



LOWER MINNESOTA RIVER WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting

Wednesday December 18, 2019

Agenda Item

Item 6. G. - LMRWD Projects

Prepared By

Linda Loomis, Administrator

Summary

i. East Chaska Creek Stream Bank Stabilization

The LMRWD identified this project in the 2012 LMRWD Strategic Resource Evaluation. In 2018 the LMRWD was able to secure partial funding (\$25,472) for this project through the Metro-area Watershed Based Funding Pilot Program (WBF). Additionally, in 2016, the LMRWD included \$200,000 in its annual budget for this project. At that time the proposed project included creation of a wetland on a parcel of land owned by the City of Chaska's Economic Development Authority. That parcel of land has been developed and is no longer available for the wetland. The funds allocated in the LMRWD budget along with the WBF will be used to fund the project.

Plans and specifications were developed to stabilize the stream bank on East Chaska Creek from Crosstown Boulevard extending approximately 1,500 feet downstream and were put out to bid. Staff has prepared a bid award memo which is attached to this summary. The Board should accept the bids and authorize staff to prepare a contract between the winning bidder and the LMRWD. Resolution 19-09 Authorization to Award Construction Contract for East Chaska Creek Stream Bank Stabilization project is attached for adoption by the Board.

ii. Seminary Fen Restoration Area C-2

This project was added to the LMRWD Capital Improvement Program (CIP) during the Watershed Plan update. The City of Chaska is ready to begin work on this project and has received a proposal from Stantec to prepare a preliminary study. The LMRWD included \$20,000 in year 2024 for this study.

The proposal from Stantec is attached for the Board's information, along with a cooperative agreement between the City and the LMRWD. This project was not included in the 2020 budget. Funds for this project could be provided from the East Chaska Creek Project. The funds reserved for that project exceed the amount needed to fund the stream bank stabilization and are sufficient to fund this project. The agreement is currently being reviewed by the City and LMRWD legal counsel.

Attachments

Technical Memo - East Chaska Creek Stream Bank Stabilization Project - Award Bid

Resolution 19-09 East Chaska Creek Stream Bank Stabilization Project

Cooperative Agreement for Seminary Fen C2 Ravine Study

Seminary Fen Ravine C2 Ravine Study Scope-9-11-19

Recommended Action

Motion to adopt Resolution 19-09 East Chaska Creek Stream Bank Stabilization Project

Motion to authorize Cooperative Agreement between City of Chaska and the LMRWD.

Technical Memorandum

To: Linda Loomis, Administrator
Lower Minnesota River Watershed District

From: Shane Soukup, Water Resources Scientist
Della Schall Young, CPESC, PMP

Date: December 13, 2019

Re: East Chaska Creek Stream Stabilization Project—Award Bid

Background

The Lower Minnesota River Watershed District (District) commissioned a feasibility study that was completed by HDR, Inc., in 2012 as part of the District's Strategic Resources Evaluation. The study identified East Chaska Creek as one of four streams in which to implement best management practices to mitigate sources of erosion and reduce turbidity in streams within the District. In response, the East Chaska Creek Stream Stabilization Project (Project) was designed, construction drawings were developed by Barr Engineering Co., (Barr), and bidding was completed to restore the creek.

The Project received its funding through the Metro-area Watershed Based Funding Pilot Program offered by the Minnesota Board of Water & Soil Resources.

The following presents the design, permitting, and bidding process and the recommendations.

Design, Permitting, and Bidding

As an in-house project, the District's technical consulting team, composed of Young Environmental Consulting Group, LLC (Young Environmental), and Barr, completed the design, permitting, and bidding for the Project.

Design

The Project is located on a portion of East Chaska Creek in the City of Chaska, starting at Crosstown Boulevard, and extends approximately 1,500 feet downstream. The

Project disturbs approximately an acre of land, implements erosion control measure and debris removal; constructs grade control structures; and incorporates root wads, riprap armoring, and cross vanes to armor the banks of the stream.

Permitting

The following permits are applicable to the Project:

- The Project requires an NPDES General Construction Stormwater Permit, which is to be completed by the contractor and sent to the District upon receipt.
- Young Environmental reviewed the Project to ensure compliance with the District's standards and issued a memo on November 14, 2019, recommending approval of the Project.
- The US Army Corps of Engineers (COE) regulates the discharge of dredge or fill material into public waters. These actions require a COE Section 404 permit. The permit status is pending.

Bidding Process

Upon completion of the Project's design and substantial completion of the permitting process, bid documents were prepared and put out for bid on November 17, 2019. The following presents the Project's bid process:

- 11/7/2019—Bid documents were uploaded to QuestCDN, and potential bidders were able to access them.
- 11/2019—The Project was advertised in the Star Tribune. We are still waiting for the final invoice that will include the dates the publication was noticed in the paper and the affidavit. The information will be forward to the managers upon receipt.
- 11/21/2019—Held a mandatory pre-bid meeting at 8:30 a.m. at the Chaska Fire Station, located at 285 Engler Blvd., Chaska, Minnesota, 55318. Linda Loomis, District Administrator, and Jeff Wiess, Barr Senior Project Engineer provided an overview of the Project and answered questions from potential bidders. Attached is the meeting's sign-in sheet.
- 12/2/2019—Closed the question-and-answer period between the pre-bid meeting and the bid-period closing. Questions received resulted in two addenda being issued:
 - 11/20/2019—Addendum #1 is issued to address a location change for the pre-bid meeting.
 - 12/2/2019—Addendum #2 is issued to clarify quantities.
- 12/3/2019—Bidding period was closed, and bids received were publicly opened and read aloud. The bid opening was held at the Barr office located at 4300

MarketPointe Dr., Minneapolis, Minnesota, 55435, and open to the public. Each bid package was checked to ensure that both addenda had been acknowledged, and the presence of the company at the pre-bid meeting was verified. Five bids were received and opened in the following order:

- Sunram Construction, Inc.—\$87,456.00
 - Present at pre-bid meeting, acknowledged both addenda
- G.F. Jedlicki, Inc.—\$110,670.00
 - Present at pre-bid meeting, acknowledged both addenda
- Minnesota Native Landscapes—\$94,042.50
 - Present at pre-bid meeting, acknowledged both addenda
- Rachel Contracting, LLC—\$119,749.75
 - Present at pre-bid meeting, acknowledged both addenda
- Blackstone Contractors, LLC—\$68,959.50
 - Present at pre-bid meeting, acknowledged both addenda

Blackstone Contractors, LLC (Blackstone), was the apparent low bidder.

- 12/4/2019: Blackstone's bid was validated. The estimated quantities developed by Barr and included in the bid specifications were multiplied by the unit prices given by each bidder. This was done to verify that calculations had been done correctly by each company when preparing their bid packages.

Recommendations

Young Environmental recommends awarding the contract for East Chaska Creek Stream Stabilization Project to Blackstone, the validated low bidder. We further ask the board of managers to direct staff to prepare contract documents with Blackstone.

Enclosure: East Chaska Creek Pre-Bid Meeting Sign-In Sheet

_____ introduced the following resolution and moved its adoption:

RESOLUTION 19-09

LOWER MINNESOTA RIVER WATERSHED DISTRICT

AUTHORIZATION TO AWARD CONSTRUCTION CONTRACT FOR
THE EAST CHASKA CREEK STREAM BANK STABILIZATION PROJECT

WHEREAS, the Lower Minnesota River Watershed District (LMRWD) has an approved watershed management plan pursuant to Minnesota Statutes section 103B.231 (the Plan); and

WHEREAS, the Plan identifies the East Chaska Creek Bank Stabilization Project (the Project) in its capital improvement program for the purpose of implementing best management practices to mitigate sources of erosion, reduce turbidity, protect the stream channel and improve ecological integrity of the stream corridor in East Chaska Creek within the City of Chaska; and

WHEREAS, in 2012, the LMRWD's Strategic Resource Evaluation identified East Chaska Creek as one of four streams in which to implement best management practices. In 2015, the LMRWD commissioned a feasibility study to identify specific areas and practices to be implemented; and

WHEREAS, in 2018 the LMRWD submitted this project for funding under the Minnesota Board of Water and Soil Resources' Metro-area Watershed Based Funding Pilot Program; and

WHEREAS, In 2019, the LMRWD caused plans and specifications to be prepared to stabilize the banks of East Chaska Creek downstream of Crosstown Boulevard and completed bidding to restore the Creek and has met with and shared said plans and specifications with appropriate staff at the City of Chaska; and

WHEREAS, the LMRWD solicited sealed bids for the work in accordance with Minnesota law and five bids were received and opened, Blackstone Contractors, LLC submitted the lowest bid and is determined by the Board of Managers, on the basis of recommendations of District staff and engineer, to be a responsible bidder.

NOW, THEREFORE, BE IT RESOLVED, that the Lower Minnesota River Watershed District Board of Managers awards the contract for construction to Blackstone Contractors, LLC in the amount of \$68,959.50; and

BE IT FURTHER RESOLVED that the LMRWD Board of Managers authorizes the Administrator to execute a construction contract for the Project in the amount of \$68959.50; and

BE IT FURTHER RESOLVED that the LMRWD Board of Managers authorizes the Administrator to issue a formal notice to proceed to Blackstone Contractors, LLC in accordance

with the terms of this resolution, on advice of counsel and after receipt of a signed contract and required bonds and insurance documentation; and

BE IT FINALLY RESOLVED that the LMRWD Board of Managers authorizes the Administrator to issue this resolution to the City of Chaska to serve as notice of LMRWD intent.

Adopted by the Board of Managers of the Lower Minnesota River Watershed District this 21st day of August, 2019.

Jesse Hartmann, President

ATTEST:

David L. Raby, Secretary/Treasurer

The motion for the adoption of the foregoing resolution was seconded by Manager _____ and upon a vote being taken thereon, the following voted in favor thereof: Hartmann, Raby and Frey; and the following voted against the same: None. Whereupon said resolution was declared passed and adopted, this 18th day of December, 2019, signed by the President and his signature attested by the Secretary/Treasurer.

COOPERATIVE AGREEMENT
BETWEEN THE CITY OF CHASKA AND
THE LOWER MINNESOTA RIVER WATERSHED DISTRICT

SEMINARY FEN C-2 RAVINE STUDY

This cooperative agreement is made by and between the City of Chaska, a Minnesota municipal corporation (the City) and the Lower Minnesota River Watershed District a watershed district created pursuant to Minnesota Statutes chapters 103B and 103D (LMRWD) to implement the Seminary Fen C-2 Ravine study (the Study) in Chaska, Carver County, Minnesota. The purpose of the Seminary Fen C-2 ravine study is to determine the causes of erosion, estimate the sediment contributions from the ravine, develop stabilization options, and provide a cost range for the alternatives and a cost estimate for the chosen option.

Recitals

WHEREAS, LMRWD has an approved water resources management plan pursuant to Minnesota Statutes section 103B.231 (the Plan) that has a goals to protect, improve and restore surface water quality through the use of High Value Resources Areas and to protect and manage unique natural resources and wetlands;

WHEREAS, the Seminary Fen Wetland Complex is a 600 acre complex in Carver County that is one of only 500 calcareous fens in the world and is one of the highest quality calcareous fens in southern Minnesota;

WHEREAS, Seminary Fen is both a unique natural resource and a wetland whose unique hydrology, soils plants and habitats are highly sensitive to water quality and sediment stress;

WHEREAS, the bluffs located north of Seminary Fen are highly prone to erosion due to sandy soils, groundwater discharges, naturally steep slopes and surface water flows. As a result several ravines have eroded and caused sediment plumes to enter the fringe of the wetland;

WHEREAS, the LMRWD and the City completed a project that stabilized the longest ravine, labeled C1, which was estimated to contribute 1,680 tons per year of sediment to the Seminary Fen complex;

WHEREAS, the LMRWD and the City would like to stabilize the next largest ravine, labeled C-2

WHEREAS, the capital improvement program in the Plan includes the Seminary Fen Ravine Site C-2 and C-3 studies, which will conduct a study to estimate the sediment contribution to Seminary Fen and provide approaches and cost estimates for correcting the erosion problems;

WHEREAS, in September 2019 Stantec Consulting Services, Inc. provided the City with a scope of services (the Scope) for the Seminary Fen C-2 Ravine Study, attached to and incorporates herein as Exhibit A, which details the scope of services which includes: collect existing information to be used as

part of the analysis, investigate the sediment plume, analyze the ravine C-2, survey representative cross-section and ravine profile, complete hydrologic modeling, create a concept design for grade control and erosion protection meet with the City, and LMRWD staff, report and provide project management for the study; and

WHEREAS, the LMRWD and the City are authorized by Minnesota Statutes section 471.59 to enter into this cooperative agreement for the Project

Agreement

NOW, THEREFORE, THE LMRWD AND THE CITY enter into this agreement to document their understanding as to the scope of the Study, reaffirm both parties commitment as to the general responsibilities for and tasks to be undertaken by the parties and facilitate communication and cooperation to successfully complete the Study.

1. **Study.** The Study elements are described in detail in and supported by the Scope, which serves as the basis for the partner's agreement.
2. **Costs.** The Scope estimates the total cost for the study will be \$50,890, which includes reimbursable expenses, such as mileage, copying charges, etc.

2.1 The City will be responsible for:

- a. the oversight and management of the Study;
- b. \$20,000 of the Study costs.

2.2 The LMRWD will reimburse the City \$20,000 of the Study costs.

2.3 Each party will be bear the internal, administrative and incidental costs of fulfilling its responsibilities and obligations under this agreement, as well as the costs incurred in providing and conducting public education, outreach and meetings for the Study. In the event of cancellation in accordance with subsection 2.5 herein, each party will bear its costs incurred prior to the City's issuance of cancellation.

3. **The City's Specific Rights and Duties**

3.1 The City has contracted with Stantec Consulting Services (Stantec), Inc. provide the services detailed in Exhibit A. Notwithstanding the foregoing, the City makes no warranty to the LMRWD regarding Stantec's or a third party's performance.

3.2 The City will contract for Stantec's services and oversee the Study. The City may adjust the scope of service in consultation with the LMRWD, as long as the adjustments fo not exceed the scope of rights granted un this agreement or create obligations not anticipated hereunder. If the City, in its judgment, should decide that the Study is infeasible, the City

may at its option declare this agreement rescinded and annulled. If the City so declares, all obligations herein, performed or not, will be voided.

4. **LMRWD Specific Rights and Duties.** On receipt of documentation of costs incurred and paid, LMRWD will reimburse the City as described in Section 2 of this agreement.

5. **General Terms**

- 5.1 INDEPENDENT RELATIONSHIP; LIABILITY. This agreement does not create a joint powers board or organization within the meaning of Minnesota Statutes section 471.59, and no party agrees to be responsible for the acts or omission of another pursuant to subdivision 1(a) of the statute. Only contractual remedies are available for the failure of a party to fulfill the terms of this agreement. The City and LMRWD enter this agreement solely for the purposes of improving the ecological health and condition of Seminary Fen. Accordingly, with respect to any and all activity undertaken pursuant to this agreement, the City and LMRWD (each party as an Indemnitor Party) agree to hold each other harmless, and defend and indemnify each other, their officers, employees and agents (individually, an Indemnified Party) from and against any and all liability, loss, claim, damage or expense (including reasonable attorney fees, costs and disbursements) that an Indemnified Party may incur as a result of the Study due to any negligent or willful act or omission by the Indemnitor Party or the Indemnitor Party's breach of any specific contractual duty. Notwithstanding the foregoing or any other provision of this agreement, the City's and LMRWD obligations under this paragraph will survive the termination of the agreement.

This agreement creates no right in and waives no immunity, defense or liability limitation with respect to any third party. As between the parties, only contract remedies are available for a breach of this agreement.

- 5.2 PUBLICITY AND ENDORSEMENT. Any publicity regarding the Study must identify the City and LMRWD as the sponsoring entities. For purposes of this provision, publicity includes notices, information pamphlets, press releases, research, reports, signs and similar public notices prepared by or for the City or LMRWD individually or jointly with others. Each party at its own cost, may develop, produce and after approval of the other party, distribute educational, outreach and publicity materials related to the Study.
- 5.3 DATA MANAGEMENT. All designs, written materials, technical data, research or any other work-in-progress will be shared between the parties to this agreement on request, except as prohibited by law. As soon as is practicable, the party preparing plans, specifications, contractual documents, materials for public communication or education will provide them to the other party for recordkeeping and other necessary purposes.
- 5.4 DATA PRACTICES. All data created, collected, received, maintained or disseminated for any purpose in the course of this agreement is governed by the Data Practices Act, Minnesota

Statutes chapter 13, any other applicable state statute, or any state rules adopted to implement the act, as well as federal regulations on data privacy.

5.5 ENTIRE AGREEMENT. This agreement contains the complete and entire agreement between the parties relating to the subject matter hereof and supersedes all prior negotiations, agreements, representations and understandings, if any, between the parties respecting such matters. The recitals stated at the outset are incorporated into and a part of the agreement.

5.6 COMPLETE AGREEMENT. This agreement, as it may be amended in writing, constitutes the entire agreement between the City and LMRWD. Any amendment to this agreement must be in writing and will not be effective until it has been executed and approved by the same parties who executed and approved the original agreement or their successors in office.

5.7 WAIVERS. The Waiver by the City and LMRWD of any breach or failure to comply with any provision of this agreement by the other party will not be construed as nor will it constitute a continuing waiver of such provision or a waiver of any other breach of or failure to comply with any other provision of this agreement.

5.8 NOTICES, COORDINATION. The City and LMRWD designate the following authorized representatives, each to serve as liaison to the other party for purposes of communication regarding the Study as provided in this agreement. Any written communication required under this agreement will be addressed to the other party as follows, except that any party may change its address for notice by so notifying the other party in writing:

City of Chaska

Brent Alcott
One City Hall Plaza
Chaska, MN 55318
Phone
Email

Lower Minnesota River Watershed District

Linda Loomis
Administrator
112 East 5th Street, Suite 102
Chaska, MN 55318

5.9 TERM; TERMINATION. This agreement is effective on execution by both parties and will terminate once the final report is received or on the written agreement of the City and LMRWD.

IN WITNESS WHEREOF, the parties have caused the agreement to be duly executed intending to be bounded thereby.

(Signature page follows)

CITY OF CHASKA

By: _____

Its _____

Date: _____

By: _____

Its _____

Date: _____

Approved as to form & execution:

City Attorney

**LOWER MINNESOTA RIVER
WATERSHED DISTRICT**

By: _____

Its _____

Date: _____

Approved as to form & execution:

District Attorney

EXHIBIT A

Seminary Fen C-2 Ravine Study Scope of Services



Stantec Consulting Services Inc.
733 Marquette Avenue Suite 1000, Minneapolis MN 55402-2309

September 11, 2019

City of Chaska
Attn. Mr. Matt Clark, PE – City Engineer
One City Hall Plaza
Chaska, MN 55318

Reference: *Seminary Fen C2 Ravine Study*

Dear Matt,

As requested, this letter provides a scope of services for the above referenced project.

Project Understanding

The City of Chaska is home of the Seminary Fen Wetland Complex. Seminary Fen, a 600-acre complex in Carver County, supports one of only 500 calcareous fens in the world and is one of the highest quality calcareous fens in southern Minnesota. Given this fact, and the fact that it supports dozens of rare, threatened, and special concern plant and animal species, it has been characterized as one of the most significant natural areas in the Twin Cities Metropolitan Area and is part of the Minnesota Department of Natural Resources Scientific and Natural Areas program. The Fen feeds Assumption Creek, one of the Metro Area's last known trout streams that supports naturally reproducing native brook trout. Assumption Creek then discharges to the nearby Minnesota River. The Fen's unique hydrology, soils, plants, and habitats are highly sensitive to water quality and sedimentation stress.

The bluffs located north of the Fen are highly prone to erosion due to sandy soils, groundwater discharges, naturally steep slopes, and surface water flows. As a result, several ravines have eroded and caused sediment plumes to enter the fringe of the wetland. The ravines are labeled C-1, C-2, and C-3 on the attached Figure 1. In 2016, Chaska and other funding partners completed a project that stabilized Ravine C-1, which is the longest of the ravines and was estimated to contribute 1,680 tons per year of sediment to the Seminary Fen complex. The sediment plume from this ravine measures 6 acres in size and had maximum sediment depth of four feet.

The City of Chaska and Carver County WMO (CCWMO) would like to stabilize the next largest ravine, C-2. As with Ravine C-1, this ravine has sandy slopes with groundwater discharging, making it prone to erosion which has caused significant slope failure. The direct drainage area is much smaller than that of Ravine C-1 but, due to the slope instability, the small drainage area still has resulted in severe erosion and sediment contributions to the Seminary Fen Wetland Complex. This ravine has a park that borders the west and north side. Flows from the park and residential area are captured in a manhole structure with a beehive inlet and discharge into the ravine via a pipe. Several houses along the bluff have roof drains that discharge to backyards that eventually reach the bluff area and have contributed to the erosion of the ravine.

The purpose of the Seminary Fen C-2 ravine study is to determine the causes of erosion, estimate the sediment contributions from the ravine, develop stabilization options, and provide a cost range for the alternatives and a cost estimate for the chosen option. This effort will help with future grant requests.

A detailed scope of services to meet the project understanding is provided below.

Scope of Services

Task 1: Collect Existing Information

We will collect existing information regarding the sewer location, storm pipe outfalls, and topography in an electronic format to be used as part of the analysis.

Task 2: Sediment Plume Investigation

Hand borings and elevations will be taken at the sediment plume location to estimate the size and volume of the plume within the wetland.

Task 3: Ravine Analysis

An inventory and analysis of the ravine will be completed as part of this task. This inventory will include site reconnaissance, photographs, and documentation of the causes of erosion. It will be used to assist in developing options for stabilization.

Task 4: Survey of Representative Cross-Sections and Ravine Profile

A detailed survey will not be completed as part of this phase of the project. Representative cross-sections of the main ravine and major side ravines will be taken along with a profile of the main ravine bottom. This information will be used to complete the preliminary ravine analysis and cost estimate.

Task 5: Preliminary Analysis

We will complete hydrologic modeling for 2-, 10-, and 100-year storm events to determine the appropriate grade control, channel improvement, and slope stabilization methods.

We understand that there may be limited options for additional rate control in the watershed and will focus the improvements in the ravine, to improve its ability to handle the current flows. Hydrologic modeling outcomes will help determine what options can be considered for stabilizing the ravine bottom. Stabilization approaches will depend on flow rates and velocities and slope characteristics.

We will create a concept design for grade control and streambank erosion protection, along with a discussion of proposed improvements.

Task 6: Meeting with City and CCWMO Staff

We will meet with City and CCWMO staff to review the results of the analysis, discuss alternatives for consideration, and begin preparations for the report. We estimate 2 meetings will be necessary for this task.

Task 7: Report

A report will be developed that includes:

- Summary of existing conditions
- Analysis of the ravine erosion site
- Site location map and description of the ravine erosion site
- Plan view of the ravine site with potential improvements, along with discussion of the improvements
- Sketch details for ravine stabilization and grade-control options
- Determination if proposed improvements require permits and indicate regulatory authority

- Cost estimate
- Potential funding sources

Task 8: Project Management

Project management will involve work coordination for this project.

Schedule

Tasks 1 and 2 can begin within three weeks of authorization but the next tasks are more efficiently done with leaf-off conditions so could not be finished until November 1, 2019.

Compensation

Stantec will complete the tasks outlined in the Scope of Services for **an estimated fee of \$50,890**. This cost includes reimbursable expenses (mileage, copying charges, etc.).

Potential Additional Services

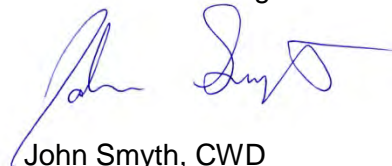
If authorized by the Client, Stantec may provide the following Additional Services to the client at an agreed to cost. These services may include but are not limited to the following.

- Field work, collecting, and/or providing additional information beyond that identified in the Scope of Services
- Meetings, response to comments, or coordination beyond that identified in the Scope of Services.
- Final Construction Plans
- Grant Applications
- Construction Observation

If you wish to proceed, please return a signed copy of this document to activate this Work Order. Thanks for a chance to continue to restore resources in Chaska. If you have any questions, please contact me at 612-712-2132 or john.smyth@stantec.com.

Sincerely,

Stantec Consulting Services Inc.

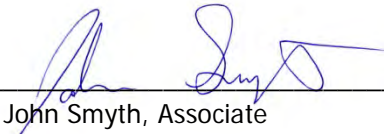


John Smyth, CWD
Water Resource Specialist
Associate

Attachment: Project Area Map

STANTEC

ACCEPTED BY CLIENT:

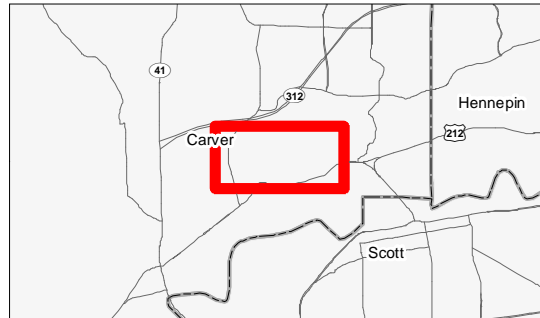
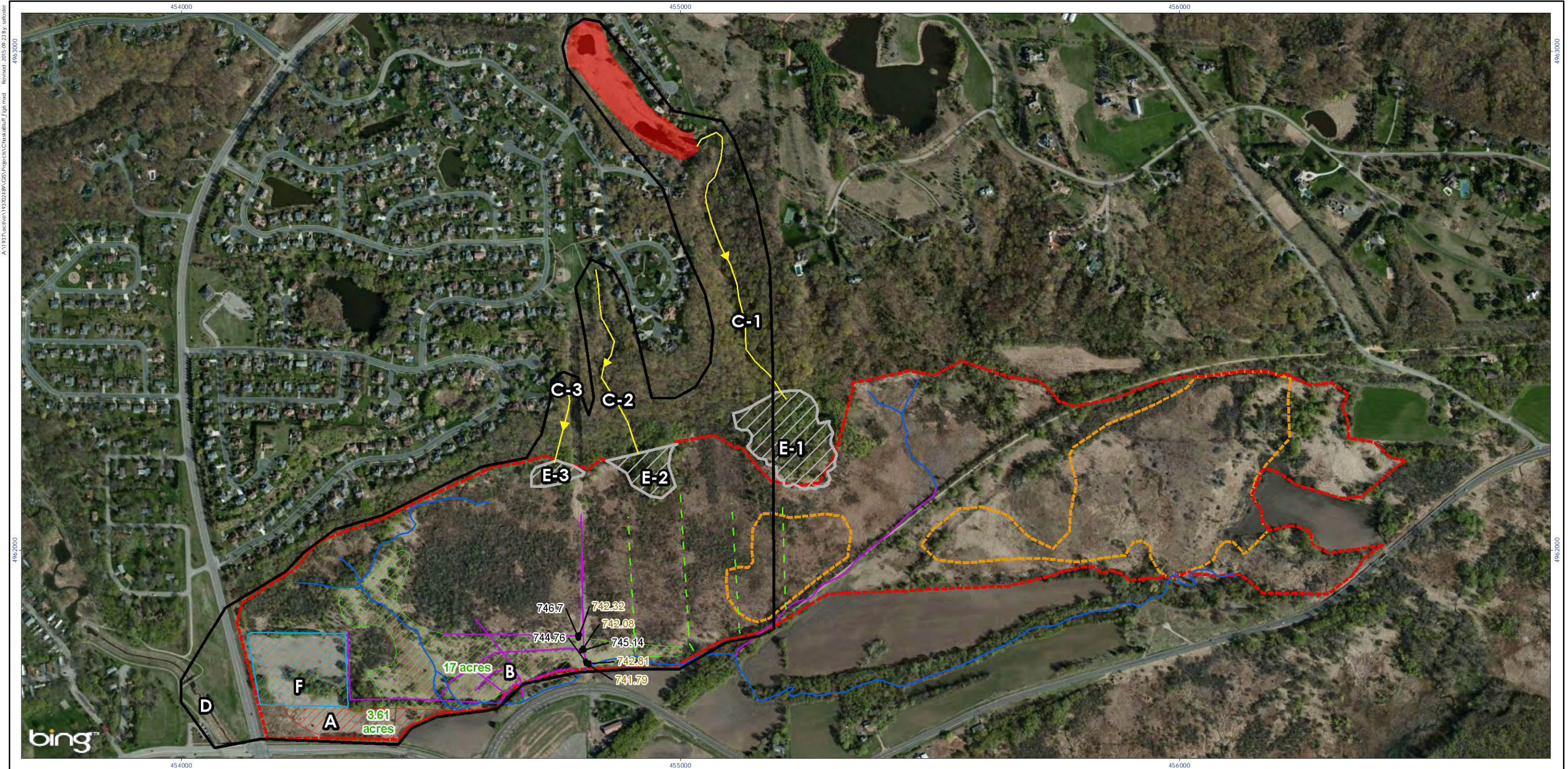
By  _____
John Smyth, Associate

Date 9/11/19 _____

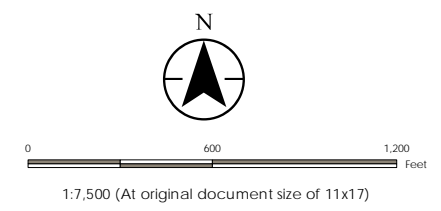
Print Name _____

Sign Name _____

Date _____



- Legend**
- Project Site
 - Seminary Fen Wetland Complex (B)
 - Calcareous Fen (Southeastern)
 - Sedimentation Plumes (E-1, E-2, E-3)
 - Barr Restoration and Management Data
 - Natural Drainageway
 - Potential Tile (No tile observed)
 - Surface Ditch
 - 745.14 Ditch Top Elevations
 - 742.32 Ditch Bottom Elevations
 - 2011 Wetland Restored (F)
 - Potential Purchase and Wetland Restoration Area (A)
 - Proposed Wetland Restoration Area (B)
 - Hazeltine Bluff Wetland
 - Ravines (C-1, C-2, C-3)



Notes
 1. Coordinate System: NAD 1983 UTM Zone 15N
 2. Data Sources Include: Stantec, USGS, and ESRI
 3. Orthophotography: Microsoft Corporation, with permission

Figure No. **1**
 Title **Seminary Fen Investigation Report For The Area Within Chaska**
 Client/Project **City of Chaska**
 Project Location **1116, R23, S34 C. of Chaska Carver Co., MN**
 193702489
 Prepared by CS on 2015-03-05
 Technical Review by JS on 2015-09-18

