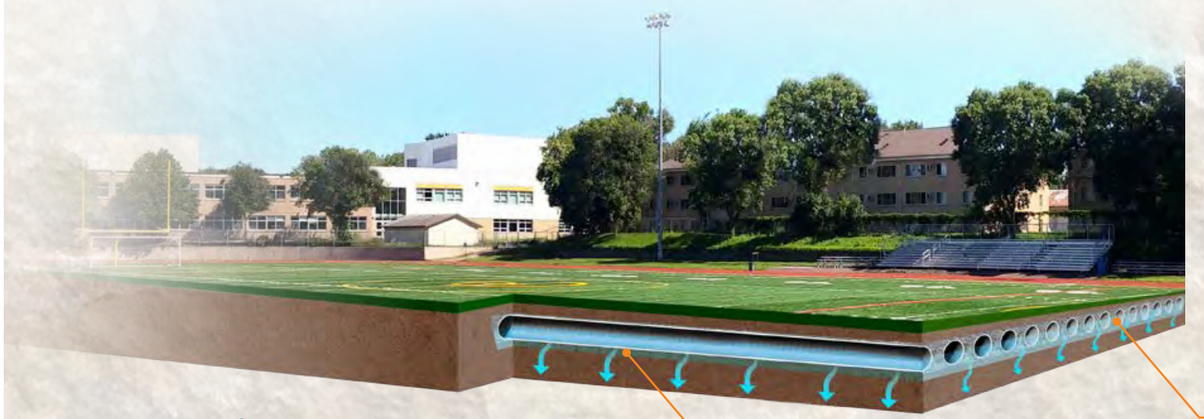
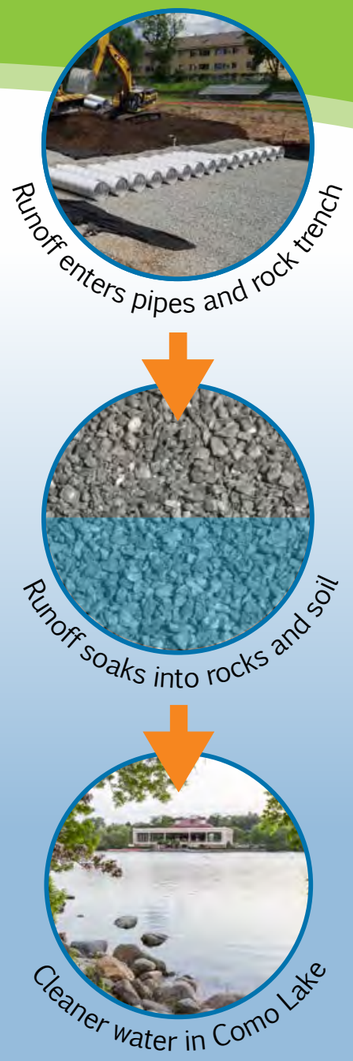
City of Duluth - Mud Lake Graphical Report

WHAT'S BENEATH THE FIELD?

Underground rock trenches at Como Park Senior High School help reduce pollution in Como Lake. Here's how —



Polluted stormwater runoff used to flow from Rose Avenue, Como Park Senior High School, and the surrounding neighborhood to Como Lake through storm sewers. The school installed a series of large pipes with thousands of holes and buried them in rock-filled trenches below the athletic field. This system captures and cleans up to **6.5 million gallons** of runoff each year by allowing it to slowly soak into the ground.



Why?

Did you know that when it rains or snow melts, water carries trash, dirt, oil, pet waste and leaves to Como Lake? Water that flows over hard surfaces is called runoff. Projects like this one are essential to capture, clean and reduce runoff before it reaches nearby lakes and rivers. Saint Paul Public Schools completed this project in partnership with Capitol Region Watershed District. Project support provided by Capitol Region Watershed District, Saint Paul Public Schools, City of Saint Paul and the Clean Water, Land, and Legacy Amendment.

resourceful. naturally.®

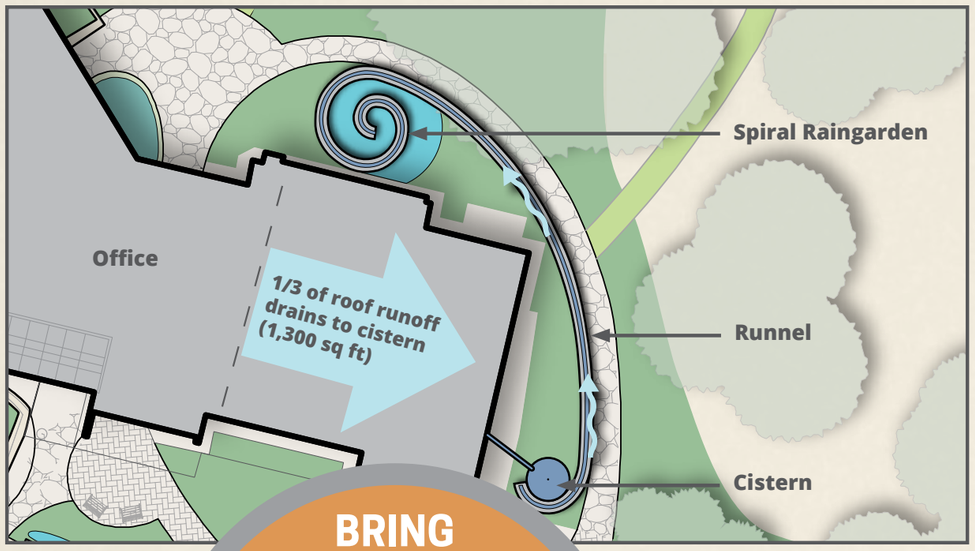
CRWD - Como High School Interpretive Signage

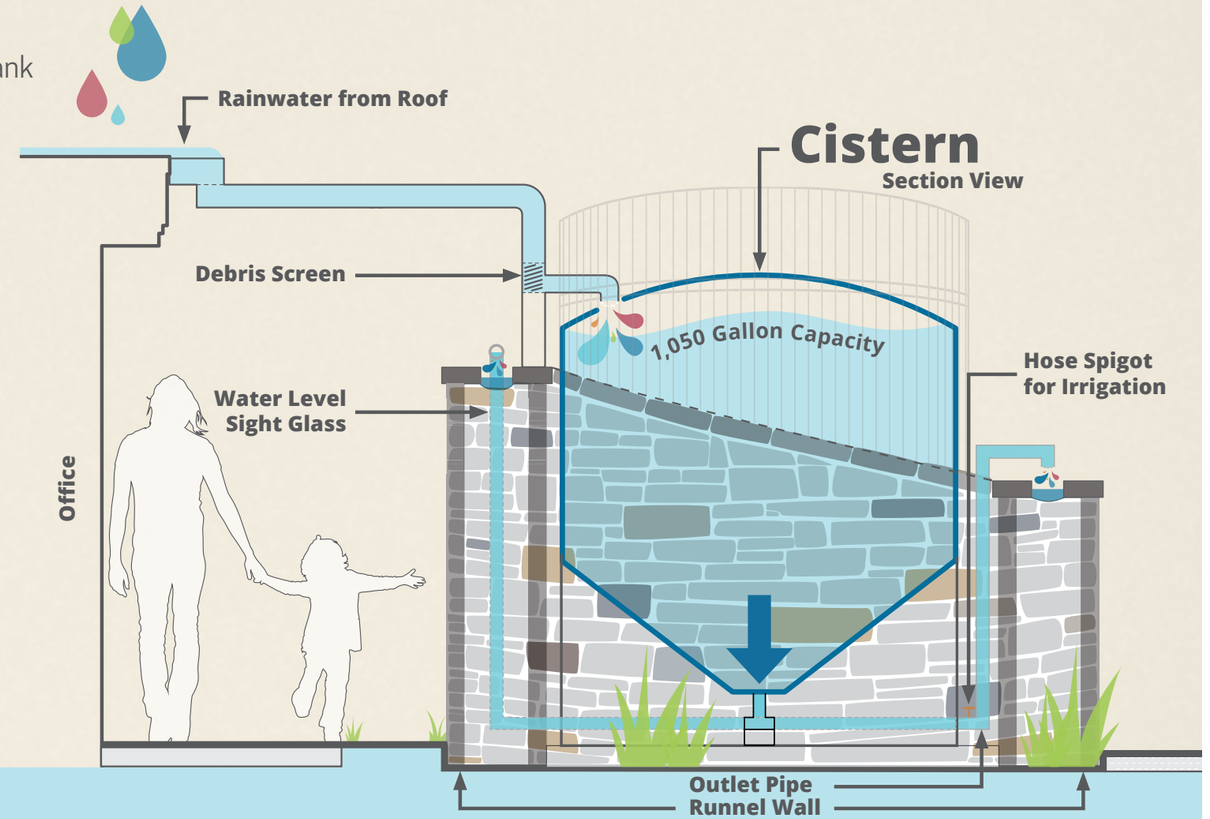
CISTERN

RUNNEL AND SPIRAL RAINGARDEN

NINE MILE CREEK DISCOVERY POINT

It is amazing how quickly rain adds up. A one-inch storm event will entirely fill our 1,050-gallon cistern, and only one third of our roof drains to it! This large holding tank is part of an artistic system. Overflow water drains to the spiral raingarden via the runnel, and stored water is used to irrigate landscape plants.





BRING IT HOME!

Like a cistern, rain barrels are used to collect rainwater from your roof. They are a small first step you can take to reduce runoff. Try linking two or more together to increase the amount of water you can capture.

9 MILE CREEK WATERSHED DISTRICT

WATER QUALITY BENEFIT

1,050 Gallons

= 19 Rain Barrels

= 27 Bathtubs

Capture Rainwater On-Site

Install a cistern to capture and store roof runoff water. Use the water for irrigation when drier days come. The use of cisterns helps conserve groundwater and reduces the amount of polluted runoff flowing into our lakes and creeks. Cisterns can be installed above or below ground and come in a number of sizes and appearances.

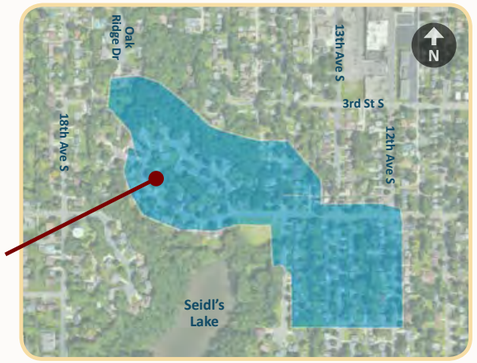
ROOTED IN WATER QUALITY IMPROVEMENT

TREE TRENCHES STOP POLLUTANTS FROM ENTERING SEIDL'S LAKE

WHAT DOES THE TREE TRENCH SYSTEM DO?

The Seidl's Lake tree trench system intercepts and filters polluted stormwater from a 27-acre watershed to the north of Seidl's Lake. The underground tree trench prevents almost 10 pounds of phosphorus and over 3,700 pounds of sediment from entering Seidl's Lake. This helps to improve the quality of the lake, reduce the frequency of algal blooms, and recharge groundwater.

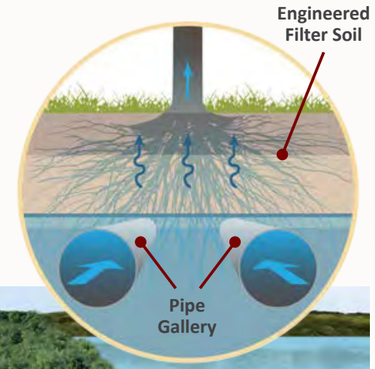
The innovative underground storage system collects and treats stormwater, providing water directly to the roots of trees planted in the park. Added benefits of the system include habitat for song birds, shade for park users, and usable park space on top of the system.

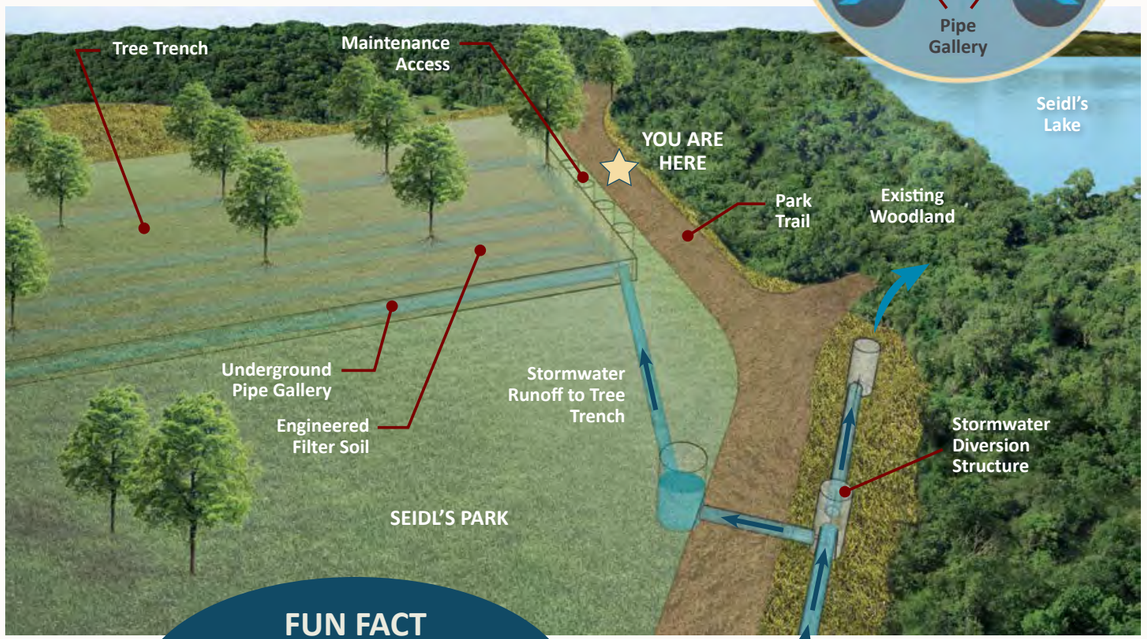


The 27-acre watershed to the north of Seidl's Lake that is treated by the tree trench system

HOW DOES IT WORK?

Stormwater runoff from the watershed enters the stormwater diversion structure. The first 1.1 inches of the stormwater enters the underground pipe gallery, filling up the pipes and empty spaces in the surrounding engineered filter soil. Sediment and debris in the water are captured in the pipe system. The tree roots can "drink" the stormwater from above. Excess water soaks into the soil, which recharges the groundwater aquifer.





FUN FACT

THE 4,000,000 GALLONS OF STORMWATER INTERCEPTED BY THE TREE TRENCH SYSTEM COULD FILL NEARLY 370 SWIMMING POOLS!

SSP

LMR WMO
LOWER MISSISSIPPI RIVER
WATERSHED MANAGEMENT ORGANIZATION

METROPOLITAN COUNCIL

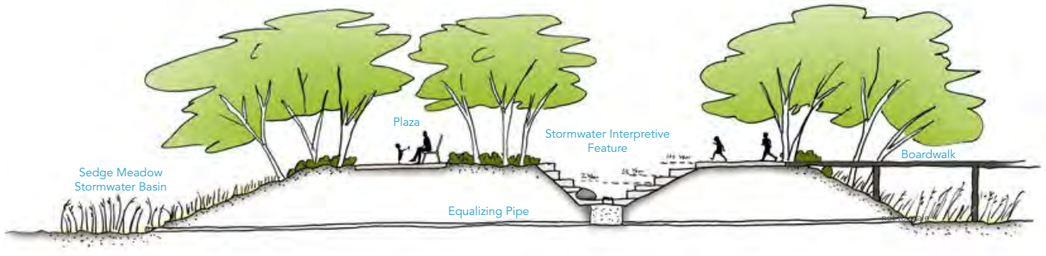
City of South St. Paul - Seidl's Lake Interpretive Signage

resourceful. naturally.®

Key

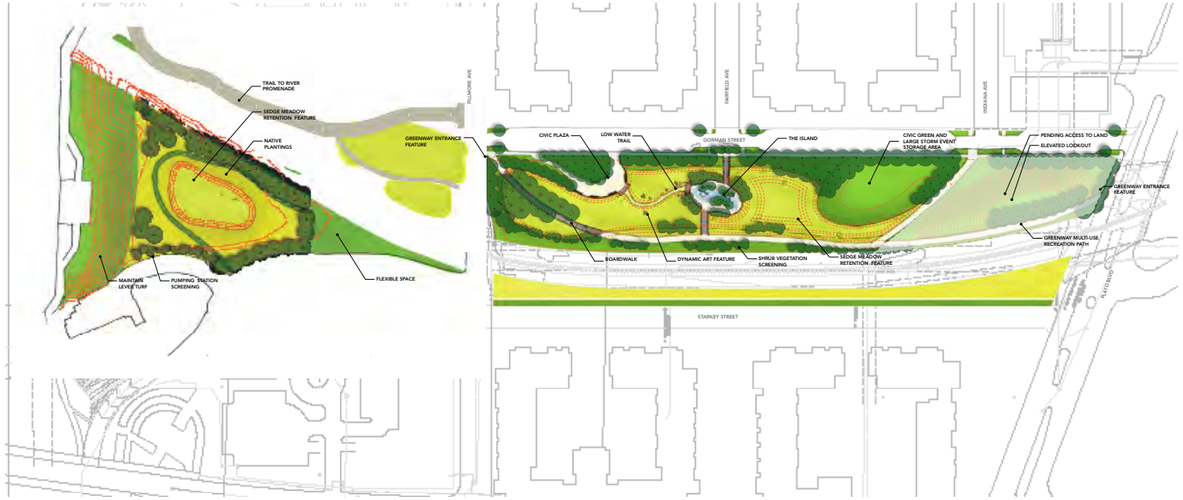
1. The Island
2. Civic Green
3. Sedge Meadow
4. Civic Plaza
5. Low Water Trail
6. Boardwalk
7. Dynamic Art Feature
8. Vegetative Screening
9. Elevated Lookout
10. Muti-Use Recreation Path
11. Future Development
12. Existing Rail Road

Section: The Island



West Side Flats Greenway - Conceptual Rendering

Prepared by Barr Engineering Co. for the City of Saint Paul — 4/22/2017



West Side Flats Greenway

Prepared by Barr Engineering Co. for The City of Saint Paul - 04/21/2017

0 40 80 120
Feet

City of St. Paul - West Side Flats Park Renderings

resourceful. naturally.®

PRELIMINARY LANDSCAPE PERSPECTIVE RENDERING
Prepared by Barr Engineering Co. for City of New Brighton WTP1 AOP Expansion – 11/29/16

PRELIMINARY LANDSCAPE PERSPECTIVE RENDERING
Prepared by Barr Engineering Co. for City of New Brighton WTP1 AOP Expansion – 11/29/16

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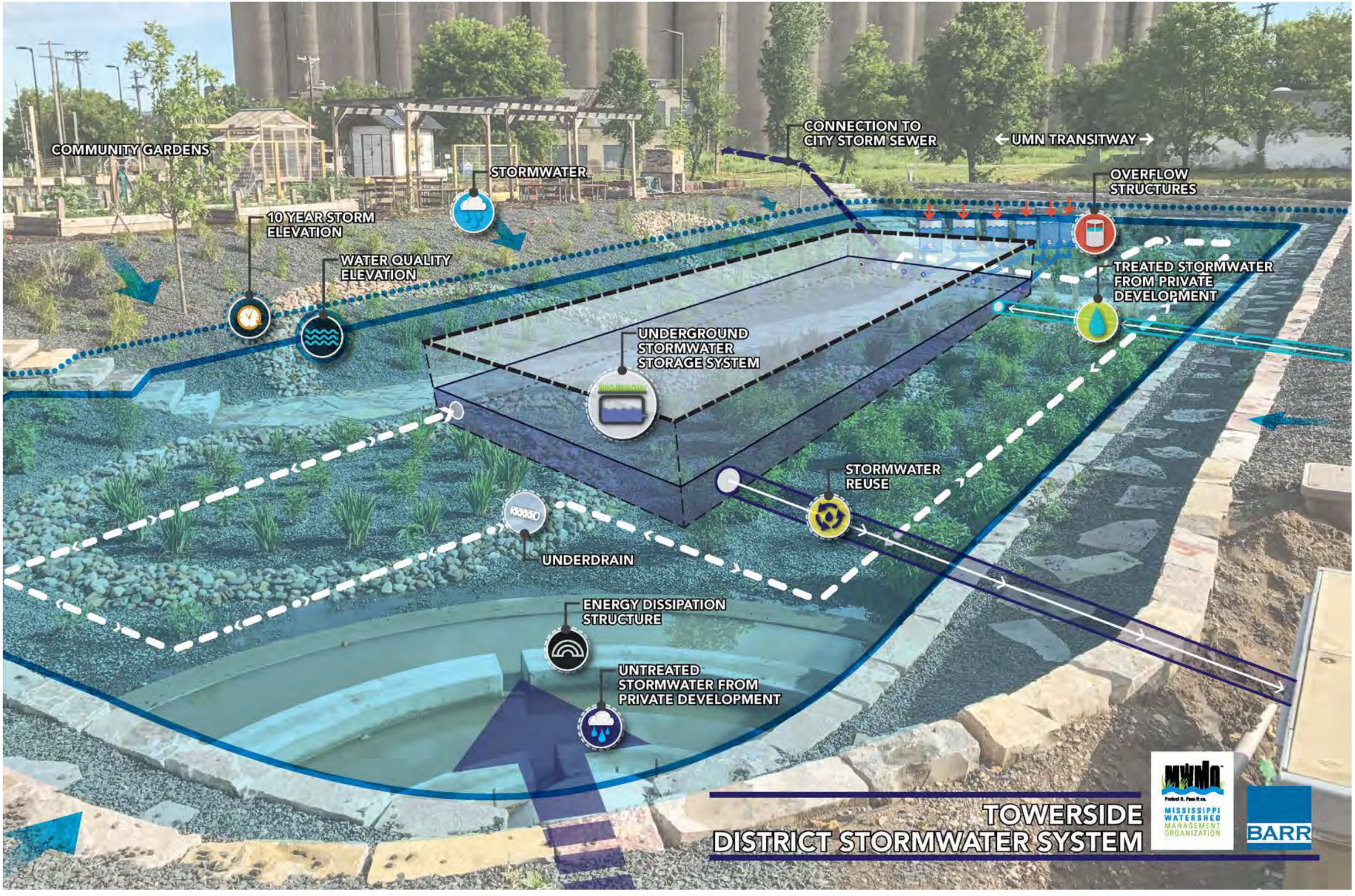
City of Blaine - Landscape Rendering



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MWMO - Towerside Diagram

RPBCWD - Creek Restoration Rendering

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Hello

PROPOSAL

ABOUT

COMPANY	PROJECT	DATE
Young Environmental	LMRWD	Oct 6, 2021

ECOSYSTEM SIGNAGE BUILDING AND PRINTING

Collaborative layout and design for (2) Signage

ABOUT STUDIO LOLA—Hello! We are a company of freelancers working collaboratively with clients to build brand materials for print, web and more, specializing in logo creation, brand management and interior and exterior signage. Each contributer is a part of a team of awesome humans collected who are honest, hardworking and kind. All talent has been proven through time and projects completed:

Graphic Design	**Jamie Colbert,** designer and owner of Studio Lola; 20 years experience in print design + 5 years of web design Studio Lola Jamie Colbert; jamie@studio-lola.com, 6514429696, 26780 Freeport Ct. Wyoming, MN 55092
Illustration	**Maggie Wiebe,** student University of Michigan, Penny W Stamps School of Art & Design '22 maggiewiebe.com, 651-249-0103 custom work completed recently for rain garden signage for RWMWD
Content / Editing	**Inhouse through Studio Lola**
Sign Fabrication	**ImageLoc Signage** We keep all printing reps witihin our company; what does that mean? We have some sweet elationships we have built over the years, we get some great pricing, we add a markup and bill through our company.

PRICE ESTIMATE TOTALS & PAYMENT DETAILS

1/2 down is due before project begins for all creation work; remainder due along with printing costs upon approval and prior to print
WE ACCEPT PAYMENT VIA CHECK OR VENMO

Graphic Design	12-18 hr @ $85
Illustration	$750 - 1000; additional costs for usage rights beyond one-time use TBD
Content / Editing	2-5 hr @ $85

Sign Fabrication $1500-2500
Scope: This estimate is from a recent quote received for a similar job using the print provider I would use for your project. They have a patented process that is unlike any other I have seen for quality/weather resistance.Panel Width (INCH): 18.00 Panel Height (INCH): 12.00 Panel Total SQ FT: 1.50 .125 Panel Thickness; Single Side Print Rectangle; FINISHING 1/8" Corner Radius (default) *No Holes 3/8"-16 x.75" Mounting Studs (Quantity =4) Artwork File (Quantity =2); MOUNTING PEDESTAL FRAMELESS PEDESTAL POST MOUNT 20 160005 Options: 3"x3"x78" Inground Single Leg 10"x12" Mounting Plate Powdercoat Black Texture Est. Unit Weight: 20 LBS FREIGHT CHARGES ***Installation not included***

$1000 DOWNPAYMENT (1/2 DOWN REQUIRED FOR NEW CLIENTS); PAY VIA CHECK OR VENMO

I approve! Let's do this

Your signature of approval is required to place your job in active status. Note: New clients are required to pay half down to reserve the project time in my schedule and to solidify your commitement to the project as well.

- ☐ GO! NO EDITS (Ready to print/approved as is)
- ☐ WAIT! EDITS (New proof requested)

X _____
sign here

_____
date

RAIN GARDEN
at Wakefield Park

What is a rain garden?

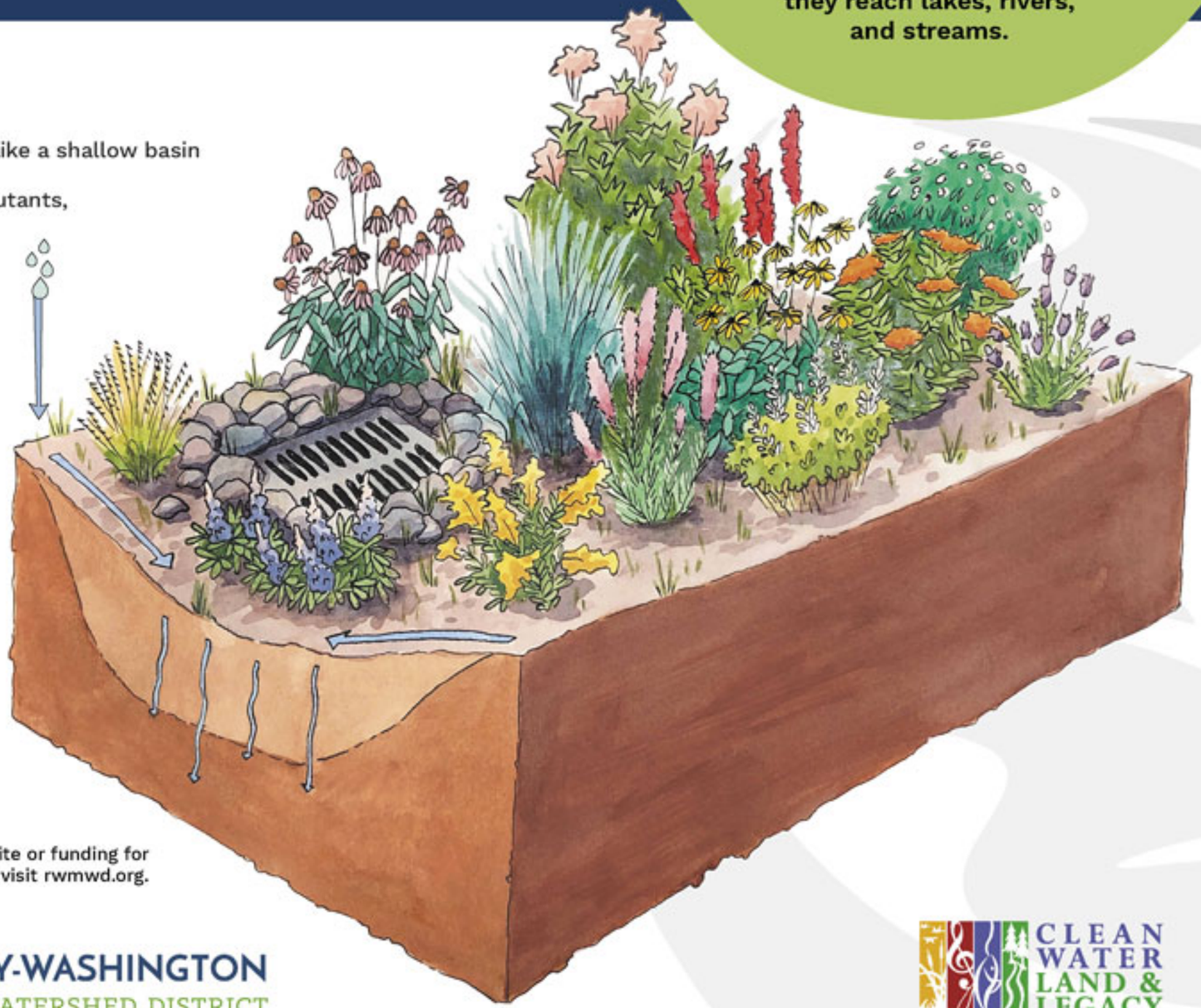
A rain garden is a planted lowe area that collects rainwater from hard surfaces like pavement and then filters out pollutants before they reach lakes, rivers, and streams.

What happens in the rain garden when it rains?

As it rains, rainwater will flow into the rain garden, which is usually shaped like a shallow basin

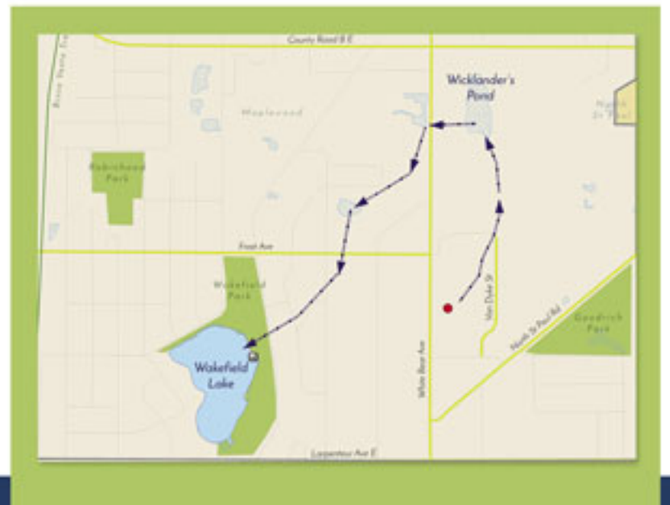
Water is filtered through deep plant roots and organic matter, removing pollutants, collecting sediment, and slowing the water flow

After it has been filtered, the water then joins the storm sewer system via an overflow grate or throughgroundwater



Facts about this Wakefield Park rain garden:

- Over 9,000 perennials and grasses, over 600 shrubs, and 70 trees are planted across 13 gardens on this site
- The gardens combined stretches over 31,000 square feet
- Over 11 acres drains to these gardens including 8 acres of pavement or other surfaces where water cannot soak into the ground
- Cleans rainwater runoff going into Wakefield Lake



Learn more

To learn more about this site or funding for a rain garden of your own, visit rwmwd.org.

RAMSEY-WASHINGTON
METRO WATERSHED DISTRICT

CLEAN WATER LAND & LEGACY AMENDMENT

RAIN GARDEN

Woodbury Elementary School

RAMSEY-WASHINGTON
METRO WATERSHED DISTRICT

Cost share funding for rain garden construction is available. Find more information at rwmwd.org/costshare.

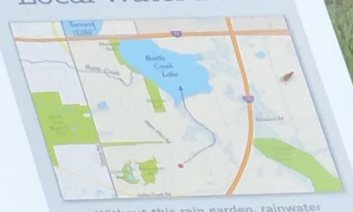
WHAT IS A RAIN GARDEN?

Rain gardens are shallow low spots intentionally designed to collect rainwater runoff, allowing the rainwater to soak or infiltrate into the ground. Rain runs quickly off streets and parking lots, picking up pollutants such as phosphorus and oil on the way. By collecting and cleaning rainwater runoff these rain gardens not only keep our lakes and creeks clean, they also protect our homes from flooding.

WHAT DOES THIS GARDEN DO?

- In some places, it's not possible to soak rainfall into the groundwater through existing soil. Filtration rain gardens collect stormwater and clean it by filtering it slowly through plants and engineered soil to remove pollutants.
- After filtering, clean rainwater travels through the storm sewer to a nearby pond, lake or stream
- By slowing the flow of stormwater and releasing it over time, rain gardens can also help reduce flooding.

Local Water Flow



Without this rain garden, rainwater runoff for this site would flow untreated into the closest lake.

This rain garden was planted by students from this school with the help of Ramsey County Master Gardeners.

NATIVE PLANTS & THEIR CULTIVARS

The plants in the rain garden have deep roots to help water soak into the ground. Pollinators such as bumblebees and butterflies are critical for our ecosystem and depend on plants like these to survive. Native plants are also adapted to our seasons and do not need watering or fertilizer to survive throughout the year.

Joe Pyeweed

Anise Hyssop

FLOWERING PLANTS

Flowers from these plants provide nectar and pollen that native pollinators need.

Prairie Dropseed

Switchgrass

NATIVE GRASSES & SEDGES

Seeds and stems from these plants provide food and habitat for insects and birds.

CLEAN WATER LAND & LEGACY AMENDMENT

DEFINING CHALLENGES WITH OUTDOOR PHOTO-QUALITY SIGNAGE

Photo-quality images are far more sensitive to UV light than solid colors and, over time, can fade if they are not adequately protected. The process of creating continuous-tone, photo quality images on signs is typically done on a digital inkjet or dye sublimation printer. Whichever printing process is used, the printed image must be protected with an over-laminate material to shield it from UV, weather conditions, moisture, graffiti and vandalism. The challenges facing each sign construction process are summarized on the right.

FADED IMAGE

DELAMINATION

HPL PEELING IMAGE

Laminated to Dibond® or aluminum with clear over-laminate sheet

- Subject to UV fading after two to three years
- Subject to moisture intrusion and delamination
- No integrated mounting system
- Easily damaged by graffiti and/or vandals
- Price/value – short life span increases cost of ownership

High Pressure Laminate (HPL) or Porcelain Enamel

- Intensive manufacturing process (labor and equipment)
- Consumes high energy levels during production
- Material costs are high; porcelain - extremely high
- HPL utilizes formaldehyde in the production process
- Purchase price: HPL - high
- HPL has a tendency to peel as it ages

Fiberglass Embedded

- Subject to fading after five years in direct sun
- Tends to yellow with age
- With age, surface fibers compomise image clarity
- Purchase price is high

FIBERGLASS EMBEDDED

HIGH PRESSURE LAMINATE

IMAGELOC®

SUMMARY OF SIGN INDUSTRY CONSTRUCTION TECHNOLOGIES

☛ Laminated Inkjet Signs

Typically printed on paper or vinyl and then adhered to a composite board material such as Dibond®. The sign is then covered with a clear plastic laminate to protect the graphics. These signs are prone to premature failure in a variety of ways, including delamination, fading, peeling, weather damage, graffiti and vandalism. Typically warranted for one to three years against fading only. Priced equal to fiberglass embedment and HPL signs.

☛ Fiberglass Embedded Signs

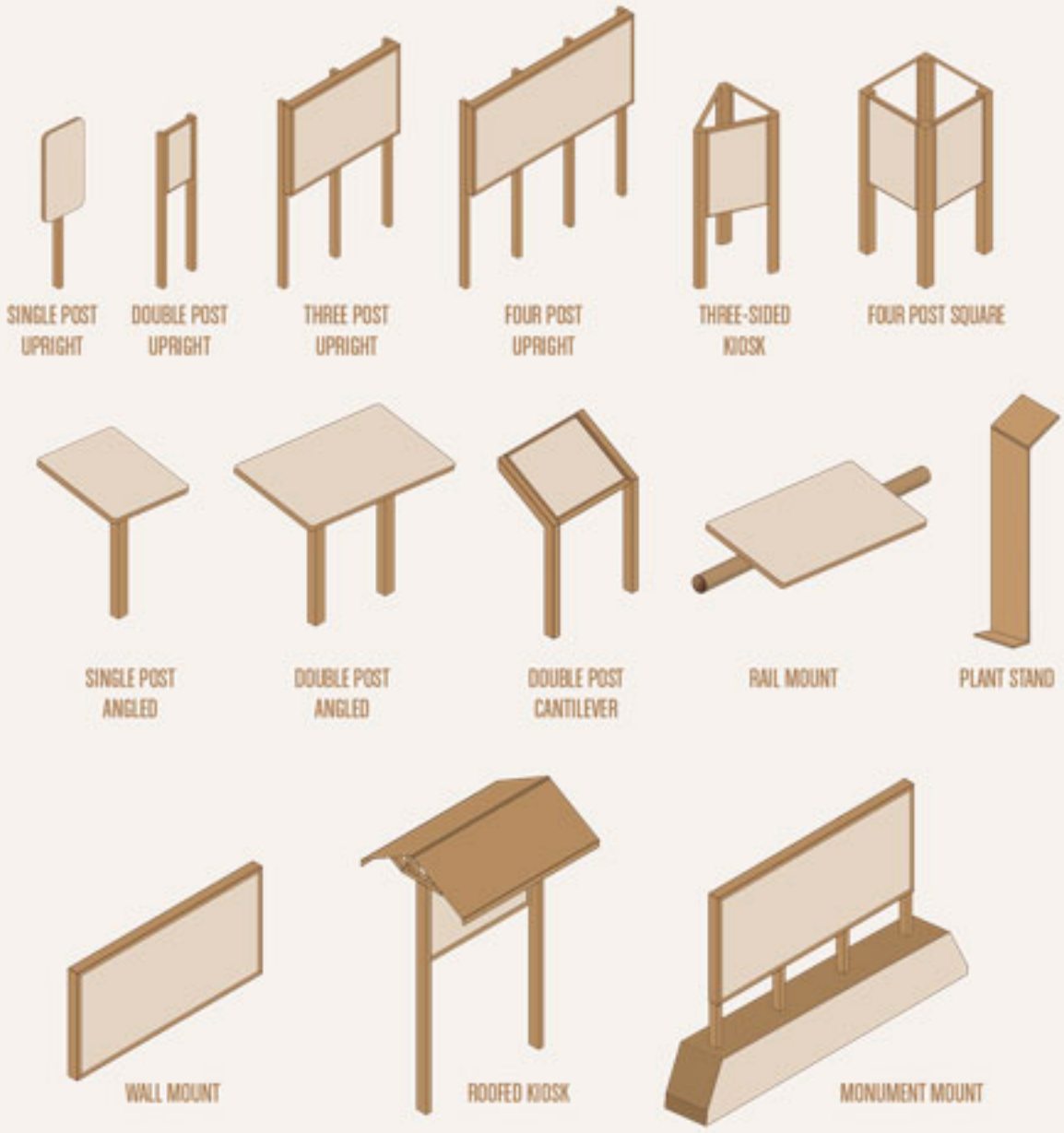
Printed on paper and then covered with fiberglass resin. Print quality is good but the panels are easily scratched. The surface of these signs tend to deteriorate over time, especially in areas where the sign is exposed to direct sunlight. When deteriorating, the fiberglass breaks down, leaving the surface of the sign cloudy and obstructing the visibility of the graphics. Performs best in areas of shade or partial shade. Priced equal to HPL and laminated inkjet.

☛ High Pressure Laminate (HPL)

Like inkjet and fiberglass embedment, HPL is printed on paper. It is then covered with multiple layers of UV laminate to protect the graphics from fading and vandalism. These layers of laminate do reduce the clarity of the underlying images. HPL manufacturing is a labor and manufacturing intensive process which contributes to its high cost. HPL signs are subject to fading over time, as well as peeling and delamination along the edge of the panels. Priced equal to fiberglass embedment and laminated inkjet.

☛ ImageLOC®

Direct-printed onto a proprietary organic coating that is fused to heat-treated aluminum. Color vibrancy, image clarity and durability are all trademarks of this innovative technology. Highly durable in all weather conditions, ImageLOC® is warranted not to fade, crack, peel or delaminate for a minimum of ten years. A proprietary organic hydrophobic topcoating repels permanent markers, oil or water-based paints and much more, making it virtually graffiti-proof. ImageLOC® is a “green” environmentally friendly technology. It offers the lowest cost of ownership of any durable sign technology.


SINGLE POST UPRIGHT
DOUBLE POST UPRIGHT
THREE POST UPRIGHT
FOUR POST UPRIGHT
THREE-SIDED KIOSK
FOUR POST SQUARE
SINGLE POST ANGLED
DOUBLE POST ANGLED
DOUBLE POST CANTILEVER
RAIL MOUNT
PLANT STAND
WALL MOUNT
ROOFED KIOSK
MONUMENT MOUNT