

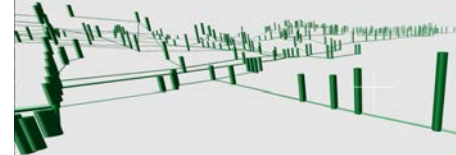
PROPOSAL FOR PROFESSIONAL SERVICES

Sanitary Sewer Collection System Feasibility Study

NEW PRAGUE, MINNESOTA | SEPTEMBER 19, 2023



NODES: 541
PIPES: 563
NORTHING: 130213.80
EASTING: 451847.82
ELEVATION: 9782.82
BEARING: South-West
FPS: 57



3D representation of New Prague sanitary sewer model using Python



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September 19, 2023

Joshua Tetzlaff, City Administrator
jtetzlaff@ci.new-prague.mn.us



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for All of Us®

RE: Sanitary Sewer Collection System Feasibility Study

Dear Mr. Tetzlaff and Members of the Selection Committee:

Five years ago, Short Elliott Hendrickson Inc. (SEH®) was fortunate to assist the City of New Prague with creation of a Sanitary Sewer Collection System Comprehensive Plan that laid the groundwork for decision making about needed improvements and expansion of your sanitary sewer system over the following years. At that time, the SEH team created a GIS database that compiled existing sewer structure data, record drawings, and lift station information and inspections, which in turn was used to configure an InfoSWMM model that evaluated current and future sewer capacity and needed improvements in four geographic service areas in the City.

Today, as New Prague continues to grow and expand, the City has identified the need to prepare a Feasibility Study that takes a deeper dive into specific needed improvements in each of the four service areas, develops recommendations with associated preliminary designs and cost estimates, and explores potential funding sources to help you plan for New Prague's future. SEH has a vested interest in the ongoing success of your collection system and is excited for the opportunity to serve as your partner in this important work. Here are some benefits we foresee in selecting our team:

CONSISTENCY AND FAMILIARITY. As primary author of your 2018 Comprehensive Plan, Bill Lueck makes an ideal choice to manage this Feasibility Study based on his existing knowledge of your system and significant experience delivering similar projects in other growing communities who like New Prague are facing similar needs. Bill has assembled a small but talented team to address each aspect of the Study at a reasonable cost and within the City's desired timeframe.

SANITARY SEWER MODELING EXPERTISE. Accurate modeling will be the backbone of this Study, allowing our team to simulate the overall impact of specific components before moving forward with design. SEH's modeling and GIS specialists have developed a suite of tools that allow us to efficiently take inventory of your system and simulate more scenarios with the same effort, meaning lower costs for you. This includes automated 3D modeling techniques to integrate with GIS and real-time identification of pipe network issues such as survey datum differences, missing data, or crossing pipe elevation conflicts. This will allow us to fine-tune the development phasing and confirm the sequencing of improvements required to serve New Prague's ultimate sanitary service area.

COMMITMENT TO NEW PRAGUE. SEH has also been fortunate to serve as City Engineer in New Prague over the past 14 years. As someone who works almost daily as an extension of your staff, SEH's Chris Knutson offers "big picture" knowledge of the City's inner workings and a personal, ongoing commitment to the welfare of your residents and employees. This, combined with the technical expertise and deep experience of our wastewater, GIS, and funding professionals, means you'll receive a quality product delivered by deeply motivated personnel.

As you read through our proposal, we hope you'll let us know if you need more information to make your decision. Bill is available at 612.716.8435 or wlueck@sehinc.com to answer any questions you may have. He and his team are eager to continue contributing to the City's success as you move into your future. Thank you for your consideration!

Respectfully submitted,



William Lueck
BILL LUECK PE (MN)
PROJECT MANAGER



Chris Knutson
CHRIS KNUTSON PE (MN)
CLIENT SERVICE MANAGER

Engineers | Architects | Planners | Scientists

Short Elliott Hendrickson Inc., 3535 Vadnais Center Drive, St. Paul, MN 55110-3507

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The specific licenses and credentials of the team members are described in the personnel and/or resume section of this document.

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The information contained in this Proposal was prepared specifically for you and contains proprietary information. We would appreciate your discretion in its reproduction and distribution. This information has been tailored to your specific project based on our understanding of your needs. Its aim is to demonstrate our ideas and approach to your project compared to our competition. We respectfully request that distribution be limited to individuals involved in your selection process.

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NEWPR 174575



Project Understanding

The City of New Prague seeks a consultant to complete a feasibility study to review the existing sanitary sewer system and develop the proposed phasing and improvements required to serve the City's NE, SE, NW, and SW service areas. Each of these areas will likely need a new lift station to maximize service and convey wastewater to the wastewater treatment plant. The analysis will recommend improvements to the existing system through:

- Reviewing previous study and sanitary sewer model
- Confirming proposed service area extents and estimate of proposed ultimate average and peak flows
- Updating the model based on recent developments and improvements since the 2018 Comprehensive Plan was completed and any recent changes to projected growth and development phasing
- Providing preliminary design information for the proposed lift stations required to serve project areas
- Providing rim and invert elevations for proposed sanitary trunk sewers
- Provide additional preliminary design information for connecting the proposed force mains to the wastewater treatment facility
- Providing phasing information for these improvements and potential limitations to expansion
- Providing plan and profiles of proposed improvements
- Providing updated capital improvements costs for the proposed improvements
- Identifying potential funding sources to implement construction

These objectives can be accomplished by tapping into the knowledge our team has gained from completing your previous Sanitary Sewer Comprehensive Plan, from performing similar hydraulic analyses for numerous communities across the upper Midwest, and by leveraging the local knowledge and experience of our staff assigned to the project.



UNDERSTANDING YOUR SYSTEM

Based on our previous work that included the development of an InfoSWMM model of the City's sanitary system as a part of the City of New Prague's Sanitary Sewer Comprehensive Plan, we already have a strong understanding of the existing and future system impacts due to average day and ultimate peak wet weather

events. We know it will be critical to develop a phased Capital Improvements Plan (CIP) to meet the City's existing internal growth and accommodate development phasing through the extension of sanitary service through construction of the NE, NW, SE, and SW lift stations and gravity sewers required to serve the City's ultimate development.

The SEH team has completed sanitary sewer capacity analyses for similar communities and industrial developments as indicated in our project experience, including the cities of Bayport, Grand Rapids, and Becker. And we are presently developing capital improvements for City of Sartell, the Western Lake Superior Sanitary Sewer District, and City of Mankato.



EFFICIENT MODELING WITH NEW AND EXISTING DATA

We understand that the modeling and CIP must be completed in a timely manner and needs to accommodate growth within the existing municipal service area and from the ultimate service area. We're able to hit the ground running by building upon our previous work to update the model and begin developing the proposed improvements in greater detail to meet the ultimate service area of the City.

Our team will assess the existing sanitary sewer system and recent improvements, revisit land use and service areas, and then use the existing InfoSWMM model to model the future sanitary sewer service area in greater detail. The model will be used for a more detailed analysis of the required interceptor and lift station capacities required to fully serve the NE, NW, SE, and SW service areas and recommend both near-term and future improvements.



CAPITAL IMPROVEMENT PLANNING

A CIP will be developed for both the sanitary sewer collection system and the proposed pump stations, gravity sewers, and force mains. The CIP will prioritize and schedule capital improvement projects to accommodate growth projections from the City. SEH Funding Specialist Kristin Prosocki will assist by reviewing potential funding options and sources to help accommodate the City's anticipated growth.

All project deliverables will be in electronic format. SEH will provide a GIS layer of modeled future trunk line locations and an electronic sanitary sewer model at the completion of the project.



Project Approach

In approaching a project as comprehensive and critical as this one, it's necessary to keep the big picture in mind and to develop a clear process toward resolving key issues.

To achieve your project goals, we've identified the following critical success factors around which we have framed our project approach and work plan:



Identify sanitary sewer system capacity limitations and develop improvement options. Alternatives will consider the system's useful life replacement needs and the likelihood of various growth scenarios.



Develop an improvement plan that cost-effectively meets the needs of the City in the near and long term.

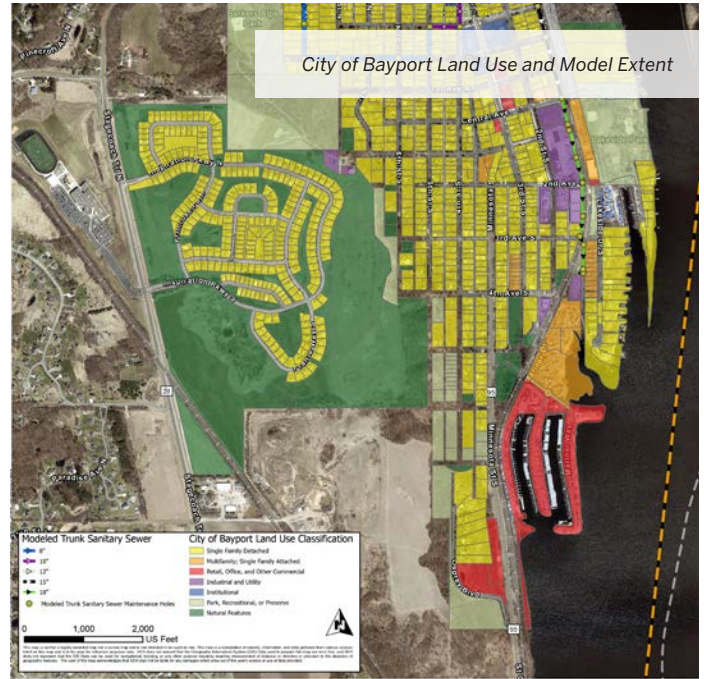
SEWER MODELING PLAN

First and foremost, SEH will review background data that the City has assembled for the project including previous reports, sewer mapping, GIS data, as-builts, existing and future land use, and anticipated development areas. The existing model skeleton will allow us to identify existing and future capacity limitations based on projected growth on the City's collection system. This updated model will serve as a valuable tool for decision-making in the near and long term.

SYSTEM CAPACITY LIMITATIONS

Existing and proposed land use will be updated in the model to develop wastewater flows based on anticipated land use loading rates and future population projections. In addition, individual parcels can be mapped to manhole nodes in the model to ensure that all parcels drain to the appropriate model node.

To ensure accurate simulations, SEH will recalibrate the system model to existing flows at the wastewater treatment plant (WWTP) and lift stations. The future system will be modeled with existing flows and anticipated growth for each individual sewershed. Appropriate peaking factors will be selected based on available flow monitoring data and on our experience completing similar projects in southern Minnesota.



CAPITAL IMPROVEMENT PLAN

Once the ultimate service area is updated and entered into the existing and future models, SEH will begin to identify and prioritize the necessary improvements. We will pinpoint the trunk sewers and pump station improvements that are required to maximize growth in the surrounding service areas.

Factors to consider when prioritizing project implementation will include the asset condition assessment information supplied by the City. For example, if a segment of pipe needs to be expanded, we will review the age and condition of the pipe (as available) and any anticipated street projects in the area as part of the recommended improvement and timing of the project.

SEH will develop planning level costs and operations/maintenance considerations for various options to address the sewer capacity limitations identified through the modeling. We will discuss options with the City in a workshop setting to determine critical improvements and priorities. An improvement plan will then be developed based on the segments and projects required to maintain existing and future sanitary service. Developed in collaboration with the City, the plan will consider phasing to accommodate growth and budget constraints.

PROPOSED SCOPE OF WORK

Our proposed scope of work is divided into five tasks, detailed below.

TASK 1 PROJECT MANAGEMENT

SEH will carefully manage the budget, schedule, and decision-making process in a manner that avoids delays and keeps the project moving forward. A project management plan (PMP) and communications plan will be developed at project outset and will be updated throughout project duration.

Through close collaboration with the City, we aim to identify critical tasks and deliverables from the beginning of the project and incorporate these into the PMP. This ensures that tasks and deliverables are reviewed during project meetings and tracked with lists and action items.

Our team values sharing information throughout the project to ensure timely decision-making and avoid delays or inconsistencies, while addressing any issues proactively. With your input, our communications plan identifies who needs to stay informed and the preferred method for information sharing and follow-ups.

TASK 1.1 – PROJECT ADMINISTRATION

Project Manager Bill Lueck will manage the day-to-day work over the duration of the project. Bill will oversee team and task coordination, maintain and regularly update a schedule for the overall project, invoice monthly, document project efforts, maintain project files, and communicate with the City project manager throughout the project.

TASK 1.2 – QUALITY

Quality Management Plan. Each project component will have a separate quality management plan (QMP) that is approved by the technical advisors assigned to the project. Team members will be assigned review tasks at milestones coordinated with City team members. This process will include review of issues and risks.

QA/QC Activities. A rigorous quality assurance/quality control (QA/QC) process will assess the activities and deliverables to enhance their function and usefulness.

SEH senior technical reviewers will provide detailed review of all deliverables. This will include numerical checks on all calculations and reasonableness evaluation of the results using experience gathered from our past projects.

TASK 1.3 – MEETINGS

SEH will conduct an initial kick-off meeting to introduce the team, review project goals and objectives, identify communication processes, stakeholder roles and responsibilities, progress meeting schedule, initial project schedule, and expectations.

An initial information request will be made at or after the kick-off meeting to identify pertinent information needed to efficiently get started with the project.

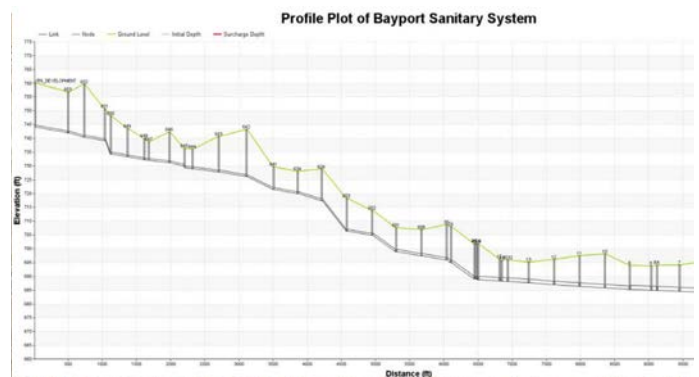
We will conduct five additional periodic meetings on the progress of the reconnaissance study phase with New Prague staff. The periodic meetings will serve as a conduit to gauge progress and allow for dissemination of additional information.

TASK 2 DATA COLLECTION AND REVIEW

Collecting and reviewing existing data and recent system and development changes for the New Prague sanitary sewer system will be a key aspect of the initial phase of the project to get an understanding of the system, obtain available information, and develop a model framework. The most important part of this task will be delineating the model extents to identify any missing information and ensure that the model will adequately address proposed improvements.

TASK 2.1 – DATA COLLECTION AND REVIEW

The SEH team will review all available information to be provided by the City including previous reports, sewer maps, existing flow data, manhole/pipe data, GIS database, AutoCAD base maps, WWTF records, population history and projections, lift station and pumping information, previous studies, current Comprehensive Plan, and other pertinent information.



City of Bayport InfoSWMM Model Output

TASK 2.2 – CITY STAFF INTERVIEWS

SEH will meet with New Prague staff to gain a clearer understanding of your system, identify where improvements have been made, and identify what additional sanitary sewer or development growth information might be available.

TASK 3 SERVICE AREA UPDATE

TASK 3.1 – FUTURE SYSTEM FLOW DEVELOPMENT

The Comprehensive Plan, population projections, and future sewer main routes will be reviewed to update the existing system and future system models. Service area boundaries will be confirmed for the four service areas and proposed connections to the existing system will be verified by physical survey. Lift stations and interceptor sewer service alignments and profiles will be updated. A similar process will be followed as was completed during the previous Comprehensive Plan, in which the ultimate development acreage will be assigned a land use and corresponding sanitary loading rate to develop the increased average flow for the future model. The average flow will then be peaked based on the peaking factors.

The future model will then be run to identify additional bottlenecks associated with the increased development. New sewers and sewers requiring upsizing will be identified.

TASK 3.2 – LIFT STATION ANALYSIS

New development areas will be assessed to determine if they can be served by gravity sewers or if lift stations would be required. New lift stations will be sited to maximize drainage area service, and will be sized to meet 10 State Standards. A meeting will be held with the City to discuss the size, capacity, and location of new lift stations, as well as required capacity increases for new lift stations.

TASK 4 MODEL UPDATE

SEH will use the information gathered in Task 2 to update the City of New Prague's existing trunk sewer system.

TASK 4.1 – MODELING

Existing and future models will be updated based on any recent improvements the City has completed since the development of the existing InfoSWMM model, as well as any recent changes to dry or wet weather flows that require recalibration.

After the model is updated, we will calibrate and validate a preliminary model for alternative analysis and reconfirm bottlenecks in the existing system related to pipe or lift

station capacity. Two model runs will be completed, one for the existing condition and one for the ultimate future conditions, that take into account ultimate growth. Note that an analysis of the WWTF capacity is outside the scope of the model.

A list of bottleneck locations will be developed and a Technical Memorandum prepared that summarizes the capacity limitations of the existing system and identifies required improvements for the ultimate conditions.

TASK 5 CAPITAL IMPROVEMENTS

TASK 5.1 – IMPROVEMENT PLAN

The team will consider asset condition assessment information supplied by the City in developing options to address capacity limitations and prioritize projects for implementation. We will develop planning level costs and operations/maintenance considerations for various options to address the sewer capacity limitations identified through the modeling. Improvements may be required in phases to accommodate existing conditions, coordinate with other City projects, and cost-effectively implement improvements as needs increase service as development is phased.

TASK 5.2 – MEETINGS AND REPORT PREPARATION

We will use information from the previously discussed steps to produce a Technical Memorandum that summarizes the model results and incorporates phased implementation of capital improvements.

TASK 6 FUNDING AND PHASED PLAN

SEH will extend the value of the CIP by incorporating funding options and project phasing that capitalize on Kristin's familiarity with available funding mechanisms and consider the City's overall budget process.

The City of New Prague needs a consultant partner able to balance capital improvements planning for near-term and ultimate growth, sanitary sewer modeling, and the phasing of improvements to meet both current and future system needs. SEH is that partner!

Project Team

BILL LUECK PE (MN) PROJECT MANAGER

Bill is a senior professional engineer with extensive water and wastewater engineering experience, specializing in hydraulic conveyance projects for large sanitary sewer and storm sewer systems. Bill's experience has focused on piping and pumping systems for stormwater and sanitary sewer projects for cities and regional agencies. He brings strong experience coordinating the activities of a multidisciplinary design team to execute projects.

EXPERIENCE

Sanitary Sewer Collection System Comprehensive Plan – New Prague, MN
Technical leader for development of the Comprehensive Plan. The project involved development of an InfoSWMM model of the sanitary sewer collection system and identification of proposed capital improvements to meet ultimate sanitary flows for the New Prague community.

Collection System Master Plan – Mankato, MN
Technical leader for development of a InfoSWMM sanitary sewer model of the City and development of a sanitary sewer master plan. The project included flow development, calibration to several flow meters, capital improvements plan, and condition assessment of municipal lift stations.

Sanitary Sewer Comprehensive Plan – Lakeville, MN
Project manager responsible for leading creation of an InfoSWMM sanitary sewer model of the City and development of a sanitary sewer comprehensive plan. The project included flow development, calibration to several MCES flow meters, a capital improvements plan, and condition assessment of municipal lift stations.

Sanitary Sewer Business Park Expansion – Becker, MN
Technical lead for development of an InfoSWMM sanitary model to address commercial and industrial growth anticipated for a 2,000-acre development for the City.

Sewer Capacity Feasibility Analysis – Grand Rapids, MN
Technical leader on the project to provide a water and sanitary sewer system master plan to assist Grand Rapids in decision making with regard to proposed development.

Sanitary Sewer Comprehensive Plan – Coon Rapids, MN
Project manager who led the SEH team in delivering a five-part study of the City's sanitary sewer system which included a prioritized five-year capital improvement plan to address identified system needs. The team also assisted with construction observation of the 42 in. CIPP lining and manhole geopolymer concrete lining project.

Sanitary Sewer Comprehensive Plan – Sartell, MN
Technical leader on the project to create a comprehensive plan to address deficiencies within the sanitary sewer system and lift stations.



“When you work with me, you can expect my full attention, a collaborative approach, and quick response time on any issues that may arise.”

29
YEARS OF
EXPERIENCE



EDUCATION

Bachelor of Science
Civil Engineering
University of Minnesota



REGISTRATIONS/CERTIFICATIONS

Professional Engineer in Minnesota

RYAN KIBLER

MODELING

Ryan is a graduate engineer with experience on a range of wastewater treatment facility and collection system projects from studies through design, construction, and start-up services. He excels at preparing detailed sewer models and concisely summarizing the findings.



EXPERIENCE

Collection System Master Plan – Mankato, MN

Lead modeler for development of an InfoSWMM sanitary sewer model of the City and development of a sanitary sewer master plan. The project included flow development, calibration to several flow meters, capital improvements plan, and condition assessment of municipal lift stations.

Sanitary Sewer Comprehensive Plan – Lakeville, MN

Lead modeler for development of an InfoSWMM sanitary sewer model of the City and sanitary sewer comprehensive plan. The project included flow development, calibration to several MCES flow meters, capital improvements plan, and condition assessment of municipal lift stations.

Sanitary Sewer Business Park Expansion – Becker, MN

Lead modeler for the development of an InfoSWMM sanitary model to address commercial, industrial, and residential growth anticipated for a 2,000-acre development for the City.

Sewer Capacity Feasibility Analysis – Grand Rapids, MN

Lead modeler for the development of an InfoSWMM sanitary model to address commercial and industrial growth for the City of Grand Rapids and neighboring communities.

EcoHaven Development Sanitary Sewer Capacity Analysis – Bayport, MN

Lead modeler on the study to evaluate impact on the sanitary sewer system due to the extension to a proposed 21.6-acre, medium-density residential development located in the northwestern quadrant of the City. A sanitary sewer InfoSWMM model was calibrated to the lift station flow to identify capacity deficiencies and any needed upgrades along the sanitary sewer trunk system.

Sewer Capacity Feasibility Study, Sewershed D-17/17C – St. Paul, MN

Lead modeler for the capacity evaluation and system upgrade feasibility study for the sanitary sewer system within specific districts of the City to prepare for residential development. The three-phase project included system flow monitoring, hydraulic modeling using PCSWMM, and a capacity/feasibility evaluation. Flow data from 15 meters across a 260-acre area was utilized to calibrate a hydraulic model, which SEH used to develop and analyze potential collection system and lift station alternatives.

5

YEARS OF
EXPERIENCE



EDUCATION

Master of Science
Environmental Engineering
Michigan Technological University

Bachelor of Science
Environmental Engineering
Michigan Technological University

CHRIS KNUTSON PE (MN)

CLIENT SERVICE MANAGER/COST ESTIMATES

Chris is a senior professional engineer with extensive municipal engineering experience. He has completed numerous street and utility improvement projects from planning through construction. This includes preparation of capital improvements plans, inflow and infiltration reports, feasibility studies, cost estimates, preliminary and final design, and construction administration. Chris serves as City Engineer for the City of New Prague, where he has worked on multiple projects since 2009.

EXPERIENCE

- City Engineering Services – New Prague, MN
- 2008 to 2023 Street and Utility Improvement Projects – New Prague, MN
- Business Park Planning and Preliminary Design – New Prague, MN
- TH 19/Main Street Final Design and Construction
- 2023-2024 Street and Utility Improvement Project – Henderson, MN
- 2022 Street and Utility Improvement Project – Vernon Center, MN
- WWTF Expansion and Phosphorus Reduction Project – Austin, MN
- Preliminary Engineering Report (USDA-RD) – Butterfield, MN
- Kern Bridge Preliminary and Final Design – Mankato, MN



16
YEARS OF
EXPERIENCE



EDUCATION

Bachelor of Science
Civil Engineering
Minnesota State University-Mankato



REGISTRATIONS/CERTIFICATIONS

Professional Engineer in MN

Design of Construction SWPPP
University of Minnesota



PROFESSIONAL ASSOCIATIONS

American Public Works Association,
Member

City Engineers Association
of Minnesota

KRISTIN PROSOSKI

FUNDING SPECIALIST

Kristin has more than two decades of experience in community and economic development, including a variety of projects ranging from housing to industrial development. Kristin has assisted with securing numerous state and federal grants from a variety of agencies, as well as administered local funding to help advance projects. As a Community Development Specialist at SEH, Kristin assists clients with both overall funding strategies and securing grant and loan funds.

EXPERIENCE

- Wastewater Treatment Plant, EPA Funding – Bemidji, MN
- Drinking Water Reverse Osmosis System Funding – Lafayette, MN
- Lakeport Grant Writing (Duluth Seaway Port Authority) – Duluth, MN
- 4th Avenue Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grant – Clear Lake, IA
- Multimodal Project Discretionary Grant (MPDG) Application – Eau Claire County Highway Department, WI
- EPA Brownfield SAG Application – Ashland, WI
- EPA Brownfield Assessment Grant Applications and Administration – Mankato, MN (*prior to SEH*)



20
YEARS OF
EXPERIENCE



EDUCATION

Bachelor of Science
Urban and Regional Studies
Minnesota State University-Mankato



REGISTRATIONS/CERTIFICATIONS

Economic Development
Finance Professional - National
Development Council

MICHAEL STEUERNAGEL REG GIS ANALYST

Mike is a GIS analyst with extensive experience in GIS and computer-aided drafting and design (CADD) projects, data integration, and automated mapping. He works with numerous agencies to collect and organize data sources and analyze and review data to create maps, graphics, tables, and other visuals for projects. Mike is proficient with ArcGIS Desktop, ArcGIS Online, ArcGIS Pro, ArcView, 3D Analyst, Network Analyst, Spatial Analyst, MicroStation, several database management systems, and numerous graphics programs.



30
YEARS OF
EXPERIENCE



EDUCATION

Master of Science
Geography (Emphasis: GIS)
St. Cloud State University

EXPERIENCE

- Sewer Capacity Feasibility Analysis – Grand Rapids, MN
- TH 19/Main Street Reconstruction – New Prague, MN
- Comprehensive Land Use Plan Update – New Prague, MN
- Sanitary Sewer Comprehensive Plan – Anoka, MN
- Industrial Park Redevelopment, Water and Sanitary Sewer – Grand Rapids, MN
- Sanitary Sewer Improvements – Wahkon, MN
- Sanitary Sewer Planning – Riverton, MN
- Opus Sanitary Sewer – Minnetonka, MN



ADDED VALUE

IN-DEPTH KNOWLEDGE AND UNDERSTANDING OF NEW PRAGUE

The SEH team offers a unique level of knowledge and understanding of New Prague that goes back to our first day working with you 21 years ago and carries through to the past 14 years serving as City Engineer. Over this time, we've cemented trusted relationships with residents, City staff, and other stakeholders through our successful delivery of multiple street and utility reconstruction projects, comprehensive sanitary sewer planning efforts, and water-related work. This highly valued shared history deepens our team's commitment to and interest in continuing as a reliable partner to the New Prague community on your upcoming Sanitary Sewer Collection System Feasibility Study.

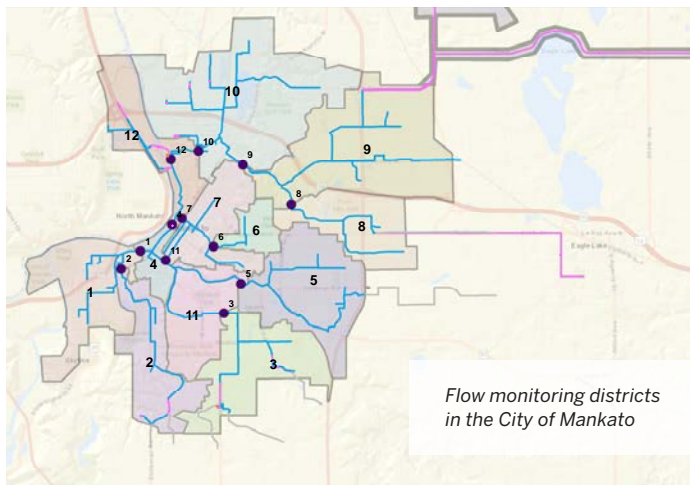


Project Experience/References

We encourage you to contact our references to verify the commitment we make to each client partner and, ultimately, to further explore how the proposed SEH team may best serve on your behalf.

COLLECTION SYSTEM MASTER PLAN

MANKATO, MN



As part of the City's Comprehensive Sanitary Sewer Plan, SEH created a sanitary sewer model for Mankato to evaluate the existing system and provide recommendations for improvements to optimize peak flow capacity, plan for the City's projected growth and connection of customer communities, and develop a CIP. The sanitary sewer model identified deficiencies to establish maximum capacities of different branches throughout the system and guide future land use planning.

The City consists of 43,000 residents and six customer communities generating an average daily flow of 8.1 mgd. InfoSWMM Suite 14.5 and ArcGIS v. 10.3.1 were used to model the trunk sanitary sewers (defined as sanitary sewer pipes 15 in. in diameter or greater). The City provided its sanitary sewer network data and SEH surveyed 50 manholes to finalize missing elevation data. SEH compiled the City's existing GIS sewer structure data, as-built information from the City's sewer construction plan sheets, lift station information, lift station inspections, and additional survey information into a GIS database to configure the model. We then used the model to evaluate current and future sewer capacities and required system improvements.

For the purpose of this analysis, the land use method was used to generate dry weather flows (DWF). Parcel areas were multiplied by the sanitary loading rate per existing land use and then assigned to the nearest manhole considered most likely to receive those flows. Flow monitors were installed in 12 districts and wet weather flow was calibrated to each of these districts and at the wastewater treatment plant.

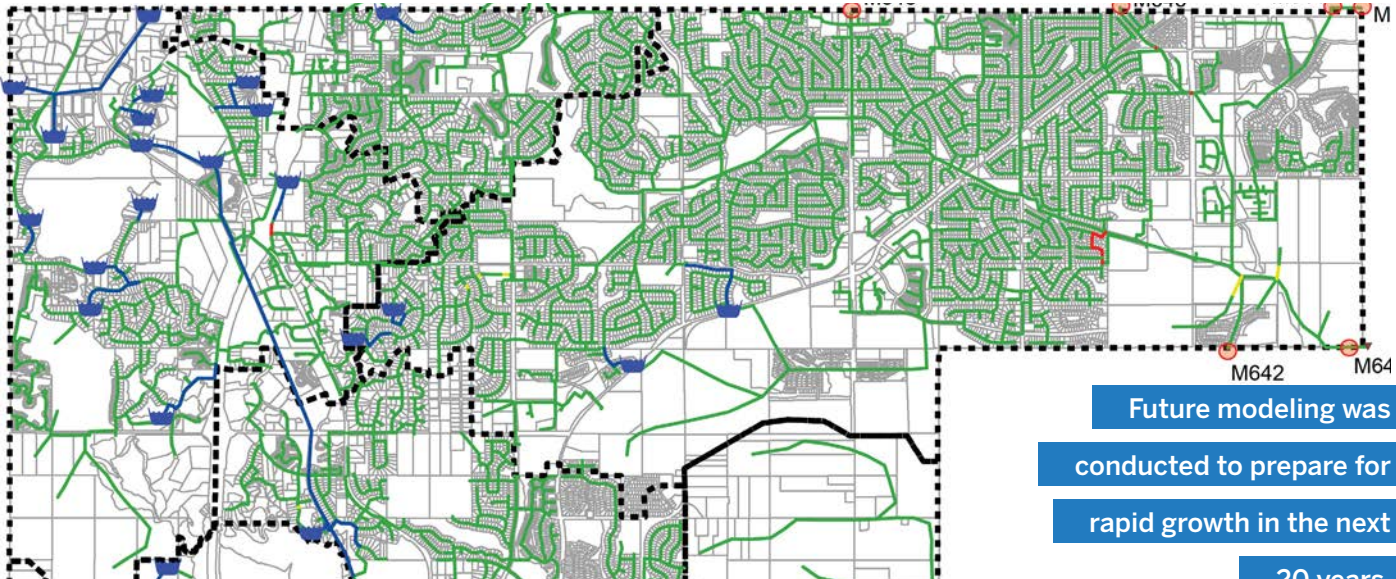
Overall, the system was able to handle existing dry and wet weather flows. It was recommended that areas of concern be monitored for potential capacity issues during wet weather events. Future conditions will require significant system upgrades to support flows and additional expansion beyond 2030. Initial recommendations include upsizing pipe and pump capacity at the Pohl Lift Station. Areas with lower remaining capacities will need to limit expansion or increase pipe capacity to adequately handle additional flow.

The SEH team also conducted a condition assessment of each of the City's 14 sanitary lift stations that rated the existing lift station components according to ten State Standards requirements. A CIP was developed for improvements at each of the lift stations.

CLIENT	City of Mankato
REFERENCE	Michael McCarty, Assistant City Engineer City of Mankato 507.387.8643 mmccarty@mankatomn.gov
KEY PERSONNEL	Bill Lueck Ryan Kibler

SANITARY SEWER COMPREHENSIVE PLAN

LAKEVILLE, MN



The City of Lakeville has an estimated 2016 population of 60,965 and is projected to reach 83,500 residents by 2040. The Sanitary Sewer Comprehensive Plan developed by SEH will aid the City in future planning and development as well as help support Metropolitan Council Environmental Services (MCES) with their CIP for 2040.

Sanitary sewage is collected in approximately 268 miles of sewer pipe ranging in diameter from 4 in. to 48 in. There are 20 sewage lift stations and three grinder stations that serve areas distributed across the sanitary sewer system. SEH developed a comprehensive sanitary sewer model (InfoSWMM) for the City that was used to evaluate current and future sewer capacities and required system improvements.

The City's existing GIS sewer structure data, record drawing information, lift station information, and lift station inspections were compiled into a GIS database to configure the model. The model was then used to evaluate current and future sewer capacities and required system improvements.

Population projections and sanitary land use loading rates were initially used to determine base flow rates throughout the City. Anticipated wastewater flows from the various sanitary districts were determined by applying flow rates based on land use in each area, calibrated to the metered flows from permanent meters installed in nine locations. Future flows were calculated using the land use method with the calibrated loading rates from the existing land use calculations. Loading rates were calibrated and applied to

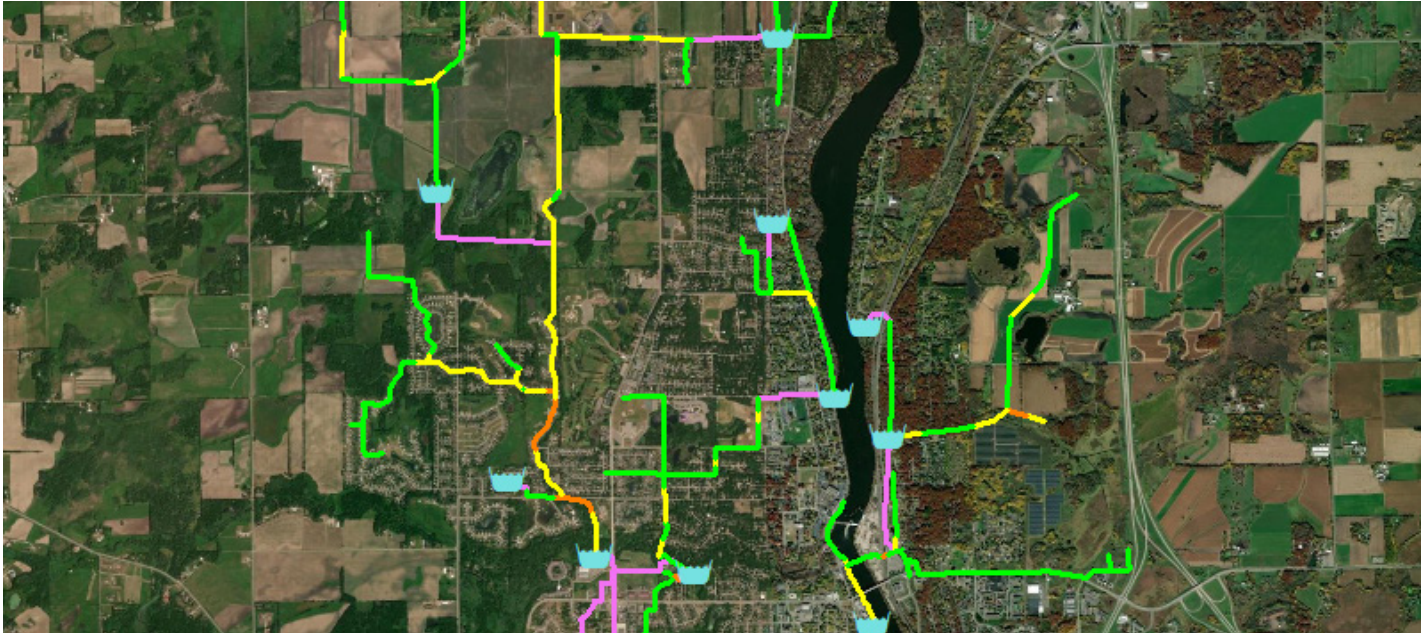
the future land use to determine future system flows. Flows from future areas anticipated to undergo development were assigned based on the current land use plan and preliminary development plans available from the City.

The modeling results indicate that the majority of the City's system has the capacity to convey the anticipated peak flows for current and future conditions. SEH has continued to update the model as new developments are incorporated or when future capital projects are identified that may redistribute flows within the system. We also developed an operation and maintenance plan and CIP to address system deficiencies.

CLIENT REFERENCE	City of Lakeville
	Zach Johnson, City Engineer City of Lakeville 952.985.4501 zjohnson@lakevillemn.gov
KEY PERSONNEL	Bill Lueck Ryan Kibler

SANITARY SEWER COMPREHENSIVE PLAN

SARTELL, MN



The City of Sartell is located on the eastern border of Stearns County and the western border of Benton County, Minnesota and is the largest northern suburb of the City of St. Cloud upstream on the Mississippi River. The City has an estimated 2017 population of 18,127 and exhibited a 65% population growth from 2000 to 2010, with a projected population of 29,905 by the year 2035 according to the Sartell 2016 Comprehensive Plan. This Sanitary Sewer Comprehensive Plan aids the City in future planning and development as well as conserving and utilizing the region's water resources that protect public health, support economic growth, maintain ecosystem health, provide recreational opportunities, and strengthen the region's quality of life.

Sanitary sewage is collected in approximately 83 miles of sewer pipe (excluding private pipes) ranging in diameter from 4 in. to 30 in. There are nine active sewage lift stations that serve areas distributed across the sanitary sewer collection system, and all of the City's wastewater is conveyed by the main lift station to St. Cloud for treatment.

The SEH team compiled Sartell's existing GIS sewer structure data, record drawing information, lift station information, and lift station inspections into a GIS database, and then used an InfoSWMM model to evaluate current and future sewer capacities and required system improvements.

Population projections and sanitary land use loading rates were initially used to determine base flow rates throughout

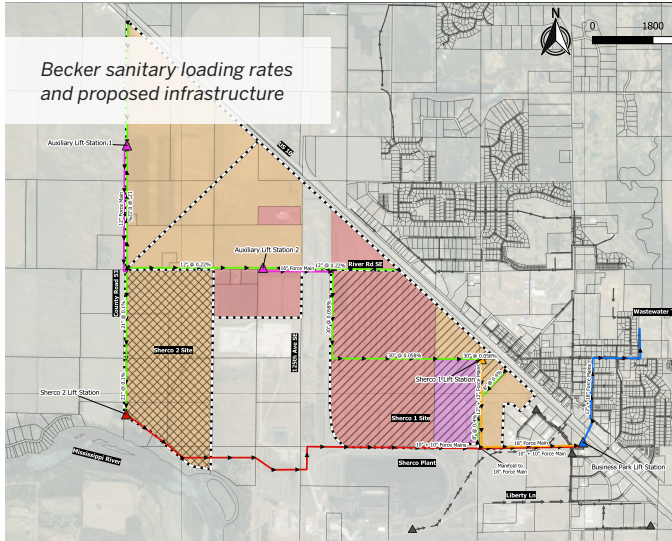
the City. Anticipated wastewater flows from the various sanitary districts were determined by applying flow rates based on land use in each area, calibrated to the metered flows from permanent meters installed in nine locations. Future flows were calculated using the land use method with calibrated loading rates from the existing land use calculations. Loading rates were calibrated and applied to the future land use to determine future system flows. Flows from future areas anticipated to undergo development were assigned based on the current land use plan and preliminary development plans available from the City.

Sanitary sewer modeling results indicate that City infrastructure requires improvements as development occurs within the community. The SEH team developed a capital improvement plan that recommends both operation and maintenance and capital expenditures over the next 10 years to correct deficiencies within the collection system and associated lift stations. SEH continues to update the model as new developments are incorporated or future capital projects are identified that may redistribute flows within the system.

CLIENT	City of Sartell
REFERENCE	John Kothenbeutel, Public Works Director 320.258.7339 john@sartellmn.com
KEY PERSONNEL	Bill Lueck

SANITARY SEWER BUSINESS PARK EXPANSION

BECKER, MN



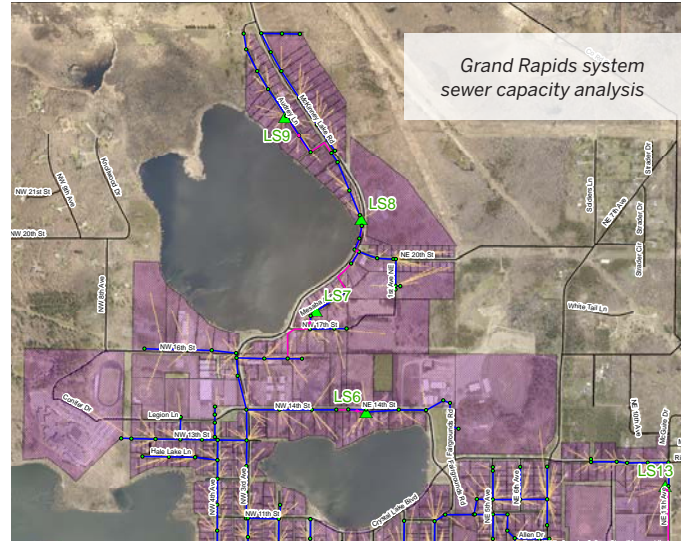
SEH modeled expansion and future development of the 2,000-acre business park south of Trunk Highway 10 using InfoSWMM. This area is expected to experience rapid growth due to development associated with high technology businesses adjacent to the Sherco Power plant and its available electrical capacity.

Because the area is so flat, several interim and permanent lift stations were required. The model included multiple lift stations and a trunk sewer design to serve the entire development and existing adjacent developments. SEH developed a Python program to quickly determine the extent of the project area that could be served by gravity sewers. Ultimate growth in the business park was estimated to be a 10 mgd peak flow.

CLIENT REFERENCE	City of Becker
	Phil Knutson, Public Services Director City of Becker 763.261.4302 pknutson@ci.becker.mn.us
KEY PERSONNEL	Bill Lueck Ryan Kibler

SEWER CAPACITY FEASIBILITY ANALYSIS

GRAND RAPIDS, MN



SEH modeled the entire 11,000-person Grand Rapids community to accommodate future growth as well as address anticipated growth of adjacent communities that rely on treatment and conveyance by the City. The model included approximately 1,300 manholes and 14 lift stations. Average flow was 1.25 mgd and peak flow was 5 mgd.

Sewer loading rates were determined for the existing network and were used to project the anticipated flows from future development areas. Existing system bottlenecks have been identified. The SEH team is currently identifying recommended capital projects to address future needs.

CLIENT REFERENCE	Grand Rapids Public Utilities Commission
	Julie Kennedy, Manager Grand Rapids Public Utilities Commission 218.326.7687 jakennedy@grpuc.org
KEY PERSONNEL	Bill Lueck Ryan Kibler Mike Steuernagel

SEWER CAPACITY ANALYSIS

BAYPORT, MN



This study evaluated the impacts on the sanitary system of a large residential development located in the northwestern quadrant of the City of Bayport, at the upstream end of the City’s existing Interceptor Sewer. The City’s existing sanitary sewer system consists of gravity sewer pipe ranging in size from 8 in. to 21 in. Most of the City drains to its southern extent, where it flows into the MCES lift station L68. A sanitary sewer InfoSWMM model was calibrated to the lift station flow to identify capacity deficiencies and any upgrades along the sanitary sewer trunk system needed to convey existing and proposed ultimate flows.

CLIENT	REFERENCE	KEY PERSONNEL
City of Bayport	Matthew Kline, MPA City Administrator 651.275.4404 mkline@ci.bayport.mn.us	Bill Lueck Ryan Kibler

SANITARY SEWER COMPREHENSIVE PLAN

COON RAPIDS, MN

SEH delivered a five part study of the City of Coon Rapids’ Sanitary Sewer System that included a prioritized five-year CIP to address identified system needs. The key components of the study included a community planning overview, system inventory and capacity analysis, comprehensive evaluation of system needs, and development of an operation and maintenance plan and CIP. After acceptance of the initial comprehensive plan by the City, SEH was retained to implement a 10-year capital improvement project which resulted in the upgrading and refurbishment of all of the City’s lift stations along with a pipe lining program focused on the sanitary sewer collection system consisting primarily of clay pipe. SEH also prepared the engineering plan documents for the lining of the last phase of the lining projects.

CLIENT	REFERENCE	KEY PERSONNEL
City of Coon Rapids	Mark Hansen, Assistant City Engineer 763.767.6465 mhansen@coonrapidsmn.gov	Bill Lueck



DID YOU KNOW

SEH has helped secure more than **\$400 million** in project funding for our clients in the past 10 years.

SEH has helped numerous communities obtain funding from a variety of sources to implement public infrastructure projects.

We are very familiar with funding agency procedures for applying for funding and have excellent working relationships with many grant writing agencies including area Councils of Governments.

SEH understands the budgetary constraints that many communities face, and we go the extra mile to help find viable funding sources to keep the local share of project costs as low as possible.



Project Schedule/Timeline

TASK	2023			2024	
	OCT	NOV	DEC	JAN	FEB
1 Project Management					
1.1 Project Administration	[Blue bar spanning Oct 2023 to Feb 2024]				
1.2 Quality		[Blue bar]	[Blue bar]	[Blue bar]	[Blue bar]
1.3 Meetings	[Blue bar]	[Blue bar]	[Blue bar]	[Blue bar]	[Blue bar]
2 Data Collection and Review					
2.1 Data Collection and Review	[Yellow bar]				
2.2 City Staff Interviews		[Yellow bar]			
3 Service Area Update					
3.1 Future System Flow Development		[Green bar]			
3.2 Lift Station Analysis			[Green bar]		
4 Model Update					
4.1 Modeling		[Orange bar]	[Orange bar]		
5 Capital Improvements					
5.1 Improvement Plan				[Purple bar]	
5.2 Report Preparation					[Purple bar]
6 Funding					[Brown bar]



Task Breakdown and Estimated Consultant Cost

Task	Description	Project Manager Lueck	Project Advisor Knutson	Graduate Engineer Kibler	Survey Istvanovich	Accounting Rep Cobb	Expenses	Total Hours
	Billable Rate	\$284	\$193	\$142	\$145	\$119		
Project Tasks								
Task 1	Project Management & Meetings							
1.1	Project Management	4				8		12
1.2	QA/QC	2	4					6
1.3	Meetings	10	5	10			\$ 500.00	25
	Subtotal Hours	16	9	10		8	N/A	43
	Subtotal Fees	\$ 4,545	\$ 1,737	\$ 1,423	\$ -	\$ 955	\$ 500	\$ 9,159
Task 2	Data Collection and Review							
2.1	Data Collection & Review			24	8		\$ 500.00	32
2.2	City Interviews	2		2	2			6
	Subtotal Hours	2		26	10		N/A	38
	Subtotal Fees	\$ 568	\$ -	\$ 3,699	\$ 1,392	\$ -	\$ 500	\$ 6,159
Task 3	Service Area Update							
3.1	Future System	4	2	44	4			54
3.2	Lift Station Analysis	2	1	24	4			31
	Subtotal Hours	6	3	68	8		N/A	85
	Subtotal Fees	\$ 1,704	\$ 579	\$ 9,674	\$ 1,114	\$ -	\$ -	\$ 13,071
Task 4	Modeling							
4.1	Model Update	2	2	68				72
	Subtotal Hours	2	2	68			N/A	72
	Subtotal Fees	\$ 568	\$ 386	\$ 9,674	\$ -	\$ -	\$ -	\$ 10,628
Task 5	Capital Improvements							
5.1	Improvements Plan (incl. model of proposed improvements)	2	2	40	12			56
5.2	Report Preparation	2	2	40	12			56
	Subtotal Hours	4	4	80	24		N/A	112
	Subtotal Fees	\$ 1,136	\$ 772	\$ 11,381	\$ 3,342	\$ -	\$ -	\$ 16,631
	Task Hours Summary	14	9	242	42		N/A	350
	Task Fee Summary	\$ 8,521	\$ 3,474	\$ 35,851	\$ 5,848	\$ 955	\$ 1,000	\$ 55,649

ASSUMPTIONS

1. Assumes field survey and measurement checks of one day.
2. Five project meetings and one day or less of staff interviews to better understand system concerns and impacts.
3. Assumes InfoSwmm Model previously completed by SEH will be used with minor modifications and updates.
4. Schedule can be adjusted based on City requirements, but we have assumed approximately five-month duration.
5. Lump sum fee.



Insurance Certificate



CERTIFICATE OF LIABILITY INSURANCE

10/1/2023 DATE (MM/DD/YYYY) 9/27/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must have **ADDITIONAL INSURED** provisions or be endorsed. If **SUBROGATION IS WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Lockton Companies 444 W. 47th Street, Suite 900 Kansas City MO 64112-1906 (816) 960-9000 kctsu@lockton.com		CONTACT NAME: PHONE (A/C, No. Ext): FAX (A/C, No.): E-MAIL ADDRESS:	
INSURED 1467605 SHORT-ELLIOTT-HENDRICKSON, INCORPORATED 3535 VADNAIS CENTER DRIVE ST. PAUL MN 55110-3507		INSURER(S) AFFORDING COVERAGE NAIC # INSURER A : The Continental Insurance Company 35289 INSURER B : National Fire Insurance Co of Hartford 20478 INSURER C : INSURER D : INSURER E : INSURER F :	

COVERAGES *** CERTIFICATE NUMBER: 16334373 REVISION NUMBER: XXXXXXXX**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input checked="" type="checkbox"/> LOC OTHER:	N	N	6079420587	10/1/2022	10/1/2023	EACH OCCURRENCE	\$ 1,000,000
							DAMAGE TO RENTED PREMISES (Ea. occurrence)	\$ 500,000
							MED EXP (Any one person)	\$ 15,000
							PERSONAL & ADV INJURY	\$ 1,000,000
							GENERAL AGGREGATE	\$ 2,000,000
							PRODUCTS - COMP/OP AGG	\$ 2,000,000
								\$
A	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY	N	N	6079420699	10/1/2022	10/1/2023	COMBINED SINGLE LIMIT (Ea. accident)	\$ 1,000,000
							BODILY INJURY (Per person)	\$ XXXXXXXX
							BODILY INJURY (Per accident)	\$ XXXXXXXX
							PROPERTY DAMAGE (Per accident)	\$ XXXXXXXX
								\$ XXXXXXXX
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$	N	N	6079420590	10/1/2022	10/1/2023	EACH OCCURRENCE	\$ 10,000,000
							AGGREGATE	\$ 10,000,000
								\$ XXXXXXXX
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N	N/A	6079421254	10/1/2022	10/1/2023	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT	\$ 1,000,000
							E.L. DISEASE - EA EMPLOYEE	\$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	\$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER 16334373 FOR INFORMATION ONLY CO	CANCELLATION See Attachment SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE
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