

PROPOSAL FOR PROFESSIONAL SERVICES

# Vadnais Lake Area Water Management Organization

VADNAIS HEIGHTS, MINNESOTA | JANUARY 22, 2021



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January 22, 2021

Phil Belfiori  
VLAWMO Administrator  
phil.belfiori@vlawmo.org

**RE: Proposal for Professional Engineering Services – Vadnais Lake Area Water Management Organization**

(VADLA 158655)

Dear Mr. Belfiori:

The Vadnais Lake Area Watershed Management Organization (VLAWMO) is seeking engineering services to support the work you do to protect water resources in the Vadnais Lake watershed area. At Short Elliott Hendrickson Inc. (SEH®), we appreciate the opportunity to have served in this role since 2019. We are confident that the service areas you are requesting remain an excellent match for our staff and the level of service we are able to offer.

We look forward to the opportunity to serve as an extension of your staff and build on our strong working relationship with you. The following key points highlight our proposal.

## Responsive services and clear communication

We believe success is about working together. For this partnership, an important part of that success has been our ability to respond efficiently to your project needs. As a full-service engineering firm headquartered in Vadnais Heights and located just down the street from the VLAWMO office, we will continue to provide the right resources and respond as project needs arise, often on short notice.

We also have the flexibility to maintain high standards in this area as circumstances change, such as the clear communication and efficient project delivery that has continued through primarily virtual communication this year due to COVID-19. We will continue to listen to you and determine the best methods moving forward to keep all parties informed and meet your project needs.

## Projects delivered to meet the best interests of VLAWMO and cities in the watershed

We have assembled an exceptional team of engineers, natural resource scientists and water quality scientists who are invested in the Vadnais Lake area community and understand the high value of watershed management. By drawing on our familiarity with VLAWMO policies and water resources in the Vadnais Lake area, both through our work for VLAWMO and our experience in Vadnais Heights, White Bear Township and the City of Gem Lake, we will help you implement policies and updates that reflect the long-term interests of all affected parties.

## Knowledge of standards, policies and permitting requirements

We have longstanding, positive working relationships with our regional regulatory agencies and a clear understanding of how their standards can affect your projects. We are committed to making certain that project details are understood early so that goals can be established and provide the groundwork for effective decisions, such as permitting or other regulatory requirements.

In addition, we currently assist and serve municipalities within the VLAWMO watershed boundaries with proposed and ongoing development reviews for water resources and environmental considerations and local, state and federal agency requirements. Through this role and our work for you the last couple years, we have become familiar with the VLAWMO stormwater policy, but also the municipal policies, stakeholders and design standards.

Engineers | Architects | Planners | Scientists

Short Elliott Hendrickson Inc., 3535 Vadnais Center Drive, St. Paul, MN 55110-3507  
SEH is 100% employee-owned | [sehinc.com](http://sehinc.com) | 651.490.2000 | 800.325.2055 | 888.908.8166 fax

Emily will continue to be the main point of contact for these services, responsible for making certain that our services continue to meet your expectations. Please feel free to contact her with any questions or to discuss the information provided in this proposal.

Respectfully submitted,

SHORT ELLIOTT HENDRICKSON INC.



“We are excited about the opportunity to  
continue working together with VLAWMO to  
protect water resources in our community.”

**EMILY JENNINGS, PE (MN)**  
**PROJECT MANAGER**

**BRAD WOZNAK, PE, PH, CFM (MN)**  
**REGIONAL PRACTICE CENTER LEADER/  
CLIENT SERVICE MANAGER**

# Scope of Services

We are proud to have had the opportunity to serve as a trusted advisor to Vadnais Lake Area Watershed Management Organization (VLAWMO) staff over the last two years. We appreciate the opportunity to continue to provide services that are built on listening to you and understanding your needs and expectations. When working with SEH, you can continue to expect:

- Personalized service that looks out for your best interests and those of the cities within VLAWMO.
- A single contact person and core team to serve as a seamless extension of your staff – **Emily Jennings** will continue to be your primary point of contact.
- Approach built on our ongoing efforts to develop and improve our capability to match your needs and expectations.
- Responsiveness that equals your sense of urgency, with resources to respond to short-order requests as needed.

Working as an extension of your staff, we will provide project management expertise, thoughtful environmental analysis and design, and collaborative approaches to navigating the permitting process. Our team of scientists and engineers are assets to the process due to our abilities to analyze project elements that could affect environmental review decisions.

We believe success is about working together in collaboration and partnership. That means collaboration with you as well as with agency stakeholders. We have developed long-standing positive working relationships with our regional regulatory agencies so that project details are understood early and goals are determined for successful and efficient permit decisions.

The following sections of this proposal describe our experience and services in each of the primary areas listed in your RFP. While this information is focused on the requested services, our extensive experience in other areas of water resources, such as floodplain management, wetland and natural resource services, creates a well-rounded team of professionals who are eager to continue serving VLAWMO.



## STORMWATER MANAGEMENT

SEH offers diverse experience on water resources projects – from small, localized flooding analyses to large-scale hydraulic models in both rural and urban settings. Our professional services include, but are not limited to, the following:

- Both traditional and unique Best Management Practice (BMP) design
- Erosion and sediment control plans
- Watercourse rehabilitation and streambank stabilization
- Invasive species management
- Wetland and environmental services
- Hydrologic and hydraulic modeling
- Local, state, and federal stormwater and floodplain permitting
- Lake Management Planning

We know that achieving stormwater compliance is more complex than it appears at first glance. SEH provides expert guidance to facility owners, developers and contractors to navigate and comply with local, state and federal stormwater regulations.

Our stormwater design, compliance and inspection services include, but are not limited to:

- Highly trained, experienced and/or certified personnel to perform inspections in accordance with applicable local and state regulating authority
- Structural stormwater BMP design to meet the post-construction local and state stormwater treatment requirements
- Stormwater management plan review and development
- Construction observation services and reporting

- Audit services to uncover potential permit violations, identify solutions that minimize risk and provide a clear approach to stormwater compliance
- Education and training services specially designed for land and construction management

Our water resources and hydraulic engineers provide comprehensive approaches to hydrologic and hydraulic analyses across multiple modeling platforms, from traditional one-dimensional (1D) steady flow analyses of urban drainage or riverine systems to two-dimensional (2D) unsteady flow analyses as part of complex hydraulics projects. Our team has the ability to fit the model to the project. We do this by selecting from a myriad of modeling programs to ensure the most appropriate model and modeling methodology is utilized for the given application.

Our advanced hydrologic and hydraulic modeling services include:

- Floodplain analysis to estimate flood levels along lakes and streams and evaluate proposed projects
- Analysis of existing stormwater management systems and evaluation of proposed projects
- Hydrologic and hydraulic modeling studies, including 1D/2D modeling of watersheds, stormwater networks and open channel systems
- Design of spillways and outlet works
- Analysis and design of channels and channel structures
- Design of flood risk management systems including levees, floodwalls and interior drainage systems
- Water quality analysis, including pollutant loading and removal estimation

## FEASIBILITY STUDIES

SEH staff makes sure to listen to our clients' needs and goals to cater a feasibility approach specific to each study. Our technical and support staff have extensive experience in developing thorough and useful feasibility studies. We are able to leverage our vast project experience to provide realistic estimates for engineering efforts and construction costs, detailed scheduling and timelines, and early identification of obstacles that may threaten a project.

Additionally, we use professional connections with local, state and federal organizations to incorporate all-encompassing information within our studies. We are flexible and willing to pivot to leave no stones unturned when performing preliminary engineering to find the best possible solution for our clients' needs.

## DESIGN ASSISTANCE

Our team has vast experience designing various projects where stormwater management was either the focus of the work, or a necessary component of another project

type. Through our experience with these designs, we have adapted to varying regulatory frameworks, site conditions and client expectations. We have designed numerous stormwater projects which balance a multitude of requirements:

- Water quality
- Water quantity
- Recreational and aesthetic values
- Economic considerations

Members of our team have worked closely with various watershed organizations and clients to successfully design the following types of projects:

- Traditional BMPs such as raingardens, infiltration and filtration basins, constructed and restored wetlands, wet ponds and dry detention basins
- Innovative BMPs such as enhanced filtration, multi-cell systems and green infrastructure techniques
- Ultra-urban BMPs such as pervious pavement and pavers, tree trenches/boxes, infiltration trenches and underground infiltration and storage
- Watercourse restoration and streambank stabilization
- Invasive species management
- Temporary and permanent erosion and sediment control devices/systems
- Gray infrastructure such as storm sewer conveyance systems
- Water quality data collection program

## GRANT APPLICATIONS

SEH offers a dedicated staff of engineers and scientists who are experienced in providing technical support for grant applications and other funding sources. SEH has secured over \$200 million in project funding in the past 18 months alone. Our close relationship with our clients allows us to effectively work together and provide the necessary engineering guidance to prepare successful grant proposals.

We have the resources and knowledge to know which other types of funding and grants a project may qualify for, whether it be Board of Water, Soil Resources (BWSR) grants or a different source. SEH has assisted a multitude of cities throughout the state with other less utilized funding opportunities such as the Minnesota Department of Natural Resources (DNR) Flood Damage Reduction program and Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program. For example, SEH has assisted the cities of Faribault, Melrose, Austin and Crookston in moving their projects forward by obtaining Minnesota DNR Flood Damage Reduction program funds to complete millions of dollars in flood mitigation projects.

## UNDERSTANDING VLAWMO STORMWATER POLICY

Our work for the last two years has involved serving as an extension of your staff to understand and implement the VLAWMO Stormwater Policy in your improvement projects, applying your policies and working towards meeting your goals. We are committed to continuing to work with you towards your policy to protect human health, safety, welfare and natural resources within the watershed.

SEH has the added experience of working for numerous clients as their city engineers. Each of these clients has small differences in their design standards, goals and policies. Because of this, our staff understands the importance of becoming familiar with our client's policies and design standards. We pride ourselves on being able to provide personalized service that meets the needs of our diverse clientele.

We have additional familiarity through the perspective of our work serving neighboring municipal clients in the Vadnais Lake Area. SEH has significant experience in assisting communities with the development of their own policies that effectively capture and encircle existing workflow while meeting the intent of agency requirements. We believe that this upfront knowledge and background in the development of policies will help VLAWMO seamlessly enforce and update your policy as needed in the future.

## MEETING ATTENDANCE

SEH understands the importance of collaboration, information sharing and soliciting the input of the VLAWMO Staff, Board of Directors and Technical Commission. In our current environment, we are leveraging our technical abilities to host and attend meetings virtually; however, we understand the importance of meeting and presenting information in person when possible.

SEH's corporate office is located just down the street from the VLAWMO Office in Vadnais Heights. This proximity allows VLAWMO to save on the cost of consultant travel time and expense for in-person meetings – we do not charge travel time and expenses to attend VLAWMO meetings and visit nearby VLAWMO project sites.

## STORMWATER DEVELOPMENT REVIEW OF DEVELOPMENT APPLICATIONS

SEH has significant experience in reviewing development plans for private developers within the watershed, including but not limited to the City of Vadnais Heights, Gem Lake and White Bear Township. We understand the importance of a detailed development review through all phases of planning and design and even all the way through construction.

With our knowledge of stormwater within the area, we are aware of the local MS4 expectations alongside the Watershed Management Organization, as well as other pertinent stormwater considerations including the Minnesota Pollution Control Agency (MPCA), Minnesota DNR, Minnesota Department of Transportation (MnDOT), and U.S. Army Corps of Engineers (USACE), for example. We are able to review construction documents and present developers with clear and concise stormwater design expectations to meet the intent of all regulators within the project area.

## OTHER SERVICES

SEH offers a diverse portfolio of water resources project experience which includes service areas outside of those listed in the VLAWMO request for proposals. Our team has the experience and knowledge to help VLAWMO with the following additional services:

- Watershed plan development and implementation
- Floodplain management, including estimating and communicating flood risk
- Public and private BMP inspections, both surface and subsurface facilities using human or special equipment entry
- Environmental consulting including wetland services and preparation of environmental documents
- Water quality analysis and report preparation with recommendations for improvements
- Planning and design of parks and trails to provide educational and recreational opportunities in addition to addressing stormwater management needs
- Assistance with education and outreach efforts, including the production and sharing of technical information
- Full range of surveying services, whether it be on the ground surveys or higher level with our drone capabilities

Beyond the project team identified in this proposal, we have easy access to experts in many disciplines. We have groups focusing on highways, traffic, transportation planning, structures, construction services, civil engineering, water/wastewater engineering, aviation, architecture, public engagement and surveying. We also have a team of GIS specialists who assist with data collection and management.



# Primary Contacts and Key Personnel

SEH has established a project team that provides the experience required to manage projects, the relationships to promote agency support, and the technical skills to provide technically sound writing and analysis.



## **EMILY JENNINGS** PE

PROJECT MANAGER AND PRIMARY CONTACT FOR WATER RESOURCES ENGINEERING

Emily will continue to serve as the primary point of contact for VLAWMO. She is a professional engineer (MN) specializing in municipal, industrial and construction permitting, hydraulic and hydrological analysis, and stormwater conveyance modeling and design including roadways, ditches and BMPs. Emily's project experience includes stormwater planning, culvert hydraulics analysis, stormwater management design, stormwater conveyance modeling and design, Stormwater Pollution Prevention Plan (SWPPP) design and Municipal Separate Storm Sewer Systems (MS4) program coordination and design. Billing Rate: \$129/hr.



## **JEREMY WALGRAVE** PE, CFM

SENIOR WATER RESOURCES ENGINEER AND SECONDARY CONTACT FOR WATER RESOURCES ENGINEERING

Jeremy is a senior water resources engineer (MN, IA, OK, SD, OK, TX) who is experienced in stream restoration, hydraulic and hydrologic design of detention basins, stormwater conveyance systems, hydraulics for streams and rivers, and regulatory compliance. Jeremy's project experience includes preparation of detailed plans and specifications, risk assessments, environmental assessments, hydraulic letters, project representation, environmental permitting and project management. Billing Rate: \$201/hr.



## **BRAD WOZNAK** PE, PH, CFM

CLIENT SERVICE MANAGER AND WATER RESOURCES REGIONAL PRACTICE CENTER LEADER

Brad is a professional engineer (MN, CO, IA, IN, NE, SD, WI), principal and the client service manager for VLAWMO, supporting Emily as project manager and ensuring that SEH always has the right resources to respond to your project needs. He serves as the Regional Practice Center Leader for our central water resources group and has more than 23 years of experience. Brad's experience includes hydraulic and hydrologic analysis, watershed modeling, floodplain analyses and preparation of detailed plans and specifications. His project experience includes flood mitigation studies and projects throughout the Midwest, as well as hydrologic and hydraulic modeling studies, design of spillways, outlet works, stilling basins, drop structures, channels and channel structures, interior drainage works, pumping plants and erosion protection. Billing Rate: \$220/hr.



## RACHEL PICHELMANN PE, CFM

SENIOR WATER RESOURCES ENGINEER

Rachel is a professional engineer (MN, IA, IN, SD) and certified floodplain manager with experience in hydraulic and hydrologic analysis and watershed modeling. Rachel has prepared detailed plans and specifications as well as project cost estimates. Her project experience includes hydrologic and hydraulic modeling studies, stormwater management plans, flood risk management plans, dam failure assessments and emergency action plans (EAPs), hydraulic designs for bridge, culvert and dam projects, drainage design for rural and urban projects, design of specialized hydraulic structures and preparation of construction plans and specifications. Billing Rate: \$175/hr.



## JORDAN THOLE PE, CFM

WATER RESOURCES ENGINEER

Jordan is a professional engineer (MN, IA, MT, NM, OR, SD, WI) and a certified floodplain manager with more than nine years of experience in various fields of water resources engineering. His experience includes municipal and urban drainage, bridge and riverine hydraulics, dam hydraulics and floodplain analyses. Jordan is currently the Vice-Chair of the Minnesota Association of Floodplain Managers and has extensive experience working with the National Flood Insurance Program. He has extensive working knowledge of state floodplain regulations in Minnesota and Wisconsin. Jordan also has experience in hydrologic and hydraulic modeling studies, design of spillways and complex outlet structures, sediment detention basins, interior drainage and erosion protection. Billing Rate: \$124/hr.



## ERIK BYE

WATER RESOURCES SCIENTIST

Erik is a water resources scientist and certified lake manager who is skilled in collection, management and analysis of environmental data. He has experience with nutrient and vegetation sampling techniques, water quality data analysis, lake modeling, nuisance high water levels in lakes and in-lake treatments for eutrophic water bodies. Additionally, Erik has expertise in stormwater modeling and design. He has worked on water quality projects ranging from small, urban lakes to the largest lake in the world, Lake Superior. The projects he has worked on have provided stakeholders with a further understanding of the current status of the lakes, how they have changed over time, and a determination of the most threatening water quality issues that need to be addressed. Billing Rate: \$92/hr.



## DERIC DEUSCHLE CMWP

SENIOR BIOLOGIST AND NATURAL RESOURCES REGIONAL PRACTICE CENTER LEADER

Deric is the leader of SEH's natural resources team and a senior biologist with more than 20 years of experience in natural resource assessments, including completing aquatic and terrestrial flora and fauna surveys. Deric's understanding of complex ecological systems is an advantage to clients and their projects, as having a comprehensive view on factors in a large dynamic system is often critical to the success of a project. Billing Rate: \$200/hr.



## REBECCA BEDUHN PWS, CMWP

SENIOR NATURAL RESOURCES SCIENTIST

Rebecca is a professional wetland scientist and Minnesota-certified wetland delineator with an extensive background in wetland science, wetland regulatory administration, environmental review and policy. Rebecca primarily provides wetland services such as delineations, permitting and quality assessments. She has worked directly with VLAWMO on several projects throughout the watershed, including the Vadnais/Sucker Park Wetland Assessment project in which SEH completed a delineation and community quality assessments for 41 wetlands within the project area. Billing Rate: \$112/hr.





**SCOTT HAUPT** PE  
SENIOR CIVIL ENGINEER

Scott is a professional engineer (MN, WI), client service manager and project manager with experience in design, inspection, and management of municipal and highway projects. Scott has worked on projects involving water main, sanitary sewer, storm sewer, street and pedestrian facility construction, and MnDOT Municipal State Aid. His responsibilities include preparing feasibility reports, construction plans, specifications, cost estimates, bidding documents, client coordination, attending city council meetings and construction administration. Scott also serves as SEH's client service manager for several Twin Cities Metro cities, including the City of Vadnais Heights. Billing Rate: \$177/hr.



**THEO BROWN** LS  
LAND SURVEYOR

Theo has extensive experience in the survey profession in various capacities and roles. He has spent time in both the private and public sector, and he has worked on a wide base of project types in both the field and the office. As a land surveyor (MN, WI) he has spent the bulk of his time in the office working on right-of-way, design surveys, ALTA/ACSM, Geodetics, GIS/survey integration and QA/QC of techniques for greater accuracy and precision. Completing jobs for all levels of government agencies and commercial developments has kept him well-rounded for all survey types. Billing Rate: \$141/hr.



**JOHN SARAFOLEAN**  
RESIDENT PROJECT REPRESENTATIVE

John is a technician and RPR specializing in civil and environmental engineering. His responsibilities include providing construction plans and estimates as well as construction observation on a variety of municipal street reconstruction and utility improvement projects. His background in ecological restorations, stream restoration, hydrogeology and wetland delineations makes him a well-rounded asset familiar with several disciplines. Billing Rate: \$76/hr.

SEH Water Resources staff participating in the Adopt-a-Drain program. SEH staff have adopted seven catch basins and have removed over 400 pounds of debris to date!



# Experience

SEH has had the opportunity to serve VLAWMO with general engineering services for the past two years. In this short period of time, VLAWMO and SEH have collaborated on several small and large projects. Additionally, SEH has completed several successful projects for the communities within the VLAWMO area, including Vadnais Heights, Gem Lake, White Bear Township, Shoreview, Ramsey County and Washington County.

Through completion of these nearby projects, we have developed strong working relationships with entities who may serve as project partners for VLAWMO. These projects were highlighted in our past proposal for general engineering services. Now that we have established a strong working relationship with VLAWMO and proved our local expertise, we would like to highlight some recent projects outside of the watershed to further demonstrate our skills and expertise.

## NORTHEAST STORMWATER STUDY

### OLIVIA, MN

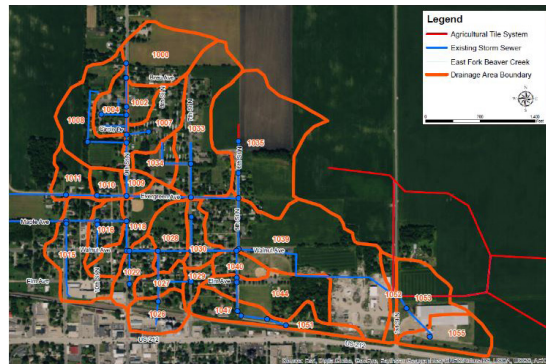
In August 2016, the City of Olivia experienced a severe rainfall event which dropped more than six inches of rain over nine hours. This unprecedented rainfall event was followed by severe flooding in the region and particularly in portions of the City. SEH was hired to analyze the northeast drainage system and evaluate potential improvements which may result in reduced flood risk for this area.

SEH completed a field survey to obtain critical data for the existing stormwater system, developed a GIS database of the information, and used that data to generate a 1D/2D XPSWMM model of the system. This model was calibrated to the August 2016 event and used to evaluate six alternatives which resulted in reduced flood risk for the area. Several of the alternatives incorporated improvements to the pipe network to increase capacity, but also included BMPs which reduced flow rates.

The 1D/2D XPSWMM model was used to evaluate upstream and downstream impacts of each alternative, and the graphical results were used to clearly communicate the estimated benefits of each alternative to the City Council and public. A benefit/cost analysis was completed to help the City prioritize the projects for implementation. The study was summarized in a Stormwater Report, which became an extension of the community's Capital Improvement Plan.



Photograph taken after the August 2016 rainfall event and used for model calibration



Drainage area map of the northeast study area



1D/2D XPSWMM model results, showing existing and proposed conditions for one alternative



### REFERENCE

Dan Coughlin  
City Administrator, City of Olivia  
320.523.2361  
danc@olivia.mn.us

## OWASSO BOULEVARD NORTH RECONSTRUCTION

### SHOREVIEW, MN

The Owasso Boulevard North Reconstruction Project involved reconstruction of approximately 1.25 miles of roadway that serves residential neighborhoods, adjacent residential properties and a nearby park. It provided necessary improvements to the roadway, pedestrian facilities and underlying public utilities. Project challenges included the need for significant realignment to accommodate park facilities and improve multimodal options. Additionally, creative stormwater solutions were required to meet requirements in a narrow, residential area near two lakes. Innovative stormwater treatment solutions were vital to the overall success of the project.

These solutions included the use of porous asphalt pavement and **PaveDrain®** permeable articulating concrete paver blocks, making Owasso Boulevard North the first municipal state aid collector street to implement Permeable Articulating Concrete Block (P-ACB) for achieving water quality standards.



#### REFERENCE

Mark Maloney  
Director of Public Works, City of Shoreview  
651.490.4651  
mmaloney@ci.shoreview.mn.us

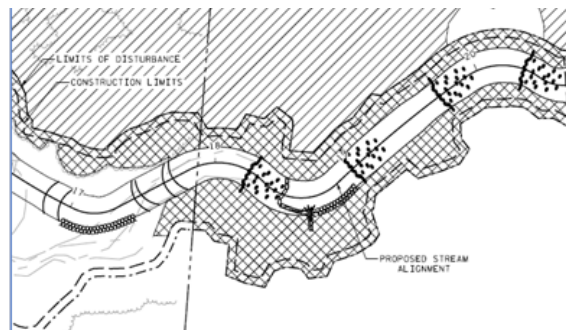
## DEER CREEK STREAM RESTORATION

### CARLTON COUNTY, MN

This project includes the bridge replacement of the structurally deficient rural two-lane bridge on State Trunk Highway 23 and the associated stream restoration of Deer Creek that crosses under the highway. MnDOT replaced the existing box culvert structure over Deer Creek with a 200 ft. long two lane single-span bridge.

The Deer Creek restoration included the natural channel design and reconnection to the floodplain of approximately 1,200 ft. of channel upstream and downstream from the culvert replacement. This project included coordination and collaboration with the Minnesota Department of Natural Resources (MNDNR), as this segment of Deer Creek is identified as a top priority for habitat restoration because biological characteristics of the stream have degraded over time.

The restoration involved the realigning and meandering of the channel while reducing the stream profile through the construction of rock riffles and pools to create fish passage through the area. Woody debris from trees removed by construction were salvaged to create in-stream cover, define channel boundaries, and constrict the channel as needed. Vegetation plantings adjacent to the restored channel consisted of native riparian flora appropriate to the habitat and region. Hard armor surfaces along the channel were used to protect the bridge abutments from potential erosion and scouring.



#### REFERENCE

Randy Costley  
Project Manager, MnDOT District 1  
218.725.2747  
randy.costley@state.mn.us

## LOURDES CHANNEL STABILIZATION

### ROCHESTER, MN

SEH was hired by the City of Rochester to complete a feasibility study of the open channel conveyance network tributary to Cascade Creek, which receives stormwater from a 60 in. diameter storm sewer outfall that serves approximately 190 acres of primarily residential area. The existing open channel had severe erosion, mass wasting, scour around outfalls within the channel and undermining of utility poles.

SEH was hired to evaluate the hydrologic and hydraulic conditions upstream of the outfall, determine a way to reduce operations and maintenance concerns, and stabilize the channel. SEH staff collected survey data, delineated area wetlands, analyzed the existing open channel conveyance network and associated tributary watershed and storm sewer, and ultimately proposed two alternatives to address and/or mitigate the aforementioned concerns. These alternatives were summarized in a report with results, costs and conclusions of the study. SEH ultimately recommended a channel stabilization design alternative and worked with the City to scope the final design and construction document preparation for this project. SEH was also responsible for obtaining permits through the USACE and the LGA WCA. Construction of this project is planned for 2021.



## LAKE DECORAH LAKE MANAGEMENT PLAN AND GRANT FUNDING

### MAUSTON, WI

SEH is in the process of finalizing a Lake Management Plan for Lake Decorah in the City of Mauston in 2020. As part of the project, SEH field staff led nutrient and aquatic vegetation sampling efforts, along with a bathymetric survey of the lake. These tasks were completed to provide solid data on the nutrient and aquatic chemistry in the lake, a baseline aquatic vegetation survey, and to determine if sedimentation had decreased water depth in navigable channels.

The information collected allowed for the characterization of existing lake and watershed conditions, the identification of data gaps required to complete a Nine Key Elements Watershed Plan, analysis of water quality drivers, and the identification of near-term management strategies to improve lake water quality. The work done by SEH on this project provided a foundation for the City of Mauston to set and meet their water quality goals and obtain the funding for them to do so.



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Sustainable buildings, sound infrastructure, safe transportation systems, clean water, renewable energy and a balanced environment. Building a Better World for All of Us communicates a company-wide commitment to act in the best interests of our clients and the world around us.

We're confident in our ability to balance these requirements.

JOIN OUR SOCIAL COMMUNITIES

