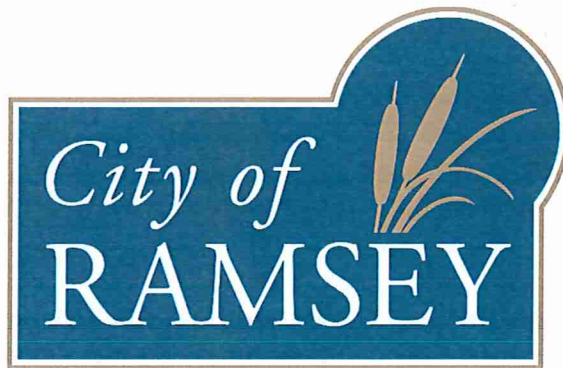


FEASIBILITY REPORT

COR INFILTRATION BASIN IMPROVEMENTS

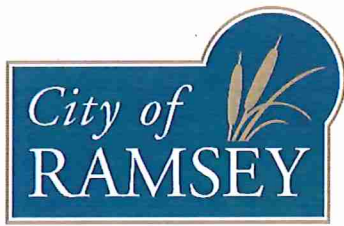
CITY IMPROVEMENT PROJECT NO. 18-09



April 5, 2018

Prepared By:

City of Ramsey
Engineering Department
7550 Alpine Drive
Ramsey, MN 55303
763-433-9839
763-433-9848 (Fax)



April 5, 2018

Honorable Mayor and City Council
City of Ramsey
7550 Alpine Drive
Ramsey, MN 55303

Re: Feasibility Report - City of Ramsey Improvement Project #18-09
COR Infiltration Basin Improvements

Dear Mayor and City Council Members:

Transmitted herewith is a Feasibility Report for the proposed COR Infiltration Basin located in the southeast corner of the COR which examines the feasibility of constructing a regional infiltration basin to serve the COR.

This Feasibility Report examines the scope of the proposed improvements, explores estimated costs and available funding sources, defines a preliminary project schedule, and determines the necessity, feasibility and general cost-effectiveness of the proposed improvements, including any alternate designs, as well as whether the improvements would best be completed separately or in conjunction with another project.

I would be happy to discuss this report with you at your convenience. Please feel free to contact me at 763-433-9834 or llinton@cityoframsey.com with any questions.

Sincerely,

City of Ramsey

A handwritten signature in blue ink, appearing to read "Leonard Linton".

Leonard Linton, PE
Civil Engineer IV

Enclosure

C: Kurt Ulrich, City Administrator
Diana Lund, Finance Director
Grant Reimer, Public Works Superintendent
Bruce Westby, City Engineer

CERTIFICATION

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.



Leonard Linton, PE

Date: April 5, 2018

License No. 21112

I hereby certify that this plan, specification or report was reviewed for Quality Control and Quality Assurance purposes and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.



Bruce Westby, PE

Date: April 5, 2018

License No. 40116

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TITLE SHEET

LETTER OF TRANSMITTAL

CERTIFICATION SHEET

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Appendix A

Exhibit 1 – 2018 COR Infiltration Map

Exhibit 2 – Easement Map

Exhibit 3 – Infiltration Ponds Plan

Appendix B

Opinion of Probable Costs

1. EXECUTIVE SUMMARY

City Improvement Project 18-09 proposes to construct a regional infiltration basin in the southeast corner of the COR between the Midwest Medical Examiner's office and Ramsey Boulevard, north of the regional stormwater pond.

The City of Ramsey is a member of the Lower Rum River Watershed Management Organization (LRRWMO) whose purpose is to manage the surface water resources within the boundaries of the organization in a consistent, cost effective and environmentally appropriate manner. The LRRWMO Third Generation Plan, adopted in 2012, requires infiltration of the first one inch of runoff (volume reduction) from all impervious surfaces on the site.

The Drinking Water Supply Management Area (DWSMA) for the municipal water supply wells overlies the COR. State Law discourages or prohibits infiltration in a DWSMA. Final determination of the infiltration exclusion area in the DWSMA is a local decision. The City of Ramsey discussed the options with other jurisdictions and set the 10 year capture zone as the infiltration exclusion zone. The Third Generation Plan has a mitigation sequence defined that must be followed when infiltration is not permitted on a new development site. The prioritized process includes on site infiltration, off site infiltration, other non-volume control treatment on site, or contribution to a stormwater impact fund, which can be used to construct volume reduction practices where infiltration is permitted.

The Parkview East Apartment building was one of the first projects to be proposed in the COR after the Third Generation Plan was adopted. The developer opted to contribute to the volume mitigation fund. The City was required to submit a letter to the LRRWMO stating that the City would have an infiltration basin in place by July 1, 2018. This letter was required before the LRRWMO would issue the permit for Parkview East Apartments. All subsequent projects in the COR received LRRWMO approval conditioned on the regional infiltration basin being in place by July 1, 2018.

City staff has evaluated multiple sites, trying to find a location that would provide the needed infiltration volume for the undeveloped sites in the COR, while preserving development opportunities. The area selected is in the southeast corner of the COR between Rhinestone Street and Ramsey Boulevard, north of the existing pond and south of the Midwest Medical Examiners building.

The maps of the project area and project are located in *Appendix A*.

A summary of the engineer's opinion of probable costs is included in *Appendix B*.

This project would best be constructed as a stand-alone project and is necessary, feasible, and cost-effective from an engineering standpoint, and can be constructed as proposed herein.

2. INTRODUCTION

2.1 Authorization

The preparation of this report was authorized by the Ramsey City Council on March 27, 2018. This project has been designated as City Improvement Project No. 18-09.

This Project was added to the Capital Improvement Program as 16-STM-002 Identify COR Infiltration Banking Area.

2.2 Background

The City purchased the Ramsey Town Center properties out of foreclosure in 2009. The City has been marketing the properties for development ever since. The majority of the properties are in the infiltration prohibited zone as shown on Exhibit A and will need offsite infiltration as a condition of receiving a LRRWMO permit.

The LRRWMO Third Generation Plan, adopted in 2012, requires infiltration of the first one inch of runoff (volume reduction) from all impervious surfaces on the site. The Drinking Water Supply Management Area (DWSMA) for the municipal water supply wells overlies the COR. State Law discourages or prohibits infiltration in a DWSMA. Final determination of the infiltration exclusion area in the DWSMA is a local decision. The City of Ramsey discussed the options with other jurisdictions and set the 10 year capture zone as the infiltration exclusion zone. Properties that are between the boundaries of adjacent 10 year capture zones are also excluded from infiltrating their stormwater.

The Third Generation Plan has a mitigation sequence defined that must be followed when infiltration is not permitted on a new development site. The process includes on site infiltration, off site infiltration, other non-volume control treatment on site, or contribution to a stormwater impact fund. The fund will be used to construct volume reduction practices where infiltration is permitted.

Infiltration practices must have 3 feet of vertical separation between the bottom of the infiltration area and groundwater. Preliminary designs looked at modifying the outlet of an existing stormwater retention pond to cause the water level to rise to 4 feet and flow into the infiltration area before water flowed out of the pipe. This proved to be impractical, it would have required a large area to achieve the required infiltration, and it would have raised the 100 year elevation of the pond, impacting the floor and parking elevations of adjacent lots. Staff then explored stormwater lift stations and visited with several cities that use stormwater lift stations for level control. It is feasible to use a stormwater lift station to pump the water to the infiltration basin from the existing stormwater retention pond.

Staff evaluated available sites including the area between Highway 10 and the BNSF tracks adjacent to the commuter rail station, which was the former Auto Ranch property, the site east of Ramsey Boulevard formerly known as B & A Cylinder, and the selected site. All of the sites are City owned. Each will be discussed in detail.

The Auto Ranch site is adjacent to a City stormwater pond. It was rejected because part of the infiltration would have been in the 10 year capture zone.

The B & A Cylinder site was evaluated and then rejected because the site was contaminated by a previous user and infiltration is not permitted on contaminated sites. Part of the site may also be needed for the grade separation improvements for Ramsey Boulevard and the BNSF tracks.

The selected site is in the southeast corner of the COR, south of the Medical Examiner's office between Rhinestone Street and Ramsey Boulevard. This site was selected due to its close proximity to the existing stormwater retention pond, and because a majority of the site is currently encumbered by drainage and utility easements and because of the odd shape of the lot which makes the lot less desirable for development.

2.3 Scope

City of Ramsey Improvement Project 18-09 proposes to construct an infiltration basin in the southeast corner of the COR between Rhinestone Street and Ramsey Boulevard, north of the existing pond and south of the Midwest Medical Examiners building.

The proposed site will utilize a drainage and utility easement reserved with the Ramsey Town Center project over property now owned by PSD, LLC. It will require acquisition of approximately 0.82 Acres of property outside of the easement from PSD, LLC. The proposed acquisition will square up the southern boundary of the PSD site which is more desirable for development. Staff has provided the acquisition map to PSD, LLC as a prelude to acquisition discussions.

The bottom of infiltration basins must be three (3) feet above ground water elevation per design guidelines. The basin will be divided into an east basin and a west basin to bridge an existing large diameter storm sewer line that follows the proposed alignment of Peridot Street. The divided basin will provide cover over the existing stormsewer pipe. The system will utilize a stormwater lift station to pump water out of the existing pond up to the basin to provide the minimum recommended vertical separation. The lift station will be set up to pump the required infiltration volume for the 1" storm, then shutoff for 24 hours or until the next rain event, whichever is longest. The lift station will be taken out of service during the winter months to prevent freezing of the pipes. The infiltration basin will have a small amount of additional capacity that could be sold to developers outside of the COR that cannot infiltrate on site due to soil conditions or other constraints. The infiltration basin will be planted with native vegetation that can tolerate periodic inundation.

The plans show a future street connection along the north side of the basin between Rhinestone Street and Ramsey Boulevard. The connection to Ramsey Boulevard will be right-in, right-out only, in conformance with the Anoka County Highway Management Plan. This will be constructed as a future project when development warrants. Staff is working with Anoka County to verify that this connection will be allowed as proposed.

Maps showing the location and scope of the proposed improvements are included in *Appendix A*:

Exhibit 1 Existing 10 year Capture Zones

Exhibit 1 A Proposed 10 year Capture Zones

Exhibit 2 Existing and Proposed Easements

Exhibit 3 Proposed Infiltration Basin

3 DESIGN CONSIDERATIONS

3.1 Geotechnical Exploration

Staff used the geotechnical report prepared for the Ramsey Town Center project while preparing this feasibility report. The Ramsey Town Center report did not contemplate infiltration of stormwater.

A geotechnical exploration and testing program will be required as part of the final design for this project. The proposed cost of this program is included in the estimate.

3.2 Permits

Permits that are anticipated to be required as part of the proposed improvements include:

- MPCA General Stormwater Permit (NPDES)..... Grading and Storm Water
- LRRWMO stormwater permit

3.3 Property Acquisition

The project will require acquisition of property from PSD, LLC located south of the Medical Examiner's office. The total area to be acquired is 2.36 acres. The site is encumbered with a 1.54 acre drainage and utility easement. The net area to be acquired is 0.82 acres. Staff has started preliminary easement/ property acquisition discussions with the property owner.

Staff proposes to first offer PSD, LLC another piece of property that has an equivalent value to the 2.36 acres required for the infiltration basin. If PSD, LLC is not agreeable to this, Staff will negotiate a purchase price for the required 2.36 acres.

4. FINANCING

4.1 Opinion of Cost

A detailed opinion of probable costs for the proposed improvements can be found in *Appendix B* of this report. The opinion of probable costs incorporates anticipated 2018 construction costs for the proposed improvements plus 28% indirect costs for administrative, engineering, financing and legal costs. Ten percent construction contingency costs are not included in the estimated costs.

City staff prepared the Feasibility Report in-house as part of staff's normal duties.

4.2 Funding

4.2.1 Assessments

The use of special assessments is not being proposed with this project.

4.2.2 City Contribution

The City will fund this project in its entirety using Stormwater and Infiltration Mitigation Funds. The City's share of project costs will be reimbursed from future land sales in the COR, specifically, developer contributions to the infiltration mitigation fund as marked (1) in the table below.

Table 1 illustrates the proposed project funding based on the proposed design outlined within this report. This funding program assumes construction will occur in 2018.

TABLE 1
Proposed Project Funding

	INFILTRATION MITIGATION FUND	STORMWATER FUNDS	TOTAL
Estimated Costs	\$224,706	\$654,449	\$879,155

Total Project Cost			<u>\$879,155</u>
Less Infiltration Mitigation Fund	-		<u>\$224,706</u>
Subtotal	=		\$654,449
Less Stormwater Funds (1)	-		<u>\$654,449</u>
TOTAL Remaining Cost	=		\$0

(1) The City share of the project will be recovered before all of the properties in the COR are developed. The City should continue to collect contributions to the infiltration

mitigation fund at the same rate to provide for operation and maintenance of the pumping facility.

5. PROJECT SCHEDULE

The proposed project schedule is as follows:

Council Orders Feasibility Report	March 27, 2018
Council Accepts Feasibility Report/Authorizes Plans and Specifications	April 9, 2018
Council Approves Plans and Specifications/Authorizes Ad for Bids.....	May 8, 2018
Staff Advertises for Bids.....	May 11 & May 18, 2018
Staff Receives Bids	June 5, 2018
Council Awards Contract	June 12, 2018
Contractor Begins Construction	June 25, 2018
Contractor Completes Construction	August 31, 2018

6. CONCLUSIONS AND RECOMMENDATIONS

City of Ramsey Improvement Project 18-09 proposes to construct a regional infiltration basin in the southeast corner of the COR to serve all undeveloped properties in the COR where infiltration is not permitted, allowing development of these properties to occur in conformance with Lower Rum River Watershed Management Organization stormwater standards.

It is the recommendation of City staff that City Project No. 18-09 is feasible, necessary, and cost-effective from an engineering standpoint, and that this project would best be constructed as a stand-alone project as proposed herein.

The following Staff recommendations related to the proposed project are presented for Council consideration and concurrence:

1. Staff recommends constructing the COR infiltration basin as designed in 2018
2. Staff recommends meeting with owners of all abutting properties to inform them of the proposed improvements and to gather their input prior to completing plans and specifications and requesting Council approval to advertise for bids.

The City Council is asked to act on the following items related to the proposed project:

1. Adopt Resolution #18-56 accepting this Feasibility Report and authorizing preparation of Plans and Specifications based on the design proposed herein.

APPENDIX A

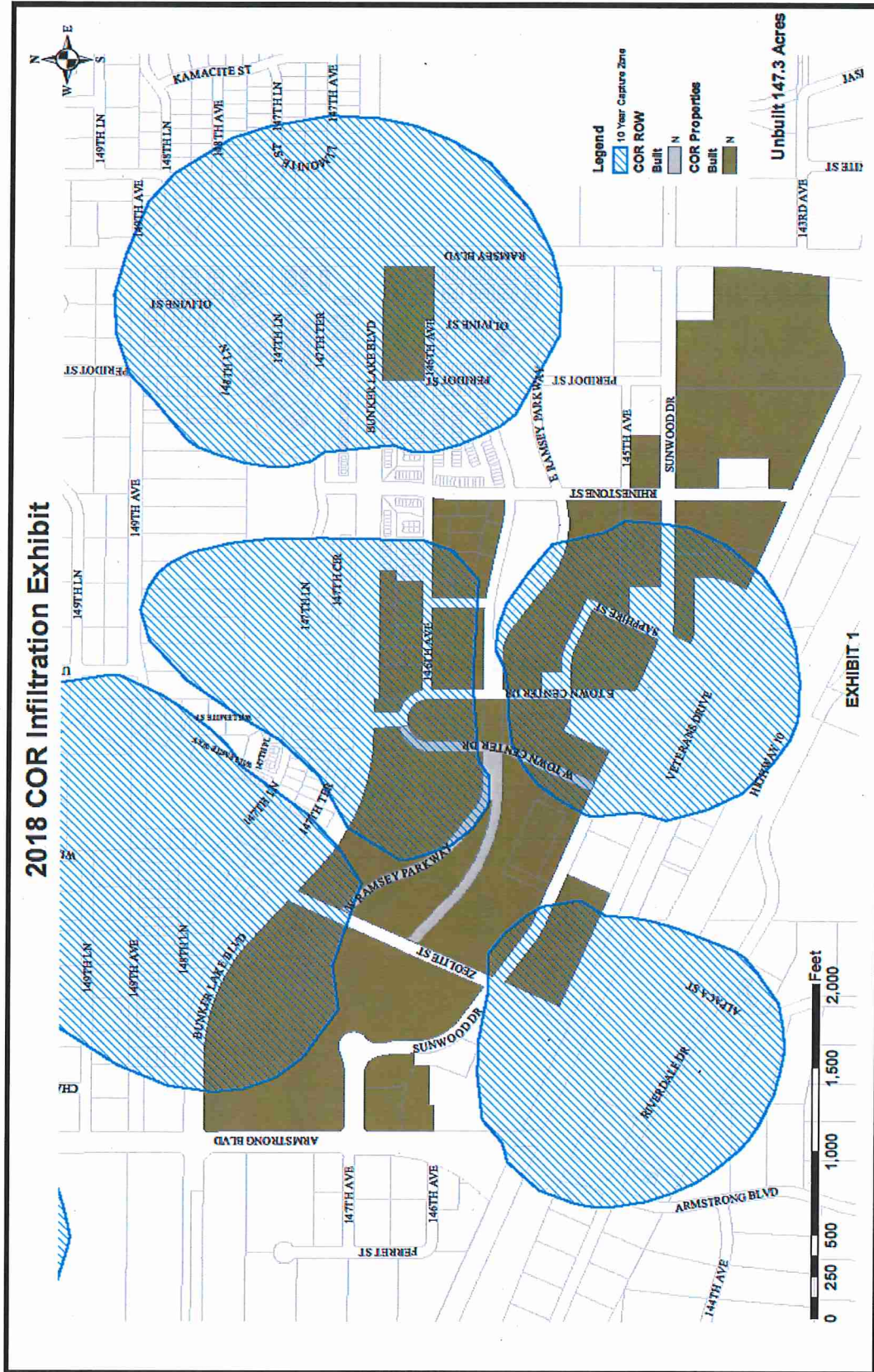


EXHIBIT 1

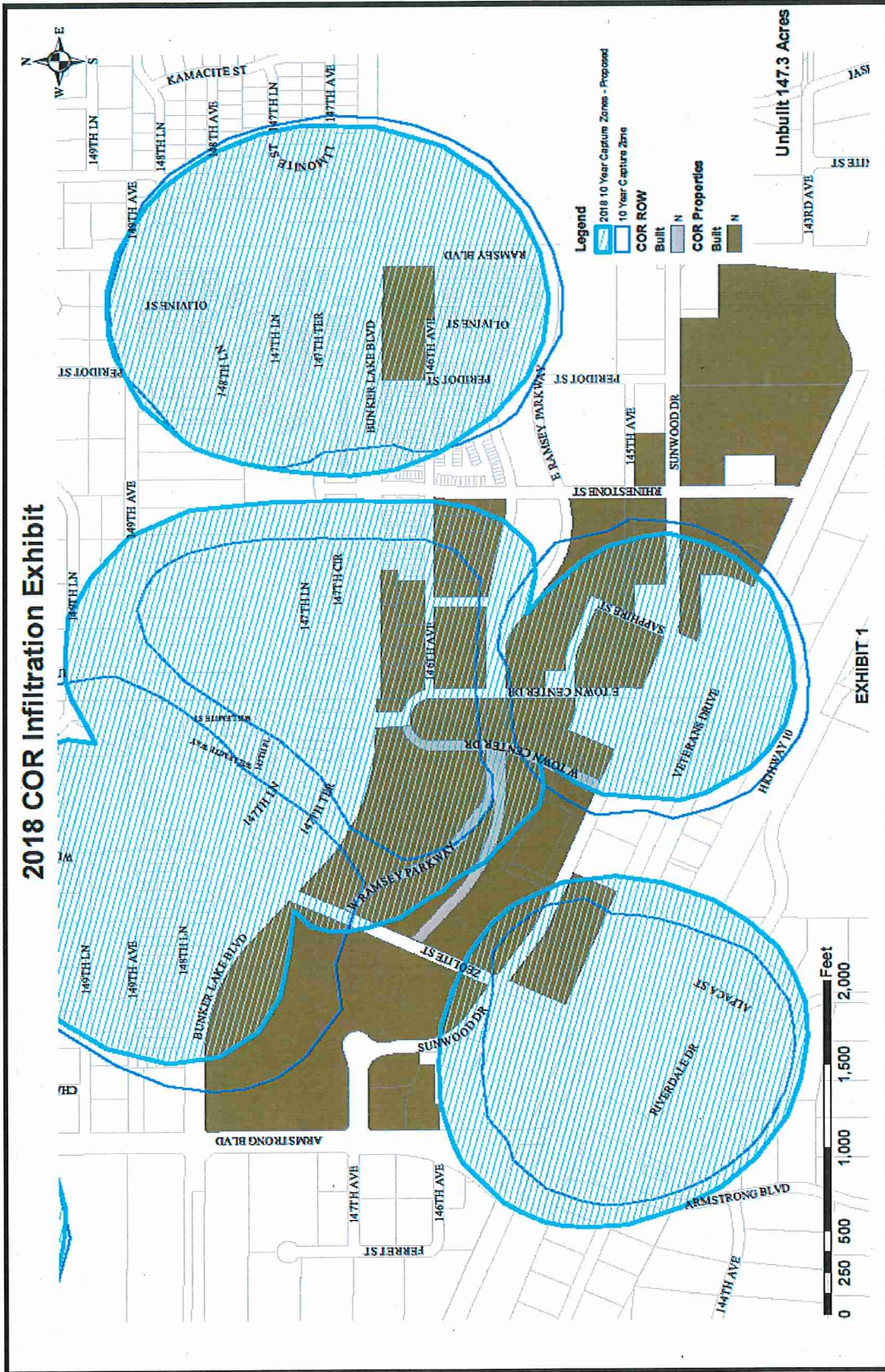


EXHIBIT 1A

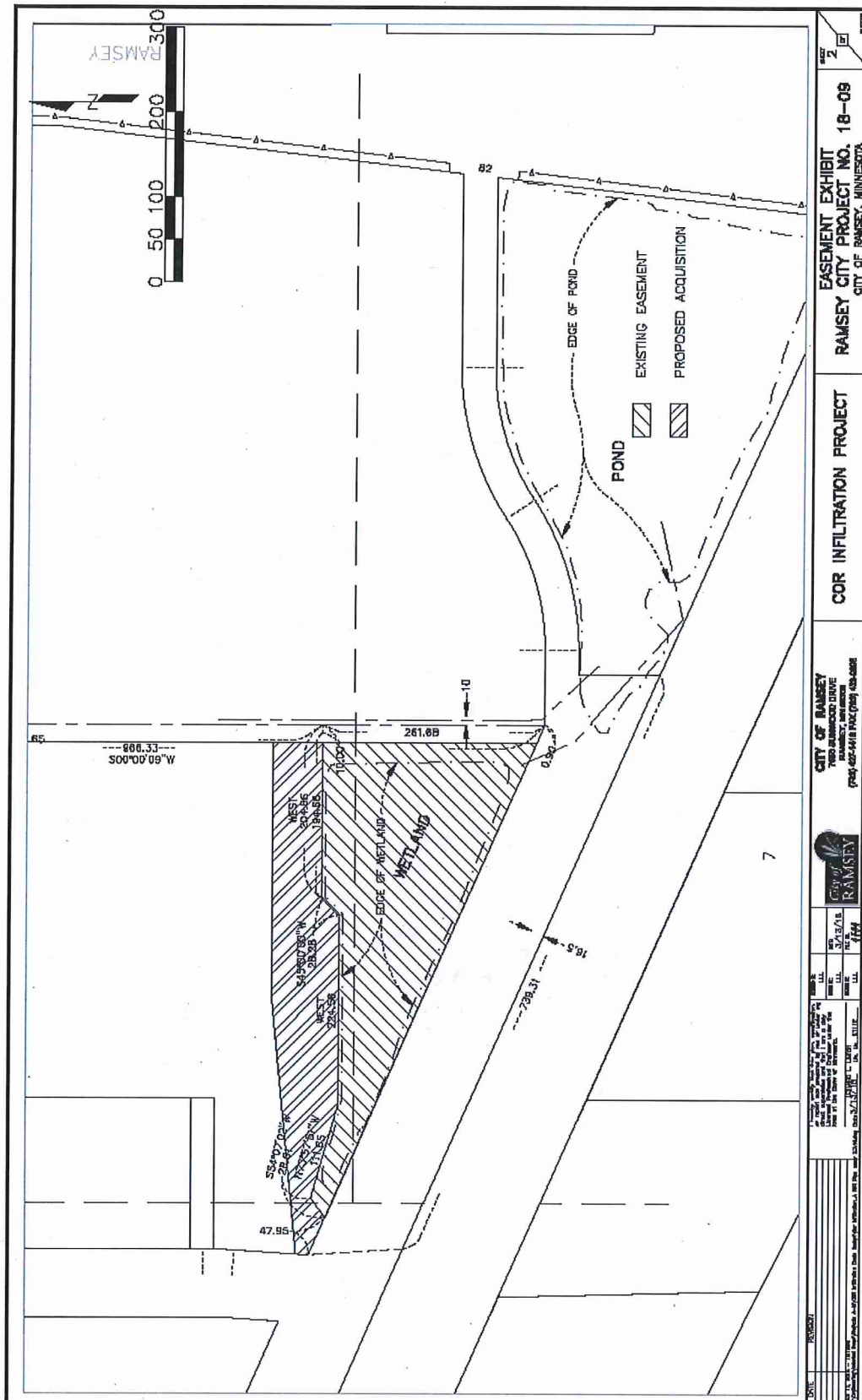


EXHIBIT 2

APPENDIX B

**Opinion of Probable Costs
Summary of Infiltration Mitigation Fund Contributions**

**COR Infiltration IP 18-09
Estimate**

Item No.	MnDOT No.	Description	Unit	Estimated Quantity	Unit Cost	Cost Extension
1	2021.501	Mobilization (5%)	LS	1	\$ 50,000.00	\$ 50,000.00
2	2105.601	Dewatering	LS	1	\$ 30,000.00	\$ 30,000.00
3	2106.511	Excavation - Pond (CV)	CY	35,000	\$ 7.00	\$ 245,000.00
4	2506.601	Construct Stormwater Lift Station	LS	1	\$ 200,000.00	\$ 200,000.00
5	2574.525	Select Infiltration Medium (LV)	CY	2,000	\$ 27.00	\$ 54,000.00
6	2575.502	Seed	LB	800	\$ 12.00	\$ 9,600.00
7	2575.511	Mulch Material type 1	Ton	8	\$ 1,500.00	\$ 12,000.00
8	2575.519	Disc Anchoring	Acre	4	\$ 950.00	\$ 3,800.00
9	2575605	Seeding	Acre	4	\$ 5,000.00	\$ 20,000.00

Estimated Construction Cost	\$ 624,400.00
10% Contingency	\$ 62,440.00
28% Indirect Cost	\$ 192,315.20
Total Cost	\$ 879,155.20

**COR Infiltration IP 18-09
infiltration Mitigation Funds Received**

Project	Gross Area (ac)	Impervious Area (ac)	Infiltration Volume (cf)	Mitigation Contribution
Parkview East Apartments	5.11	1.00	17,800	\$ 180,000.00
The Station	5.69	2.48	9,002	\$ 15,200.00
Stonebrook Academy	0.84	0.84	3,049	\$ 6,355.00
Vistas at North Commons	3.15	0.89	3,553	\$ 6,551.00
Greenway Terrace				\$ 10,000.00
North Commons 3				\$ 6,600.00
				\$ -
				\$ -
				\$ -
				\$ -

Infiltration Mitigation Fund Contribution to date \$ 224,706.00

Proposed Contributions
Affinity at Ramsey