AGENDA
Utility Commission Regular Meeting
Monday, June 23, 2025
5:30 PM
Conference Room, City Hall

1. **CALL TO ORDER**
2. **ADDITIONS OR CORRECTIONS TO AGENDA**
3. **AUDIENCE INPUT**
4. **APPROVAL OF MINUTES**
   a. March 31, 2025, Utility Commission Meeting Minutes
5. **PUBLIC HEARINGS**
6. **OLD BUSINESS**
   a. Water Efficiency Rebate Update
   b. Manganese Monitoring Update
7. **NEW BUSINESS**
   a. 2024 Rosemount Surface Water Quality Monitoring Program Report
8. **EXECUTIVE DIRECTOR'S REPORT**
   a. Well Pumping Report
   b. Action Item / Issues list
   c. Set Next Meeting Agenda – September 22, 2025
9. **ADJOURNMENT**

CALL TO ORDER
Pursuant to due call and notice thereof, a regular meeting of the Utility Commission was held on Monday, March 31, 2025, at 5:30 PM in Rosemount Public Works & Police, EOC Room, 14041 Biscayne Ave.

Chairperson Johnson called the meeting to order with Commissioners Miller and Demuth.

Staff present included the following: City Administrator Martin, Public Works Director Egger, and Recording Secretary Simonson.

ADDITIONS OR CORRECTIONS TO AGENDA
None.

AUDIENCE INPUT
None.

APPROVAL OF MINUTES
4.a. November 24, 2024, Utility Commission Meeting Minutes

Motion by Demuth, **Second by** Miller
Motion to approve the November 24, 2024, Utility Commission Meeting Minutes
Ayes: 3.
Nays: None. Motion Carried.

PRESENTATION
None.

OLD BUSINESS
6.a. Manganese Monitoring Update
Director Egger stated that staff continue quarterly sampling, though access is limited to 60–70% of sites due to winterized outdoor faucets. Q1 and Q2 2025 results will be presented at the June meeting.

NEW BUSINESS
7.a. Set Meeting Dates for 2025-2026

Motion by Demuth; **Second by** Miller
Motion to set the 2025-2026 Utility Commission meeting dates per attached calendar.
Ayes: 3.
Nays: None. Motion Carried.

Commissioner Miller noted she is not available for the June 23, 2025, Utility Commission meeting.

EXECUTIVE DIRECTOR'S REPORT
8.a. 2024 Well Pumping Report & 2025 Well Pumping Record through February
The total amount of water pumped from wells in 2024 is 10% lower than in 2023. The decrease in water usage is likely due to the abundant precipitation received in the spring.

Director Egger noted that with the new well 17, a new appropriation permit will be required. That process will take place after the well is built to determine capacity.

Commissioners asked about potential upgrades to the splash pad, specifically the addition of a chlorinated recirculation system. Staff responded that the Parks & Recreation Department is currently in the planning phase of a Central Park redesign. A recirculation system for the splash pad will be included in the scope and budgeting process but will require City Council approval.

8.b. 2024 City Water Usage with 10-Year Trend Chart

Director Egger noted that government water usage in 2024 was below 38 million gallons—the lowest amount recorded in the past 5 years.

It was also noted that there is currently insufficient data to assess water usage at the Public Works & Police Building. Several years of data will be needed to establish a reliable estimate of its annual consumption.

8.c. Top 10 Water Users 2024

Staff pointed out that there are no changes to the top 10 water users in the city for 2024. Some of these top users include multifamily residential properties, not just industrial or commercial accounts.

When current residential rates were applied to the usage levels of the top 10 users, billing amounts increased slightly. This analysis may help inform future utility rate modeling for 2026. Commissioners requested further evaluation of how residential water rates impact high-, mid-, and low-volume commercial and industrial users.

Commissioners also inquired about the 2021 tier 4 rates, noting that rate changes appeared to have occurred in some areas but not others. Staff will review the 2021 meeting minutes and rate models for clarification.

8.d. Well 17 Update

Drilling mobilization for Well 17 began last week. The contractor is currently drilling the pilot hole and collecting geological samples. Once this phase is complete, full-width boring of the well will begin. Staff plan to schedule a site visit for commissioners later in the process.

A separate contract for the well house structure has been awarded, but construction will not begin until drilling is complete. Well 17 is expected to be operational by summer 2026.

8.e. Action Item / Issues list

i. Presentation by Dan Schultz of the Parks & Rec Department on the Central Park renovation at a future commission meeting.
ii. Confirm deadline of 3/28/2025 for the Met Council Equity-Focused Water Efficiency Grant Pilot Program.

8.f. Set Next Meeting Agenda – June 23, 2025

i. Update on Water Efficiency Grant Program
ii. Water Quality Pond Monitoring Report

iii. Manganese sampling update
iv. Review of 2024 Consumer Confidence Report

ADJOURNMENT

There being no further business to come before the Utility Commission at the regular meeting and upon a motion by Demuth and a second by Miller, the meeting was adjourned at 6:32 p.m.

Respectfully submitted,

Amy Simonson
Public Works Office Specialist

ROSEMOUNT
MINNESOTA

EXECUTIVE SUMMARY

Utility Commission Regular Meeting: June 23, 2025

AGENDA ITEM:	Water Efficiency Rebate Update	**AGENDA SECTION:**	OLD BUSINESS
PREPARED BY:	Amy Simonson, Public Works Office Specialist	**AGENDA NO.**	6.a.
ATTACHMENTS:	2025.06.23 Water Efficiency and Stormwater Rebate Update	**APPROVED BY:**	
RECOMMENDED ACTION: Informational Only			

BACKGROUND

Summary and updates on the Water Efficiency Rebate and Stormwater Rebate program activity up to June 13, 2025. The current grant program is 2024-2026.

RECOMMENDATION

None

Quarterly Water Efficiency Rebate Update:

The City of Rosemount was awarded a Water Efficiency Grant from the Metropolitan Council (MCES) in the amount of $27,000 for the 2024-26 grant cycle.

As part of this program, the following rebate amounts are allowed:

- $50 for Water Sense Toilets
- $150 for Energy Star Washers
- $150 for Energy Star Dishwashers
- $150 for Water Sense Irrigation Controllers
- $200 for Irrigation system audits

The Vermillion River Joint Powers Organization (VRWJPO) ended its program partnering with cities in the county to provide funding for multi-family residential properties for low-cost irrigation audits and improvement cost share grants. The City Council approved the Irrigation Efficiency Grant Program as a replacement at its August 20, 2024, meeting. The City is working on reaching out to HOAs and has received some interest in the updated program.

Table 1 provides a summary of the entire rebate program activity through Q1 2025.

Table 1	2020	2021	2022	2023	2024	2025
Gallons of Water Saved Annually (est.)	386,800	200,200	*1,665,936	687,136	31,600	73,800
Total Rebate	$4,971.67	$3,790.26	$20,436.74	$11,391.48	$1,300	$2,850.00
Municipality Contribution (25%)	$1,242.92	$911.15	$10,902.94	$2,922.87	$325	$712.50
Irrigation Controllers Replaced:	35	1	18	13	0	0
Toilets Replaced:	6	1	7	11	2	6
Clothes Washers Replaced:	8	1	5	8	6	9
Dishwashers Replaced	0	0	0	3	2	6
Audits (Residential):	1	0	0	0	0	0
Commercial Audit In a partnership with the Vermillion River Watershed Joint Powers Organization (VRWJPO) on their Urban Water Conservation Program. 2021 Municipality Contribution partially provided by Stormwater Utility.	6			2	0	0

*Includes commercial audit annual water savings
**Table data is annual and not by grant period

Quarterly Stormwater Rebate Update:

In May 2019, the Utility Commission recommended City Council adopt a rebate program for residents

to install projects on their property to improve stormwater quality and reduce runoff volume. In March 2020, City Council approved the Stormwater Rebate Policy and established a maximum amount of $5,000.

Table 2 provides a summary of the entire rebate program activity.
Number of BMPs installed for each category in (parentheses) following dollar amount listed

Table 2	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Total Rebate	**$0**	**$147.85**	**$77.50**	**$1,840.03**	**$540**	**$20**
Rain Barrels:	**$0**	**$86.94** (5)	**$77.50** (4)	**$40** (2)	**$40**(2)	**$20**
Cisterns & Rainwater Harvesting:	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Raingardens:	**$0**	**$0**	**$0**	**$1,800.03** (4)	**$500**(1)	**$0**
Native Plantings:	**$0**	**$60.91** (1)	**$0**	**$0**	**$0**	**$0**
Buffers:	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Stormwater Reuse:	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Permeable Pavers & Pavements	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Here is a summary of advertisements of the program in 2025:

- News & Highlights Post https://www.rosemountmn.gov/
- The City Newsletter
- Information at Home & Business Expo in March
- Included in course materials for Landscaping for Clean Water Workshops
- Individual staff contacts with residents
- Monthly social media posts
- 1st quarter utility insert

Staff will continue to publicize these programs via social media, city newsletters, staff updates and additional methods.

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EXECUTIVE SUMMARY

Utility Commission Regular Meeting: June 23, 2025

AGENDA ITEM:	Manganese Monitoring Update	**AGENDA SECTION:** OLD BUSINESS
PREPARED BY:	Nick Egger, Public Works Director	**AGENDA NO.** 6.b.
ATTACHMENTS:	Manganese Sampling Locations Map, Manganese Sample Results Summary Q1 & Q2 2025, Manganese Sample Results Chart MVTL Measurements Q1 & Q2 2025, Well Pumping Contributions - Manganese Sampling Dates Q1 & Q2 2025, MVTL Sample Results Report - Q1 2025 (Combined), MVTL Sample Results Report - Q2 2025	**APPROVED BY:** NAE
RECOMMENDED ACTION: Informational only		

BACKGROUND

Staff continued to collect quarterly tap water samples from several dozen locations throughout the City over winter quarter (February/March) and earlier this spring (early May). Samples were collected from as many properties as were available on account of access to a running tap at the property (winter conditions) and as staff had availability to make the rounds, so although most properties were sampled, there were some for which a sample was not collected.

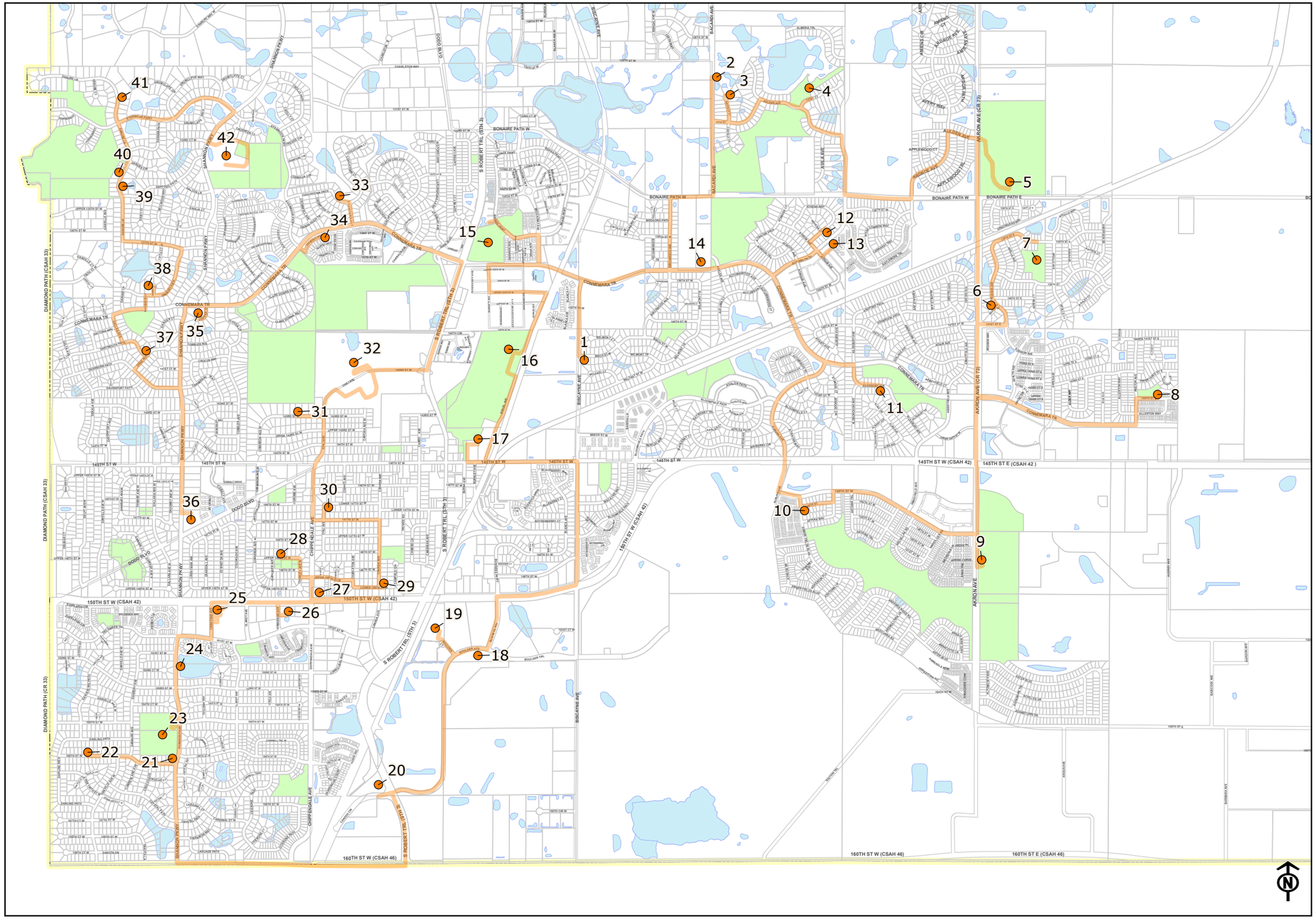
As with previous rounds of sampling, the City measured manganese concentrations for all samples and also sent companion samples to Minnesota Valley Testing Lab (MVTL) for independent third-party analysis.

- For the Commissioners' information, the following materials have been included:A summary table of all results from the February/March (Q1 2025) and May (Q2 2025) sampling periods, showing manganese concentration data from both the City (orange) and MVTL (blue) analyses
- A chart plotting the MVTL analysis results for both Q1 and Q2 samples
- Tables detailing the pumping contributions from each well on the sample collection days
- The sample results reports from MVTL for Q1 & Q2

Staff will continue to conduct an additional one to two quarterly rounds of samples to get a complete annual cycle's worth of data, which will then be taken in totality as a basis for discussion and consideration of next steps by the City.

RECOMMENDATION

Informational only



Sequence	Name
1	2470 Birch St W
2	13010 Bacardi Ave (Well 16)
3	13012 AYRFIELD CT
4	13202 Aulden Ave
5	1201 Bonaire Path E
6	14019 Addison Ct
7	1268 138th St E
8	1671 144th St E
9	14860 Akron Ave
10	1546 149Th St W
11	14191 Ailesbury Ave
12	13595 Athena Way
13	13610 Autumn Path (Well 15)
14	13581 Azalea Ave (Well 14)
15	13660 Bronze Pkwy (Brockway Park)
16	14115 Brazil Ave
17	14455 Brazil Ave
18	15210 Boulder Ave (Well 12)
19	15191 Boulder Ct
20	15641 Canada Cir
21	15623 Shannon Pkwy (Well 8)
22	4241 156th St W
23	15425 Shannon Pkwy
24	15260 Shannon Pkwy (Well 9)
25	3860 150th St W
26	15026 Cimarron Ave
27	14950 Chippendale Ave (Well 7)
28	3625 Upper 148th St W
29	14976 Canada Ave
30	3410 Lower 147th St W
31	3559 143rd St W
32	3335 142nd St W
33	3409 COUCHTOWN PATH
34	3462 CRUMFIELD PATH
35	13919 Copper Ct
36	14700 Shannon Pkwy
37	14099 Dane Ave
38	13815 DANBURY CT
39	13466 DANUBE LN
40	13403 Danube Ln
41	13166 DANUBE LN
42	13501 Shannon Pkwy

ROSEMOUNT
MINNESOTA

Manganese Testing

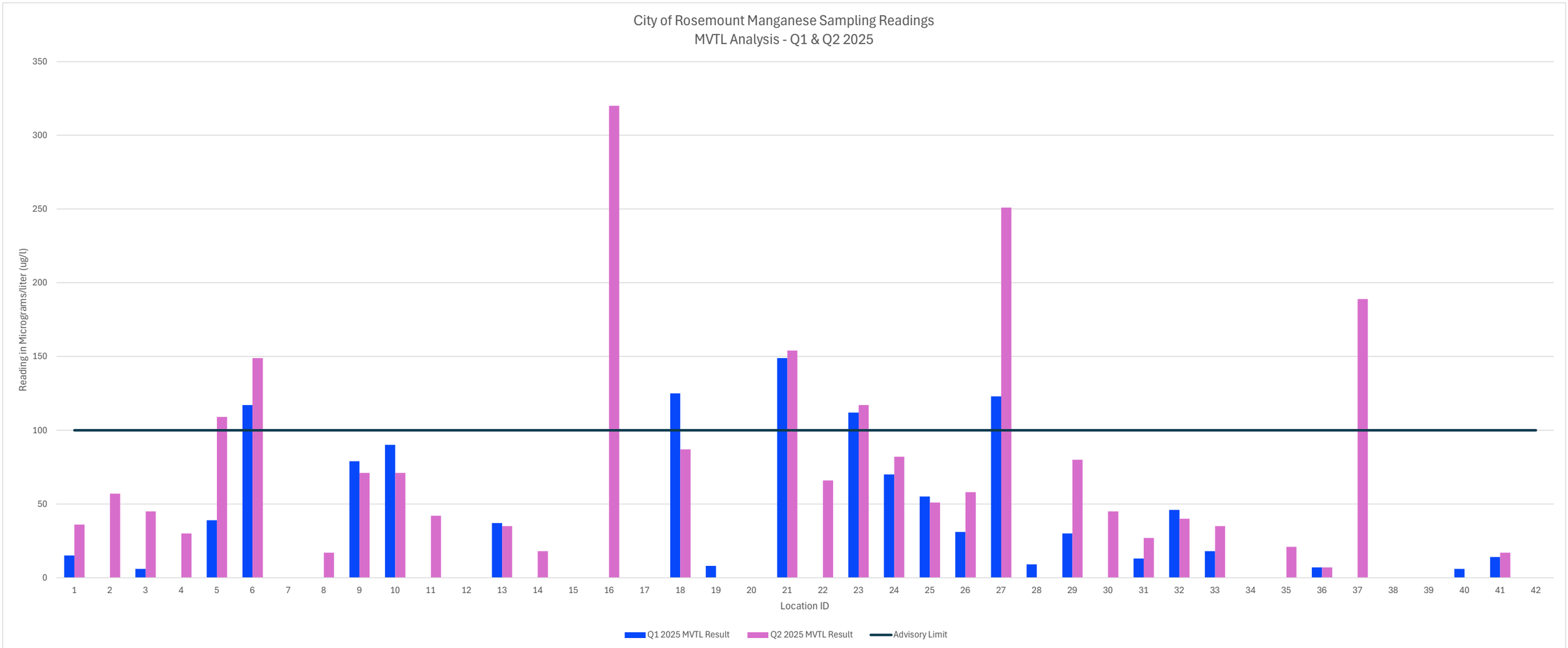
2025

Stops
Suggested Route

Path: C:\Users\mdh\OneDrive - ci.rosemount.mn.us\GIS Projects\Water Utility - Manganese Testing\2024\Manganese.aprx

WATER SAMPLING OF MANGANESE LEVELS

						Q1 2025						Q2 2025					
Sequence	Location	Property Type	Water Softener	Filtered	Source	Sample Date	City Analysis Result mg/L	City Analysis Result ug/L	MVTL Analysis Result mg/L	MVTL Analysis Result ug/L	Water Hardness Test	Sample Date	City Analysis Result mg/L	City Analysis Result ug/L	MVTL Analysis Result mg/L	MVTL Analysis Result ug/L	Water Hardness Test
1	14455 Brazil Ave	Central Park	No		Slop sink	2/5/2025	0.040	40.0	0.015	15.0	15	5/5/2025	0.057	57.0	0.036	36.0	25
2	14115 Brazil Ave	Erickson Park	No		Slop sink			0.0				5/5/2025	0.086	86.0	0.057	57.0	15
3	3335 142nd Street W	Rosemount High School	No		Slop Sink	2/5/2025	0.036	36.0	0.006	6.0	15	5/5/2025	0.061	61.0	0.045	45.0	15
4	13660 Bronze Pkwy	Brockway Park	No		Drinking Fountain			0.0				5/5/2025	0.056	56.0	0.030	30.0	18
5	2470 Birch Street W	Residence	No		Hose bib	2/5/2025	0.078	78.0	0.039	39.0	15	5/5/2025	0.185	185.0	0.109	109.0	15
6	13581 Azalea Ave (Well 14)	Well	No		Pre Treatment	2/5/2025	0.135	135.0	0.117	117.0	20	5/6/2025	0.176	176.0	0.149	149.0	20
7	14191 Ailesbury Ave	Residence	No		Hose bib			0.0									
8	13595 Athena Way	Residence	No		Hose bib	2/5/2025	0.003	3.0	0.006	6.0	0	5/5/2025	0.043	43.0	0.017	17.0	20
9	13610 Autumn Path (Well 15)	Well	No		Pre Treatment	2/5/2025	0.104	104.0	0.079	79.0	20	5/6/2025	0.100	100.0	0.071	71.0	25
10	13010 Bacardi Ave (Well 16)	Well	No		Pre Treatment	2/5/2025	0.116	116.0	0.090	90.0	18	5/6/2025	0.114	114.0	0.071	71.0	25
11	13202 Aulden Ave	Horseshoe Park	No		Drinking Fountain			0.0				5/5/2025	0.051	51.0	0.042	42.0	18.0
12	1201 Bonaire Path E	Flint Hills	No		Drinking Fountain			0.0									
13	14019 Addison Court	Residence	No		Hose bib	2/5/2025	0.054	54.0	0.037	37.0	17	5/5/2025	0.046	46.0	0.035	35.0	15
14	1268 138th Street E	Greystone Park	No		Drinking Fountain			0.0				5/5/2025	0.047	47.0	0.018	18.0	20
15	1671 144th Street E	Residence	Yes		Hose bib			0.0				5/5/2025	0.010	10.0	<.005	n/a	1
16	14860 Akron Ave	U More Park	No		Drinking Fountain			0.0				5/5/2025	0.347	347.0	0.320	320.0	18
17	1546 149th Street W	Residence	No		Hose bib			0.0									
18	15210 Boulder Ave (Well 12)	Well	No		Pre Treatment	2/5/2025	0.236	236.0	0.125	125.0	18	5/6/2025	0.118	118.0	0.087	87.0	25
19	15191 Boulder Court	On Time Plumbing	Yes		Slop sink	2/5/2025	0.006	6.0	0.008	8.0	18	5/5/2025	0.006	6.0	<.005	n/a	2
20	15641 Canada Circle	CA Gear	Yes		Sink with softner	2/5/2025	0.000	0.0	<.005	n/a	2	5/5/2025	0.000	0.0	<.005	n/a	0
21	15623 Shannon Pkwy (Well 8)	Well	No		Pre Treatment	2/5/2025	0.185	185.0	0.149	149.0	20	5/6/2025	0.189	189.0	0.154	154.0	25
22	4241 156th Street W	Residence	No		Hose bib			0.0				5/5/2025	0.063	63.0	0.066	66.0	16
23	15425 Shannon Pkwy	Jaycee Park	No		Slop sink	2/5/2025	0.139	139.0	0.112	112.0	20	5/5/2025	0.148	148.0	0.117	117.0	25
24	15260 Shannon Pkwy (Well 9)	Well	No		Pre Treatment	2/5/2025	0.100	100.0	0.070	70.0	18	5/6/2025	0.093	93.0	0.082	82.0	25
25	3860 150th Street W	Chuck and Don's	No		Slop sink	2/5/2025	0.071	71.0	0.055	55.0	18	5/5/2025	0.070	70.0	0.051	51.0	20
26	15026 Cimarron Ave	Goodyear	No		Slop sink	2/5/2025	0.046	46.0	0.031	31.0	18	5/5/2025	0.075	75.0	0.058	58.0	25
27	14950 Chippendale Ave (Well 7)	Well	No		Pre Treatment	2/5/2025	0.158	158.0	0.123	123.0	20	5/6/2025	0.361	361.0	0.251	251.0	25
28	3625 Upper 148th Street W	Residence	No		Hose bib	2/5/2025	0.011	11.0	0.009	9.0	2						
29	14976 Canada Ave	Residence	No		Hose bib	2/5/2025	0.055	55.0	0.030	30.0	18	5/5/2025	0.067	67.0	0.080	80.0	25
30	3410 Lower 147th Street W	Residence	No		Hose bib			0.0				5/5/2025	0.058	58.0	0.045	45.0	25
31	3559 143rd Street W	Residence	No		Hose bib	2/5/2025	0.051	51.0	0.013	13.0	18	5/5/2025	0.127	127.0	0.027	27.0	25
32	14700 Shannon Pkwy	Fire Station # 1	No		Slop sink	2/5/2025	0.081	81.0	0.046	46.0	20	5/5/2025	0.067	67.0	0.040	40.0	20
33	14099 Dane Ave	Residence	No		Hose bib	2/5/2025	0.079	79.0	0.018	18.0	18	5/5/2025	0.063	63.0	0.035	35.0	25
34	13919 Copper Court	Residence	No		Hose bib			0.0									
35	13403 Danube Lane	Residence	No		Hose bib			0.0				5/5/2025	0.045	45.0	0.021	21.0	25
36	13501 Shannon Pkwy	Shannon Park Elementary	No		Slop sink	2/5/2025	0.041	41.0	0.007	7.0	20	5/5/2025	0.033	33.0	0.007	7.0	25
37	3462 Crumfield Path	Residence	No		Hose bib			0.0				5/5/2025	0.055	55.0	0.189	189.0	25
38	13466 Danube Lane	Residence	No		Kitchen Sink			0.0									
39	3409 Couchtown Path	Residence	No		Kitchen Sink			0.0									
40	13815 Danbury Court	Residence	Yes		Hose bib	3/17/2025	0.009	9.0	0.006	6.0	2	5/5/2025	0.004	4.0	<.005	n/a	0
41	13166 Dunabe Lane	Residence	No		Hose bib	3/17/2025	0.043	43.0	0.014	14.0	25	5/5/20225	0.035	35.0	0.017	17.0	25
42	13012 Ayrfield Court	Residence	No		Kitchen Sink	3/17/2025	0.027	27.0			25						
43	13815 Danbury Court	Residence			Hose bib	3/17/2025	0.009	9.00			2						


City of Rosemount Manganese Sampling Readings
MVTL Analysis - Q1 & Q2 2025
Reading in Micrograms/liter (ug/l)
350
300
250
200
150
100
50
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42
Location ID
Q1 2025 MVTL Result
Q2 2025 MVTL Result
Advisory Limit

Q1 2025

Sampe Dates 2/5 - 2/7/2025 & 3/15 - 3/19/2025

Date	Well 7 (kGal)	Well 8 (kGal)	Well 9 (kGal)	Well 12 (kGal)	Well 14 (kGal)	Well 15 (kGal)	Well 16 (kGal)	Rural Well P1-North	Rural Well P2-South
2/3/2025	0	0	666	0	0	871	0	0	233
2/4/2025	4	19	548	13	14	715	32	63	144
2/5/2025	0	0	661	0	0	864	0	156	0
2/6/2025	0	0	643	0	0	839	0	0	164
2/7/2025	0	0	599	0	0	783	0	156	0
Samples from Utility Commissioners' and Concil Members' Residences									
3/15/2025	0	0	642	0	0	0	731	0	35
3/16/2025	0	0	768	0	0	0	872	0	124
3/17/2025	0	0	648	0	0	0	738	227	0
3/18/2025	0	0	629	0	0	0	716	0	228
3/19/2025	0	0	636	0	0	0	723	192	0

Q2 2025

Sample Dates 5/5 - 5/6/2025

Date	Well 7 (kGal)	Well 8 (kGal)	Well 9 (kGal)	Well 12 (kGal)	Well 14 (kGal)	Well 15 (kGal)	Well 16 (kGal)	Rural Well P1-North	Rural Well P2-South
5/3/2025	0	0	1145	949	0	0	0	95	120
5/4/2025	0	0	1287	1079	0	0	337	107	0
5/5/2025	0	0	1328	1119	0	0	783	123	134
5/6/2025	21	6	1331	1120	3	1075	962	34	108
5/7/2025	0	0	1355	1142	263	564	844	36	43
5/8/2025	0	107	1344	1132	220	913	1073	43	52

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 515-382-5486 ~ Fax 515-382-3885
www.MVTL.com

Account #: 18024 **Client:** Rosemount, City Of
Workorder: Water Testing (77682)

Chuck Jacobus
Rosemount, City of
2875 145th Street W
Rosemount, MN 55068-4997

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Dave Smahel, Chemistry Production Director New Ulm, MN

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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www.MVTL.com

Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682001 **Date Collected:** 02/04/2025 15:40 **Matrix:** Potable Water
Sample ID: 5 2470 Birch St **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.039**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 10:22	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682002 **Date Collected:** 02/04/2025 12:00 **Matrix:** Potable Water
Sample ID: 28 3625 Upper 148th St **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.009**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 10:23	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682003 **Date Collected:** 02/05/2025 05:45 **Matrix:** Potable Water
Sample ID: 13 14019 Addison Ct **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.037**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 10:25	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682004 **Date Collected:** 02/05/2025 11:40 **Matrix:** Potable Water
Sample ID: 33 14099 Dane Ave **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.018**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 10:26	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682005 **Date Collected:** 02/05/2025 11:00 **Matrix:** Potable Water
Sample ID: 8 13595 Athena Way **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.006**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 10:27	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682006 **Date Collected:** 02/05/2025 07:45 **Matrix:** Potable Water
Sample ID: 6 13581 Azalea Ave **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.117**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 10:29	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682007 **Date Collected:** 02/05/2025 08:20 **Matrix:** Potable Water
Sample ID: 27 14950 Chippendale **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.123**	mg/L	0.005	1	02/11/2025 13:24	02/11/2025 14:17	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682008 **Date Collected:** 02/05/2025 08:10 **Matrix:** Potable Water
Sample ID: 21 15623 Shannon Pkwy **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.149**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 10:30	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682009 **Date Collected:** 02/05/2025 09:20 **Matrix:** Potable Water
Sample ID: 9 13610 Autumn Path **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.079**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 10:31	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682010 **Date Collected:** 02/05/2025 08:40 **Matrix:** Potable Water
Sample ID: 18 15210 Boulder Ave **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.125**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 10:48	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682011 **Date Collected:** 02/05/2025 08:00 **Matrix:** Potable Water
Sample ID: 24 15260 Shannon Pkwy **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.070**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 10:49	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682012 **Date Collected:** 02/04/2025 09:00 **Matrix:** Potable Water
Sample ID: 10 13010 Bacardi Ave **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.090**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 10:50	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682013 **Date Collected:** 02/04/2025 07:35 **Matrix:** Potable Water
Sample ID: 29 14976 Canada Ave **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.030**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 10:51	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682014 **Date Collected:** 02/03/2025 11:00 **Matrix:** Potable Water
Sample ID: 31 3559 143rd St. W. **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.013**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 10:53	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682015 **Date Collected:** 02/03/2025 09:00 **Matrix:** Potable Water
Sample ID: 3 3335 142nd St. W. **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.006**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 10:54	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682016 **Date Collected:** 02/03/2025 09:54 **Matrix:** Potable Water
Sample ID: 1 14455 Brazil Ave **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.015**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 10:56	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682017 **Date Collected:** 02/03/2025 10:10 **Matrix:** Potable Water
Sample ID: 26 15026 Cimarron Ave **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.031**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 10:57	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682018 **Date Collected:** 02/03/2025 10:18 **Matrix:** Potable Water
Sample ID: 25 3860 150th St. W **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.055**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 10:58	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682019 **Date Collected:** 02/03/2025 09:01 **Matrix:** Potable Water
Sample ID: 19 15191 Boulder Ct **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.008**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 11:00	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682020 **Date Collected:** 02/03/2025 09:15 **Matrix:** Potable Water
Sample ID: 20 15641 Canada Cir **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	<0.005	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 11:16	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682021 **Date Collected:** 02/03/2025 08:43 **Matrix:** Potable Water
Sample ID: 32 14700 Shannon Pkwy **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.046**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 11:18	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682022 **Date Collected:** 02/03/2025 09:34 **Matrix:** Potable Water
Sample ID: 23 15425 Shannon Pkwy **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.112**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 11:19	

Sample Comments

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 77682023 **Date Collected:** 02/03/2025 10:56 **Matrix:** Potable Water
Sample ID: 36 13501 Shannon Pkwy **Date Received:** 02/05/2025 13:20

Temp @ Receipt (C): 2.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.007**	mg/L	0.005	1	02/10/2025 08:37	02/10/2025 11:21	

Sample Comments

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 80783001 **Date Collected:** 03/17/2025 08:25 **Matrix:** Potable Water
Sample ID: 1 13815 Danbury Court **Date Received:** 03/17/2025 14:08

Temp @ Receipt (C): 3.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.006**	mg/L	0.005	1	03/19/2025 12:17	03/19/2025 14:39	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: sulfuric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 80783002 **Date Collected:** 03/17/2025 09:05 **Matrix:** Potable Water
Sample ID: 2 13166 Danube Lane **Date Received:** 03/17/2025 14:08

Temp @ Receipt (C): 3.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.014**	mg/L	0.005	1	03/19/2025 12:17	03/19/2025 14:44	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: sulfuric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 80783003 **Date Collected:** 03/17/2025 08:45 **Matrix:** Potable Water
Sample ID: 3 13012 Ayrfield Court **Date Received:** 03/17/2025 14:08

Temp @ Receipt (C): 3.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	<0.005	mg/L	0.005	1	03/19/2025 12:17	03/19/2025 14:46	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: sulfuric acid

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Account #: 18024 **Client:** Rosemount, City Of
Workorder: Manganese (85882)

Chuck Jacobus
Rosemount, City of
2875 145th Street W
Rosemount, MN 55068-4997

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Dave Smahel, Chemistry Production Director New Ulm, MN

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

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MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882001 **Date Collected:** 05/05/2025 08:40 **Matrix:** Potable Water
Sample ID: 1 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.036**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 09:39	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882002 **Date Collected:** 05/05/2025 09:00 **Matrix:** Potable Water
Sample ID: 2 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.057**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 09:40	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882003 **Date Collected:** 05/05/2025 09:15 **Matrix:** Potable Water
Sample ID: 3 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.045**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 09:42	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882004 **Date Collected:** 05/05/2025 09:30 **Matrix:** Potable Water
Sample ID: 4 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.030**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 09:43	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882005 **Date Collected:** 05/05/2025 09:00 **Matrix:** Potable Water
Sample ID: 5 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.109**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 09:59	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882006 **Date Collected:** 05/06/2025 08:45 **Matrix:** Potable Water
Sample ID: 6 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.149**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:00	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882007 **Date Collected:** 05/05/2025 11:15 **Matrix:** Potable Water
Sample ID: 8 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.017**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:01	

Sample Comments

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882008 **Date Collected:** 05/06/2025 07:40 **Matrix:** Potable Water
Sample ID: 9 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.071**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:02	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882009 **Date Collected:** 05/06/2025 08:30 **Matrix:** Potable Water
Sample ID: 10 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.071**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:03	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882010 **Date Collected:** 05/05/2025 09:45 **Matrix:** Potable Water
Sample ID: 11 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.042**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:05	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882011 **Date Collected:** 05/05/2025 09:55 **Matrix:** Potable Water
Sample ID: 13 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.035**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:06	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882012 **Date Collected:** 05/05/2025 10:05 **Matrix:** Potable Water
Sample ID: 14 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.018**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:07	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882013 **Date Collected:** 05/05/2025 10:20 **Matrix:** Potable Water
Sample ID: 15 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	<0.005	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:08	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882014 **Date Collected:** 05/05/2025 10:45 **Matrix:** Potable Water
Sample ID: 16 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.320**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:10	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882015 **Date Collected:** 05/06/2025 07:50 **Matrix:** Potable Water
Sample ID: 18 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.087**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:26	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882016 **Date Collected:** 05/05/2025 09:20 **Matrix:** Potable Water
Sample ID: 19 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	<0.005	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:27	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882017 **Date Collected:** 05/05/2025 09:35 **Matrix:** Potable Water
Sample ID: 20 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	<0.005	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:28	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882018 **Date Collected:** 05/06/2025 07:25 **Matrix:** Potable Water
Sample ID: 21 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.154**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:30	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882019 **Date Collected:** 05/05/2025 11:00 **Matrix:** Potable Water
Sample ID: 22 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.066**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:31	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882020 **Date Collected:** 05/05/2025 09:50 **Matrix:** Potable Water
Sample ID: 23 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.117**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:32	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882021 **Date Collected:** 05/06/2025 08:20 **Matrix:** Potable Water
Sample ID: 24 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.082**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:33	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882022 **Date Collected:** 05/05/2025 10:00 **Matrix:** Potable Water
Sample ID: 25 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.051**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:34	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882023 **Date Collected:** 05/05/2025 10:11 **Matrix:** Potable Water
Sample ID: 26 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.058**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:35	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882024 **Date Collected:** 05/06/2025 13:30 **Matrix:** Potable Water
Sample ID: 27 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.251**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:36	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882025 **Date Collected:** 05/05/2025 10:19 **Matrix:** Potable Water
Sample ID: 29 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.080**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:52	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882026 **Date Collected:** 05/05/2025 09:50 **Matrix:** Potable Water
Sample ID: 30 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.045**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:53	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882027 **Date Collected:** 05/05/2025 09:40 **Matrix:** Potable Water
Sample ID: 31 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.027**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:54	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882028 **Date Collected:** 05/05/2025 08:55 **Matrix:** Potable Water
Sample ID: 32 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.040**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:56	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882029 **Date Collected:** 05/05/2025 10:30 **Matrix:** Potable Water
Sample ID: 33 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.035**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:57	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882030 **Date Collected:** 05/05/2025 10:38 **Matrix:** Potable Water
Sample ID: 35 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.021**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:58	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882031 **Date Collected:** 05/05/2025 10:48 **Matrix:** Potable Water
Sample ID: 36 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.007**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 10:59	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882032 **Date Collected:** 05/05/2025 10:57 **Matrix:** Potable Water
Sample ID: 37 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.189**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 11:00	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 515-382-5486 ~ Fax 515-382-3885
www.MVTL.com

Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882033 **Date Collected:** 05/05/2025 10:40 **Matrix:** Potable Water
Sample ID: 40 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	<0.005	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 11:01	

Sample Comments

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Account #: 18024 **Client:** Rosemount, City Of

Analytical Results

Lab ID: 85882034 **Date Collected:** 05/05/2025 11:10 **Matrix:** Potable Water
Sample ID: 41 **Date Received:** 05/07/2025 13:37

Temp @ Receipt (C): 3.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: EPA 200.7							
Manganese	**0.017**	mg/L	0.005	1	05/12/2025 09:14	05/12/2025 11:03	

Sample Comments

This sample was either unpreserved or needed additional preservation upon receipt at the laboratory. The following preservation was added by MVTL: nitric acid

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Member ACIL

Account #: 18024 **Client:** Rosemount, City Of

Minnesota Valley Testing Laboratories, Inc.
1126 North Front Street, Building 2
New Ulm, MN 56073
Phone: (507) 354-8517
Toll Free: (800) 782-3557 Fax: (507) 359-2890

Rosemount, City Of
WO: 85882

Chain of Custody Record
Page 1 of 4

Work Order #
Email:

Company Name and Address:
City of Rosemount
2875 145th Street PO Box 510
Rosemount, MN 55068

Account #: 18024 Phone #: 651-322-2022

Contact (Report to): Chuck Jacobus — chuck.jacobus@ci.rosemount.mn.us
Name of Samplers: — douh.holzer@rosemount.mn.us

Billing Address (indicate if different from above):

Quote Number
Date Submitted:
Project Name/Number:
Purchase Order #:

	Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Time:	Temp:
1.	RBcl	7May25	1100	ROI	RBcl	7May25	1332	3.7
2.				ROI	CM	7May25	1337/1410	3.7 CtM774

Comments: CM 7DC

Sample Information

Sample Type Codes: Drinking Water = DW, Groundwater = GW, Stormwater = ST, Surface Water = SW, Wastewater = WW, Solid = S, Compost = C

Lab Use Only Lab #	Sample ID	Sample Type	Date Sampled	Time Sampled	Number of Bottles	Analysis
001	1	Potable	5-5-25	0840	1	Manganese
002	2	Potable	5-5-25	900	1	Manganese
003	3	Potable	5-5-25	915	1	Manganese
004	4	Potable	5-5-25	930	1	Manganese
005	5	Potable	5-5-25	900	1	Manganese
006	6	Potable	5-6-25	845AM	1	Manganese
007	8	Potable	5-5-25	1115AM	1	Manganese
008	9	Potable	5-6-25	740AM	1	Manganese
009	10	Potable	5-6-25	830AM	1	Manganese
010	11	Potable	5-5-25	945	1	Manganese
011	13	Potable	5-5-25	955	1	Manganese

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Member ACIL

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New Ulm, MN 56073
Phone: (507) 354-8517
Toll Free: (800) 782-3557 Fax: (507) 359-2890

Lab Use Only

Chain of Custody Record Page 2 of 4

Work Order #

Email:

Company Name and Address:
City of Rosemount
2875 145th Street PO Box 510
Rosemount, MN 55068

Account #: 18024 Phone #: 651-322-2022

Billing Address (indicate if different from above):

Contact (Report to): Chuck Jacobus — chuck.jacobus@ci.rosemount.mn.us
Name of Samplers: douh.holzer@rosemount.mn.us

Quote Number | Date Submitted:
Project Name/Number: | Purchase Order #:

	Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Time:	Temp:
1.	TRBell	7May25	1102	Cool	TRBell	7May25	1357	3.7
2.								

Comments:

Sample Information

Sample Type Codes: Drinking Water = DW, Groundwater = GW, Stormwater = ST, Surface Water = SW, Wastewater = WW, Solid = S, Compost = C

Lab Use Only Lab #	Sample ID	Sample Type	Date Sampled	Time Sampled	Number of Bottles	Analysis
012	14	Potable	5-5-25	1005	1	Manganese
013	15	Potable	5-5-25	1020	1	Manganese
014	16	Potable	5-5-25	1045	1	Manganese
015	18	Potable	5-6-25	750AM	1	Manganese
016	19	Potable	5-5-25	920	1	Manganese
017	20	Potable	5-5-25	935	1	Manganese
018	21	Potable	5-6-25	725AM	1	Manganese
019	22	Potable	5-5-25	1100	1	Manganese
020	23	Potable	5-5-25	950	1	Manganese
021	24	Potable	5-6-25	820AM	1	Manganese
022	25	Potable	5-5-25	1000	1	Manganese

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Member ACIL

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New Ulm, MN 56073
Phone: (507) 354-8517
Toll Free: (800) 782-3557 Fax: (507) 359-2890

Chain of Custody Record Page 3 of 4

Lab Use Only

Work Order #

Email:

Company Name and Address:
City of Rosemount
2875 145th Street PO Box 510
Rosemount, MN 55068

Contact (Report to): Chuck Jacobus — chuck.jacobus@ci.rosemount.mn.us
Name of Samplers: douh.holzer@rosemount.mn.us

Account #: 18024 Phone #: 651-322-2022

Billing Address (indicate if different from above):

Quote Number | Date Submitted:
Project Name/Number: | Purchase Order #:

	Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Time:	Temp:
1.	RBell	7May25	1100	Post	RBell	7May25	1337	3.7
2.								

Comments: TM77K

Sample Information

Sample Type Codes: Drinking Water = DW, Groundwater = GW, Stormwater = ST, Surface Water = SW, Wastewater = WW, Solid = S, Compost = C

Lab Use Only Lab #	Sample ID	Sample Type	Date Sampled	Time Sampled	Number of Bottles	Analysis
023	26	Potable	5-5-25	1011	1	Manganese
024	27	Potable	5-6-25	1330PM	1	Manganese
025	29	Potable	5-5-25	1019	1	Manganese
026	30	Potable	5-5-25	950AM	1	Manganese
027	31	Potable	5-5-25	940AM	1	Manganese
028	32	Potable	5-5-25	855	1	Manganese
029	33	Potable	5-5-25	1030	1	Manganese
030	35	Potable	5-5-25	1038	1	Manganese
031	36	Potable	5-5-25	1048	1	Manganese
032	37	Potable	5-5-25	1057	1	Manganese
033	40	Potable	5/5	10:40	1	Manganese

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Phone: (507) 354-8517
Toll Free: (800) 782-3557 Fax: (507) 359-2890

Lab Use Only

Chain of Custody Record
Page 4 of 4

Company Name and Address:
City of Rosemount
2875 145th Street PO Box 510
Rosemount, MN 55068

Account #: 18024 Phone #: 651-322-2022

Billing Address (indicate if different from above):

Work Order #
Email:

Contact (Report to): Chuck Jacobus — chuck.jacobus@ci.rosemount.mn.us
Name of Samplers: douh.holzer@rosemount.mn.us

Quote Number
Date Submitted:
Project Name/Number:
Purchase Order #:

	Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Time:	Temp:
1.	RBell	7May25	1140	Rec'd	RBell	7May25	1337	3.7
2.								

Comments: TM 7/24

Sample Information

Sample Type Codes: Drinking Water = DW, Groundwater = GW, Stormwater = ST, Surface Water = SW, Wastewater = WW, Solid = S, Compost = C

Lab Use Only Lab #	Sample ID	Sample Type	Date Sampled	Time Sampled	Number of Bottles	Analysis
034	41	Potable	5-5-25	1110	1	Manganese
035		Potable			1	Manganese
036		Potable			1	Manganese
037		Potable			1	Manganese
038		Potable			1	Manganese
039		Potable			1	Manganese
040	BAI 07May25	Potable			1	Manganese
041		Potable			1	Manganese
042		Potable			1	Manganese
043		Potable			1	Manganese
044		Potable			1	Manganese

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Chain of Custody Record Page 3 of 4

Lab Use Only

Work Order #

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Project Name/Number:

Date Submitted:

Purchase Order #:

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1.	RBell	7May25	1140	Pos+	RBell	7May25	1337	3.7
2.								

Comments: TM77K

Sample Information

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Lab Use Only Lab #	Sample ID	Sample Type	Date Sampled	Time Sampled	Number of Bottles	Analysis
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	27	Potable	5-6-25	1330PM	1	Manganese
	29	Potable	5-5-25	1019	1	Manganese
	30	Potable	5-5-25	950AM	1	Manganese
	31	Potable	5-5-25	940AM	1	Manganese
	32	Potable	5-5-25	855	1	Manganese
	33	Potable	5-5-25	1030	1	Manganese
	35	Potable	5-5-25	1038	1	Manganese
	36	Potable	5-5-25	1048	1	Manganese
	37	Potable	5-5-25	1057	1	Manganese
	40	Potable	5/5	10:40	1	Manganese

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Please submit the top copy with your samples. We will return the completed original with your results.

This is an exact copy of the original document
By GM Date 7May25

emailed for date and time 7 May 25 BZ per Chuck

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Account #: 18024 **Client:** Rosemount, City Of

Sample Condition Checklist

Date: 7may25
Time: 1337 1410 ☐ AM ☑ PM
By: CM
Account Name: City of Rosemount
Account # 18024
Bill of Lading #:
Cooler #:
Temp: 3.7 °C
ROI ☑ Ambient ☐
Tracking #:
TM#: 774
Ice Crystals Present in Sample ☐
MVTL Courier: Tim
Other:
MVTL Route: eastern -2
Walk-In ☐ Mail ☐ UPS Air ☐ UPS Ground ☐ FedEx Air ☐ Fed Ex Ground ☐ SpeeDee ☐
Containers Supplied by MVTL: Yes ☑ No ☐ Designate customer supplied containers as "Other" in container size column
Comments:

Number	Containers Size (mL)	Container Type	Preservation	pH
34	(100) (120) (125) (250) (290) [✓ (500)] (1000) Other	(G) [✓ (P)] (AG) (AP)	$NaHSO_4$ $Na_2O_3S_2$ [✓ NONE] HNO_3 H_2SO_4 NaOH HCl SUB*	<2 >9 >12 [✓ N/A] Add
	(100) (120) (125) (250) (290) (500) (1000) Other	(G) (P) (AG) (AP)	$NaHSO_4$ $Na_2O_3S_2$ NONE HNO_3 H_2SO_4 NaOH HCl SUB*	<2 >9 >12 N/A Add
	(100) (120) (125) (250) (290) (500) (1000) Other	(G) (P) (AG) (AP)	$NaHSO_4$ $Na_2O_3S_2$ NONE HNO_3 H_2SO_4 NaOH HCl SUB*	<2 >9 >12 N/A Add
	(100) (120) (125) (250) (290) (500) (1000) Other	(G) (P) (AG) (AP)	$NaHSO_4$ $Na_2O_3S_2$ NONE HNO_3 H_2SO_4 NaOH HCl SUB*	<2 >9 >12 N/A Add
	(100) (120) (125) (250) (290) (500) (1000) Other	(G) (P) (AG) (AP)	$NaHSO_4$ $Na_2O_3S_2$ NONE HNO_3 H_2SO_4 NaOH HCl SUB*	<2 >9 >12 N/A Add
	(100) (120) (125) (250) (290) (500) (1000) Other	(G) (P) (AG) (AP)	$NaHSO_4$ $Na_2O_3S_2$ NONE HNO_3 H_2SO_4 NaOH HCl SUB*	<2 >9 >12 N/A Add
	(100) (120) (125) (250) (290) (500) (1000) Other	(G) (P) (AG) (AP)	$NaHSO_4$ $Na_2O_3S_2$ NONE HNO_3 H_2SO_4 NaOH HCl SUB*	<2 >9 >12 N/A Add
	Low Level Mercury Kit	***!!DO NOT OPEN THE PLASTIC BAGS HOLDING THE SAMPLE BOTTLES!!***		
	4 oz Jar	Clear Amber	MeOH None	n/a
	2 oz Jar	Clear Amber	MeOH None	n/a
	Vials Individual Set of 2 Set of 3	Clear Amber	HCl H_3PO_4 H_2SO_4 None	n/a
	Vials Individual Set of 2 Set of 3	Clear Amber	HCl H_3PO_4 H_2SO_4 None	n/a
	Trip Blank Individual Set of 2 Set of 3	n/a		
	Moisture Vial	n/a		
	Manure Bottle	n/a		

***ANY CONTAINER SENT TO A SUBCONTRACT LABORATORY WILL NOT BE CHECKED FOR PRESERVATION!**

Form # 30-911001-0 Page 1 of 1 Effective Date: 29 September 2021

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ROSEMOUNT
MINNESOTA

EXECUTIVE SUMMARY

Utility Commission Regular Meeting: June 23, 2025

AGENDA ITEM:	2024 Rosemount Surface Water Quality Monitoring Program Report	**AGENDA SECTION:**	NEW BUSINESS
PREPARED BY:	Jane Byron, Stormwater Specialist	**AGENDA NO.**	7.a.
ATTACHMENTS:	2024 Rosemount Surface Water Monitoring Report	**APPROVED BY:**	NE
RECOMMENDED ACTION: Discussion			

BACKGROUND

The City of Rosemount (City) has been monitoring water quality and water levels in select ponds since 2009 to provide the city with data it uses to help guide stormwater water management activities. The City has monitored the following ponds for the last several years, including in 2024:

Monitoring Location	Drainage Area Information			Monitoring Activities		
	Basin Surface Area	Drainage Area	Percent (%) Impervious	Water Level	Apr-Oct Water Quality	Snow-melt Sampling
Location 1 – Marcotte 1408	1.90	27.4	17%	X	X	X
Location 2 – Glendalough 1486	1.39	142.8	25%	X	X	
Location 3 – Trailer Park 1589	0.87	37.2	37%	X	X	
Location 4 – Unnamed 1687	0.55	58.8	25%	X	X	
Location 5 – Cat 1716	0.55	169.2	30%	X	X	X
Location 6 – Erickson 578	2.26	166.2	39%	X	X	X
Location 7 – Bloomfield 1864	0.79	37.3	35%	X	X	X
Location 8 – O'Leary's 600	5.56	125.5	43%	X	X	
Location 9 – Wachter 2443	5.1	384.8	41%	X	X	X
Location 10 – Shannon 614	3.17	176.8	36%	X	X	
Location 11 – Greystone 0232[1]	0.58	25.1	45%	X		
Birger Pond						X

Basins are monitored for total suspended solids (TSS), total phosphorus (TP), ortho-phosphate (OP), chloride, and nitrogen (new in 2022). Water levels are used to evaluate level fluctuations, runoff volumes, and infiltration rates.

Here are some key takeaways from the report:

- Water level monitoring shows Wachter Pond is consistently exceeding its management elevation

by several feet, and Shannon Pond has had an increasing trend over the last 10 years and frequently exceeds its management elevation.

- Water levels at Bloomfield Pond, Shannon Pond, and Wachter Pond have remained stable and not dropped despite four years of drought.
- Basins with higher estimated runoff volumes have tended to be those with higher impervious surface coverage or that receive large amounts of flow from upstream basins.
- Estimated city-wide infiltration rates have exceeded the estimated infiltration rate from the 2009 Non-Degradation Report, but have shown a decreasing trend until 2023 and 2024.
- The city-wide long-term median TSS shows overall effective treatment in monitored basins.
- The city-wide long-term median TP is within the anticipated range for treated stormwater.
- OP on average has been 18 percent of the TP that was observed, which is much lower than the expected range when the source is plant litter and lawns.
- There has been an increasing trend in chloride concentrations since 2014.
- Select city ponds have periodically exceeded the chronic or acute chloride standard; Erickson Pond was the only pond to exceed the chloride chronic standard in 2024.
- Nitrate concentrations are well below the proposed chronic nitrate standard for Class 2B waters.

It should be noted, growing season monitoring for Birger Pond in Innisfree Park is not contained in this report. Birger Pond is monitored by a citizen volunteer as part of the MetCouncil Community-Assisted Monitoring Program (CAMP).

RECOMMENDATION

Discuss the 2024 Surface Water Quality Monitoring Program Report.

ROSEMOUNT
MINNESOTA

WATER QUALITY MONITORING PROGRAM

CITY OF ROSEMOUNT

ROSEMOUNT, MN

March 18, 2025

Prepared for:
City of Rosemount
2875 145th Street West
Rosemount, MN 55068

WSB PROJECT NO. R-025921

wsb

TABLE OF CONTENTS

ATTACHMENTS

1. EXECUTIVE SUMMARY

The City of Rosemount (City) has implemented a water quality monitoring program since 2009 that provides the city with empirical data that can be used to help guide stormwater water management activities. The City has monitored between 10-12 basins annually for water quality parameters including total suspended solids (TSS), total phosphorus (TP), orthophosphate (OP), chloride, and nitrogen (new in 2022). Water levels are also monitored to evaluate level fluctuation, runoff volumes, and infiltration rates. This report provides a summary of the results of data collection activities from 2014-2024.

The monitoring data is used to fulfill multiple MS4 program requirements in minimum control measures (MCMs) 5 and 6 related to inspection, long-term operation, and maintenance of infiltration Best Management Practices (BMPs). The water level data is used to observe fluctuations in basin levels, especially landlocked basins, to protect adjacent structures from flooding risks. Observed infiltration rates were compared to infiltration results outlined in the City's Non-Degradation Report. Runoff ratios for the individual basins are calculated using localized rainfall data and level data and were evaluated against impervious surface percentages and land use types.

Water quality is utilized to determine if basins are meeting anticipated pollutant removal efficiencies for total suspended solids and total phosphorus. Additionally, snowmelt sampling is conducted to assess winter pollutant concentrations associated with snowmelt runoff.

Data collection activities were conducted from May through October each year, with snowmelt sampling occurring during the winter. Basins that are monitored for level are equipped with an electronic monitoring device that records continuously. Event-based rainfall is also monitored at several locations within the City to provide localized rainfall totals. Water quality samples are collected as grab samples monthly.

A summary of the notable findings from the monitoring activities include:

Water Level Monitoring

- Landlocked basins Location 9 (Watcher) and Location 10 (Shannon) have shown a significant increasing trend in minimum, maximum, and average water levels in past years monitoring, but saw lower levels starting in 2021 and continuing through 2023. That trend was reversed in 2024, with the minimum, maximum, and average water levels increasing at both locations. Management activities at those sites should be evaluated to ensure adequate storage capacity and acceptable water levels at those sites.
- The long-term City-wide Rainfall to Runoff (R/R) ratio was 0.21, which indicates that, on average 21 percent of rainfall ends up as runoff within the city.
- Infiltration monitoring has shown a 9-year average infiltration rate of 0.063 inches per hour (in/hr) City-wide. The 2024 infiltration rate of 0.095 in/hr was above the 9-year average.

Water Quality Monitoring

2024 monitoring season saw low amounts of rain and similar concentrations of pollutants at all locations, except for chlorides, which was higher at all locations.

TSS

- The long-term median concentration for TSS City-wide was 12 milligrams per liter (mg/L). The long term median TSS concentration ranged from 6 mg/L at Location 1 (Marcotte) to 34 mg/L at Location 10.

TP

- The long-term median TP City wide was 0.14 mg/L which is lower than the anticipated range for treated stormwater of 0.15 to 0.2 mg/L.

OP

- OP was noticeably greater at Location 6 than the other monitored basins, with a long-term median 0.091 mg/L. The next highest is Location 3 (Trailer Park Pond) with a long-term median of 0.050 mg/L. The drainage area to that basin includes a large area of open park space as well as drainage from a splashpad.

Chloride

- 2024 snowmelt sampling saw only Location 6 to exceed the 4-day chronic chloride standard (230 mg/L). In 2023, Location 6 snow melt sampling exceeded the maximum standard of 860 mg/L
- No other locations exceeded the 4-day chronic standard in 2024.
- Locations 6 and 9 contain areas of commercial and/or downtown land uses within their drainage areas, which is typically associated with higher salt use in the winter. This is reflected in the elevated chloride concentrations observed within the basins.

Nitrate

- Nitrate monitoring was new for 2022.
- Nitrate levels were very low throughout 2024.
- The highest nitrate concentration was 0.244 mg/L at Location 9 in February. The MPCA proposed chronic nitrate concentrations for Class 2B waters are 8 mg/L.

2. INTRODUCTION

The water quality monitoring program for the City of Rosemount (City) includes seasonal water data collection at select stormwater basins in the City. The data is used to fulfill multiple MS4 program requirements in minimum control measures (MCMs) 5 and 6 related to inspection, long-term operation, and maintenance of infiltration Best Management Practices (BMPs). The water quality monitoring program provides the City with empirical data that can be used for the following purposes:

- Guide Watershed and City Stormwater Plan Updates and discussions with observed runoff volumes and infiltration and evaporation rates.
- Identify potential areas to receive regional volume reduction credit through stormwater reuse applications.
- Validate pond treatment efficiencies from the SWAMP program with sampled Total Suspended Solids and Total Phosphorus concentrations.
- Supporting conclusions in the City's Non-Degradation Study with observed infiltration and evaporation data.
- Creating a baseline for discharge volumes and pollutant loading assumptions of possible future Total Maximum Daily Loads (TMDLs) in the Vermillion River and Mississippi River.
- Assessing winter pollutant concentration associated with snowmelt runoff.

Water level and water quality data were collected as part of this monitoring program to analyze basin performance and watershed characteristics. Water level and precipitation data was used to calculate runoff volumes for various storm events and to develop a relationship between rainfall and runoff for the drainage area. Water level data is utilized to generate infiltration and evaporation rates during periods of no rainfall. To evaluate these parameters, electronic monitoring equipment was used to continuously measure system water levels and rainfall amounts. The ponds selected for monitoring are summarized in **Table 2.1** below which also includes a description of basin and drainage area characteristics. In **Table 2.1**, Birger Pond was only monitored for snowmelt samples and has had water quality data collected by the Citizen-Assisted Monitoring Program (CAMP). The pond location maps are provided in **Attachment A** and include the drainage area and land use information.

Table 2.1: Pond Monitoring Locations

Monitoring Location	Drainage Area Information			Monitoring Activities		
	Basin Surface Area	Drainage Area	Percent (%) Impervious	Water Level	Apr-Oct Water Quality	Snow-melt Sampling
Location 1 – Marcotte 1408	1.90	27.4	17%	X	X	X
Location 2 – Glendalough 1486	1.39	142.8	25%	X	X	
Location 3 – Trailer Park 1589	0.87	37.2	37%	X	X	
Location 4 – Unnamed 1687	0.55	58.8	25%	X	X	
Location 5 – Cat 1716	0.55	169.2	30%	X	X	X
Location 6 – Erickson 578	2.26	166.2	39%	X	X	X
Location 7 – Bloomfield 1864	0.79	37.3	35%	X	X	X
Location 8 – O'Leary's 600	5.56	125.5	43%	X	X	
Location 9 – Wachter 2443	5.1	384.8	41%	X	X	X
Location 10 – Shannon 614	3.17	176.8	36%	X	X	
Location 11 – Greystone 0232[1]	0.58	25.1	45%	X		
Birger Pond						X

1 – Newly constructed basin added to the Monitoring Program in 2016.

3. PROCEDURES AND METHODOLOGY

This section outlines the procedures and methods followed to perform monitoring and data analysis.

3.1. Water Level Monitoring

Pond level monitoring was completed using automatic level loggers that record water surface elevation at an interval of one reading per hour. During equipment installation at the beginning of each monitoring season, a reference elevation is collected to convert monitored water depth into water surface elevation. Monthly data retrievals and equipment maintenance are completed in conjunction with water quality sampling activities.

Image 3.1: Level Monitoring Configuration

The water level data is utilized to calculate rainfall to runoff (R/R) ratio for each rainfall event. A R/R ratio represents the proportion of rainfall that is not infiltrated or evaporated and thus ends up as runoff. The purpose of calculating an R/R ratio is to establish a relationship that can be used to estimate runoff for a drainage area. The data can be used to calibrate stormwater models, compare runoff produced by different drainage areas, and to analyze changes in runoff volume over time for a specific basin. A R/R ratio is calculated by estimating the volume received by the basin from the change in water level over the pond surface area. The volume is then converted to inches of runoff per acre of contributing watershed area. The annually calculated R/R ratio is the linear regression of the event-based R/R calculations for each year.

The water level data is also utilized to calculate infiltration and evaporation rates for the monitored basins. This data can be used to calculate actual volume infiltrated, and the trend data can be used to help identify basins in need of maintenance. The infiltration rates are calculated by change in water level over time, when water levels are below outlet elevations (basin is not discharging). The rates that are calculated include infiltration and evaporation.

3.2. Water Quality Sampling

Water quality samples were collected as grab samples from Locations 1-10 monthly, approximately May through October of 2024. Winter snow melt sampling was also completed at basins 1, 5, 6, 7, 9, and Birger Pond. The samples were targeted for the mid-water column, to be representative of concentrations within the basin. Snow-melt sampling followed the general procedures outlined in the MPCA Guidance (MPCA, 2020). The samples were collected using an extension rod sampler which was rinsed three times before collection. The samples were then transferred into laboratory provided containers with the appropriate preservative, placed in a cooler on ice, and delivered to Tri-City Laboratory in Bloomington, MN. The samples were analyzed for the parameters listed in **Table 3.1** below. CAMP data collected on Birger Pond was collected by volunteers at two-week intervals from April through mid-october. Water Quality samples were collected over the deepest spot on Birger Pond, along with temperature and Secchi disk measurements.

Table 3.1: Water Quality Parameters

Monitoring Parameters
Total Suspended Solids
Total Phosphorus
Orthophosphate
Chloride
Nitrogen

4. RESULTS

4.1. Water Level Monitoring

Stormwater runoff from areas within the City of Rosemount is directed to various lakes, ponds, or depressions within the city, many of which are landlocked. Location 6, Location 7, Location 9, and Location 10 are basins that are closely monitored because in addition to localized runoff, these basins also receive discharge from upstream stormwater features, which makes them susceptible to significant water level increases during major events. The City has outlined specific management elevations and activities at these sites to ensure adequate capacity is maintained to effectively store and treat stormwater runoff.

Image 4.1: Water Level Monitoring (Location 6)

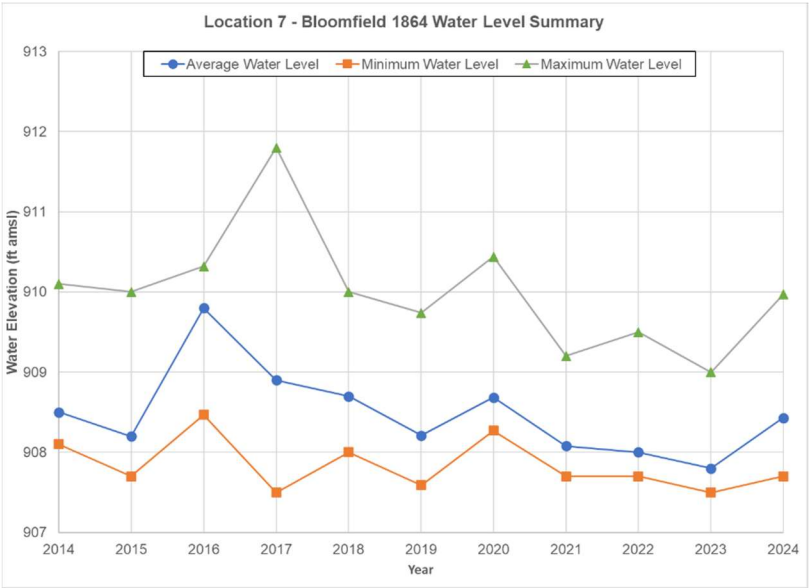
The water level data that has been collected was evaluated against the management elevations that were established for each of the basins. 2024 water level charts with hourly rainfall data are included in **Attachment B**. **Table 4.1** below includes a summary of the minimum and maximum water elevations that have been observed over the 2024 monitoring season at each site, as well as applicable management elevations and outlet details.

Table 4.1: Water Level Summary

Basin Details					2024 Maximum and Minimum Levels			
Pond #	Basin ID	NWL	HWL	Outlet Details	Minimum Water Elevation (ft amsl))	Date	Maximum Water Elevation (ft amsl)	Date
Loc #1	1408	905.5	910.67	Lift -E	907.62	6/1/24	909.45	6/23/24
Loc #2	1486	926	935.3	Lift -E	924.17	10/24/24	926.47	8/30/24
Loc #3	1589	928	940.68	Lift -P	925.24	10/23/24	929.47	7/31/24
Loc #4	1687	929.7	940.3	RCP-E	927.02	10/24/24	931.45	8/29/24
Loc #5	1716	916	923.8	RCP-E	915.24	10/24/24	918.06	8/29/24
Loc #6	578	923	933.73	Lift-P	918.73	10/23/24	920.95	8/29/24
Loc #7	1864	909	913.89	RCP-P[1]	907.72	10/24/24	909.97	8/29/24
Loc #8	600	929.7	935.04	RCP-E	929.46	10/15/24	931.23	8/29/24
Loc #9	2443	906	926.65	Lift-P	913.08	10/24/24	917.98	8/30/24
Loc #10	614	914	920.22	Lift P	919.40	6/15/24	921.33	9/20/24
Loc #11	1710	918.5	923	RCP-P	912.26	6/12/24	916.40	8/29/24

The water elevation range over the 2024 monitoring period at Location 6 was 2.22 feet and Location 7 was 2.25 feet. There has been no indication of an increasing trend in either average or maximum levels at those locations. Based on the monitoring data collected to date, these basins have been observed to provide adequate storage and infiltration of the runoff that has been conveyed. Location 6 receives discharge from an adjacent splash pad during summer months. On average, 10.7 million gallons per year have been discharged from the splash pad and infiltrated by the basin. The daily level increase and subsequent decrease because of the splash pad discharge in 2024 was approximately 0.19 feet. Long term water trends for Location 7 are shown in **Chart 4.1**.

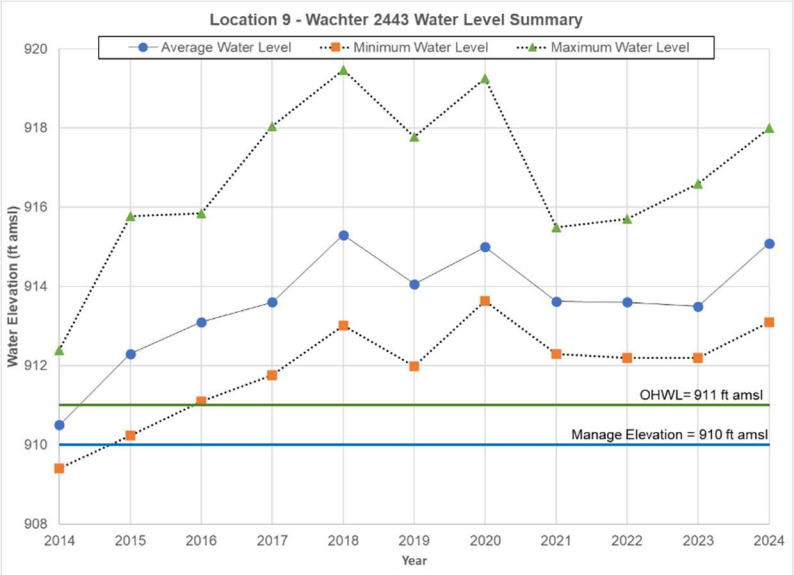
Chart 4.1



Location 9 levels have consistently exceeded its management elevation of 910 feet amsl. The average water level in 2024 was 915.1 feet amsl and was consistent with the average water level for 2020. The average, minimum, and maximum levels in 2024 changed from 2023. In 2024, the average water level

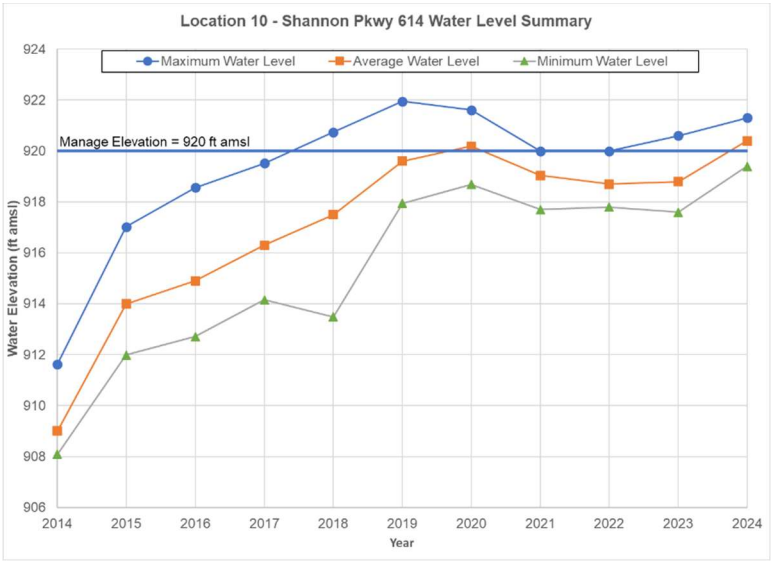
increased from 913.5 in 2023 to 915.1 in 2024. This increase is also represented in the maximum and minimum water levels for the pond compared to 2023. The water level in pond 9 is the highest since 2018 when the average water level reached 915.3 ft. Long-term trends for Location 9 are presented in **Chart 4.2**.

Chart 4.2



Location 10 has shown an increasing trend in the minimum, maximum, and average water levels since 2014, although 2021 through 2023 had a decrease in levels from previous years. This decrease could be due to lower-than-average precipitation for the last three monitoring seasons. The average, minimum, and maximum levels for 2024 increased from 2023. Location 10 long-term trends are presented on **Chart 4.3** below.

Chart 4.3



The average, minimum, and maximum water level at Location 10 increased in 2024. Location 9 reached the required level of 916 ft for 504 total hours. The level at Location 10 was above the 920-management required level for a total of 2,931 hours. These sites have consistently been above management levels

and should be evaluated for alternative management strategies that aim to restore the capacity of the basin.

4.2. Rainfall to Runoff Calculations

R/R ratios, also known as runoff coefficients, were calculated for each basin in 2024 and the results are presented in tables and charts in **Attachment B**. During the 2018 Surface Water Management Plan (SWMP) update, the drainage areas for the basins were reevaluated. As a result, the R/R ratios were recalculated for the previous years (2014-2017), with the updated drainage information. The annual R/R ratios provided below are based off the linear regression of individual R/R events (**Chart 3.4**). The long-term average R/R ratios are presented on **Table 4.2**, below.

Table 4.2: R/R Ratio Summary

Pond Information		Percent (%) Impervious	Long Term Average R/R Ratio	2014 R/R Ratio	2015 R/R Ratio	2016 R/R Ratio	2017 R/R Ratio	2018 R/R Ratio	2019 R/R Ratio	2020 R/R Ratio	2021 R/R Ratio	2022 R/R Ratio	2023 R/R Ratio	2024 R/R Ratio
Pond #	Basin ID													
Loc #1	1408	17	**0.31**	0.19	0.28	0.49	0.44	0.32	0.39	0.20	0.20	0.24	0.36	0.41
Loc #2	1486	25	**0.08**	0.12	0.08	0.08	0.09	0.08	0.08	0.08	0.05	0.03	0.07	0.05
Loc #3	1589	37	**0.41**	0.37	0.38	0.37	0.44	0.37	0.47	0.35	0.47	0.51	0.40	0.29
Loc #4	1687	25	**0.13**	0.18	0.12	0.12	0.08	0.13	0.11	0.10	0.14	0.16	0.13	0.12
Loc #5	1716	30	**0.17**	0.20	0.18	0.15	0.14	0.15	0.16	0.18	0.17	0.18	0.14	0.13
Loc #6	578	39	**0.15**	0.18	0.14	0.23	0.20	0.12	0.15	0.11	0.11	0.10	0.10	0.17
Loc #7	1864	35	**0.20**	0.20	0.23	0.15	0.30	0.15	0.19	0.20	0.18	0.18	0.14	0.14
Loc #8	600	43	**0.32**	0.33	0.38	0.28	0.32	0.33	0.34	0.35	0.25	0.32	0.30	0.28
Loc #9	2443	41	**0.19**	0.15	0.19	0.19	0.23	0.21	0.17	0.21	0.17	0.18	0.18	0.16
Loc #10	614	36	**0.19**	0.21	0.25	0.26	0.18	0.22	0.12	0.13	0.11	0.19	0.13	0.10
Loc # 11	1710	45	**0.20**	NM	NM	0.19	0.32	0.12	0.17	0.13	0.23	0.25	0.23	0.23
City-Wide Average		**34%**	**0.21**	**0.21**	**0.22**	**0.23**	**0.25**	**0.20**	**0.21**	**0.19**	**0.19**	**0.21**	**0.20**	**0.19**
Greatest R/R Ratio														
Least R/R Ratio														

A larger R/R ratio is indicative of less storage and infiltration within a drainage area, and consequently, a greater proportion of runoff being produced. Drainage areas that have a larger percentage of impervious surface will typically exhibit a higher R/R ratio. Event-based R/R ratios can vary greatly depending on rainfall intensity and the antecedent soil moisture.

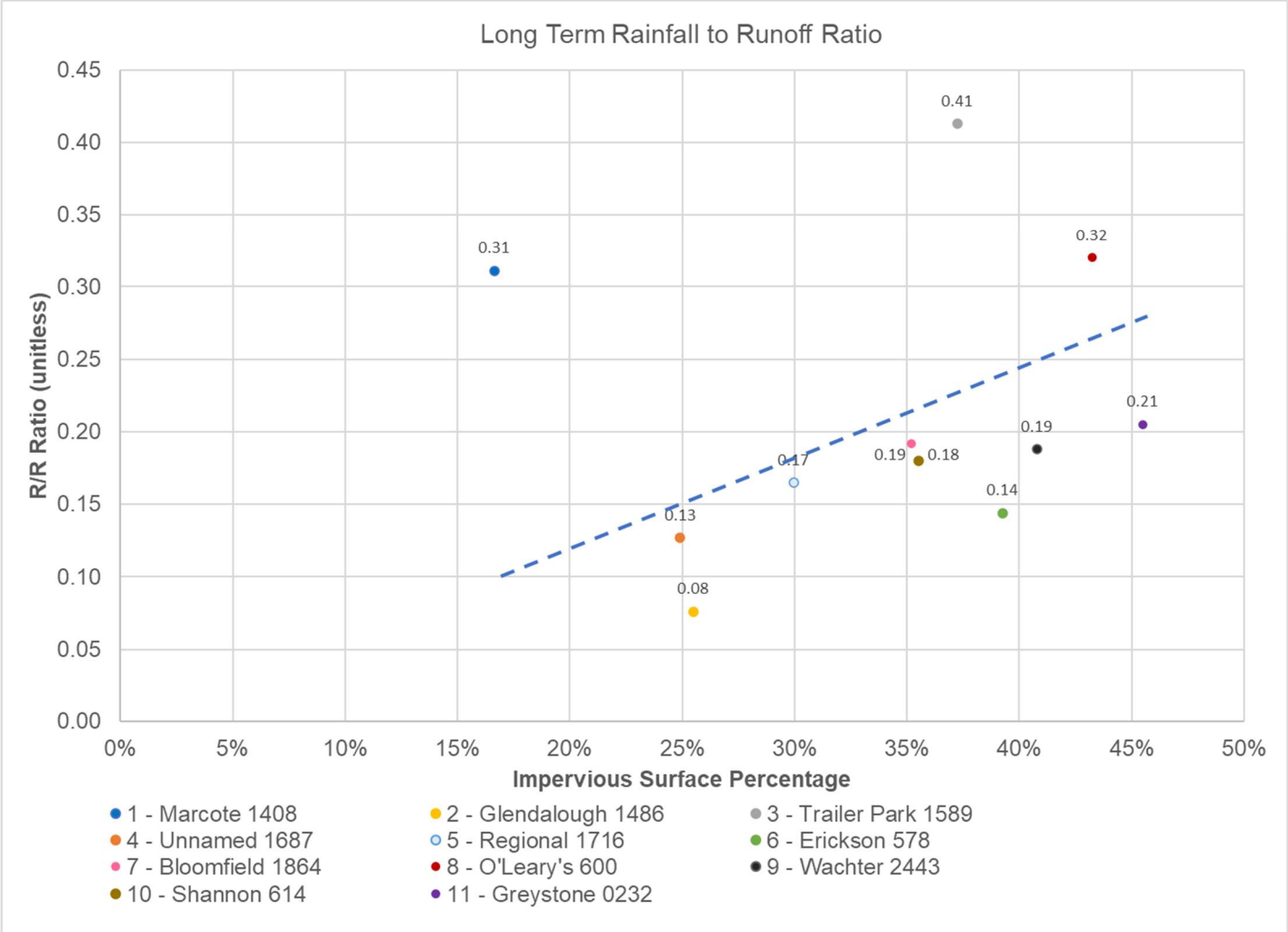
The City-wide R/R ratio has not varied much over the years ranging from 0.19 in 2024 to 0.25 in 2017, with the long-term average being 0.21. Of the monitored basins, Location 3 has consistently exhibited one of the greatest R/R ratios since 2014, which has shown that on average, 41 percent of the rainfall within that drainage area ends up as runoff. The Location 3 drainage area consists of 37 percent impervious

surface which is slightly above the average of the monitored basins (34 percent). The predominate land use at Location 3 is low density residential (98 percent), with the remaining area designated as open park space.

Other basins that have shown higher R/R ratios include Location 1 and Location 8 having a long-term R/R ratio of 0.41 and 0.32, respectively. The drainage area for Location 1 consists of 17 percent impervious surfaces, which is the lowest percentage of the monitored basins. The higher R/R can be attributed to variability in upstream runoff contributions from basins that discharge to Location 1 that are not within the immediate drainage area. Location 8 consists of 43 percent impervious surfaces, includes drainage from a significant portion of commercial land use along 150th St. SW (CSAH 42). Location 8 had the second highest R/R ratio in 2024.

Location 2 (1486) has produced the lowest R/R ratio almost every year monitored with a long-term average of 0.08. The Location 2 drainage area is 25 percent impervious, which is the 2nd lowest of the basins monitored. The predominate land uses include Transitional Residential (67 percent) and Rural Residential (31 percent). The long-term rainfall to runoff ratios can be seen in **Chart 4.4** below.

Chart 4.4: Long Term R/R Ratio



4.3. Infiltration Rate

Pond Information		Long Term Avg Infil. Rate (in/hr)	2014 Avg Infil. Rate (in/hr)	2015 Avg Infil. Rate (in/hr)	2016 Avg Infil. Rate (in/hr)	2017 Avg Infil. Rate (in/hr)	2018 Avg Infil. Rate (in/hr)	2019 Avg Infil. Rate (in/hr)	2020 Avg Infil. Rate (in/hr)	2021 Avg Infil. Rate (in/hr)	2022 Avg Infil. Rate (in/hr)	2023 Avg Infil. Rate (in/hr)	2024 Avg Infil. Rate (in/hr)
Pond #	Basin ID												
Loc #1	1408	**0.021**	0.009	0.020	0.027	0.024	0.024	0.016	0.025	0.020	0.024	0.022	0.019
Loc #2	1486	**0.034**	0.049	0.038	0.042	0.040	0.039	0.035	0.033	0.022	0.007	0.025	0.047
Loc #3	1589	**0.127**	0.149	0.116	0.158	0.180	0.138	0.133	0.111	0.089	0.070	0.094	0.184
Loc #4	1687	**0.062**	0.093	0.073	0.066	0.022	0.054	0.091	0.053	0.064	0.039	0.083	0.114
Loc #5	1716	**0.051**	0.070	0.068	0.031	0.037	0.043	0.057	0.085	0.041	0.027	0.064	0.080
Loc #6	578	**0.082**	0.082	0.163	0.104	0.074	0.044	0.013	0.010	0.096	0.153	0.111	0.189
Loc #7	1864	**0.032**	0.046	0.049	0.020	0.034	0.027	0.039	0.030	0.024	0.021	0.055	0.059
Loc #8	600	**0.020**	0.052	0.054	0.014	0.008	0.023	0.013	0.009	0.014	0.016	0.040	0.013
Loc #9	2443	**0.075**	0.071	0.103	0.106	0.093	0.089	0.081	0.067	0.033	0.034	0.061	0.101
Loc #10	614	**0.060**	0.072	0.085	0.081	0.063	0.074	0.049	0.053	0.031	0.030	0.027	0.043
Loc # 11	1710	**0.086**	NM	NM	0.131	0.074	0.073	0.110	0.082	0.071	0.064	0.148	0.200
City-Wide Average		**0.062**	**0.069**	**0.077**	**0.071**	**0.059**	**0.057**	**0.058**	**0.051**	**0.046**	**0.044**	**0.066**	**0.095**

Greatest Rate

Lowest Rate

The water level data was utilized to generate an infiltration and evaporation rate for the basins when water levels were below outlet and pump elevations. The 2024 infiltration rates are presented in the tables included as **Attachment B**. A long-term summary of the average infiltration rates is provided in **Table 4.4** below. The infiltration rates were evaluated against the estimated rates identified in the City's Non-Degradation Report that was completed in 2007. The rates described below are inclusive of both infiltration and evaporation.

Table 4.4: Infiltration Rate Summary

Infiltration monitoring has shown a long-term average infiltration rate of 0.060 in/hr. City-wide. Annually, infiltration rates have ranged from 0.200 in 2024 to 0.007 in 2022. The City's Non-Degradation Report utilized an average infiltration rate of 0.030 in/hr. This was developed by taking the average infiltration rates that were identified for type D soils during a literature review. As shown above, the City-wide average infiltration rate has exceeded the City's Non-Degradation Report rate every year that monitoring has been conducted.

In 2024, Location 11 (1720) had the greatest infiltration rate at 0.200 in/hr. The greatest long term average infiltration rate of 0.127 in/hr occurred at Location 3. Location 8 had the lowest infiltration rate in 2024 and continues to have the lowest long term average infiltration rate at 0.020 in/hr.

At Location 8, accumulation of sediment and vegetation growth near the pond outlet has increased the elevation needed for the pond to discharge from an elevation of 929.70' to 930.05'.

4.4. Water Quality Results

The water quality data collected to-date is provided for each monitoring location in the Tables and Charts included as **Attachment C**. Water quality sampling has consisted of growing season sampling, roughly April – October. Appropriate data collected has been added to the long-term calculations. The long-term median growing season concentration (excluding snow melt samples) for each of the evaluated parameters is presented in **Table 4.5** and the 2024 growing season average concentrations in **Table 4.6** below.

Table 4.5: Long Term Median Pollutant Concentrations (mg/L)

Pond #	Basin ID	TSS	Total Phosphorus	Ortho-Phosphate	Chloride
Loc #1	1408	6	0.11	0.020	34.1
Loc #2	1486	11	0.11	0.010	24.9
Loc #3	1589	7	0.17	0.050	14.1
Loc #4	1687	8	0.07	0.010	36.1
Loc #5	1716	11	0.11	0.010	30.5
Loc #6	578	11	0.22	0.091	20.0
Loc #7	1864	13	0.18	0.026	15.0
Loc #8	600	15	0.16	0.013	49.3
Loc #9	2443	10	0.11	0.010	77.2
Loc #10	614	34	0.22	0.010	40.2
Birger Pond[1]		9	0.12	0.020	47.5
Long Term City-Wide Average Median		12	0.14	0.024	35.6
Greatest Concentration					
Least Concentration					

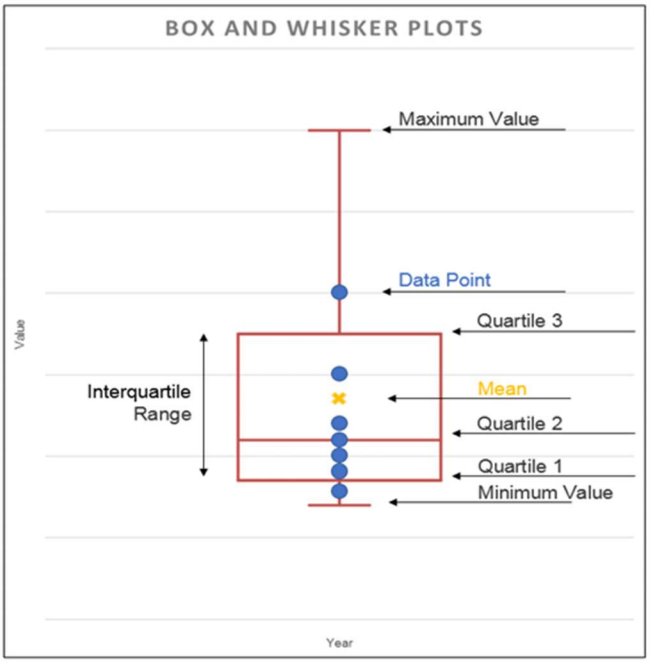
1 – Growing season water quality sampling was completed in 2014 and then CAMP data in 2022 (Birger only)

Table 4.6: 2024 Average Pollutant Concentrations (mg/L)

Pond #	Basin ID	Total Phosphorus	Ortho-Phosphate	TSS	Chloride	Nitrate
Loc #1	1408	0.08	0.036	7	14.3	0.025
Loc #2	1486	0.11	0.004	15	14.5	0.025
Loc #3	1589	0.14	0.048	21	20.1	0.034
Loc #4	1687	0.07	0.005	9	11.5	0.029
Loc #5	1716	0.12	0.006	22	21.1	0.034
Loc #6	578	0.20	0.096	38	99.6	0.031
Loc #7	1864	0.13	0.016	21	22.9	0.043
Loc #8	600	0.20	0.006	39	21.8	0.025
Loc #9	2443	0.08	0.018	9	47.1	0.092
Loc #10	614	0.15	0.008	34	26.6	0.025
2024 City-Wide Average		0.13	0.024	21	29.9	0.036
Greatest Concentration						
Least Concentration						

The findings of the water quality sampling are summarized within this section by pollutants. The results are presented in box and whisker plots which provide a visual representation of the sample distribution and show important statistical data. A summary of the metrics presented on the box and whisker plots is shown on **Image 4.2**. Individual data points that lie outside of the minimum and maximum values are outliers.

Image 4.2 – Box and Whisker Plot Legend



Median – the value separating higher and lower half of data, also known as the "middle" value

Mean – the sum of the values divided by the number of values

Interquartile Range (IQR) – represents the distance taken up by the middle 50% of the data set. This is helpful because the outlier data points are cut out of the data set

IQR = Q3 – Q1 (75^{th} Percentile – 25^{th} Percentile)

If IQR small, data are mostly close to the median

If IQR large, data is more spread out from median

Quartile 1 (Q1) or 25^{th} Percentile - the middle value in the first half of the data ordered data set

Quartile 2 (Q2) – the median value

Quartile 3 (Q3) or 75^{th} Percentile – the middle value in the second half the ranked order data set

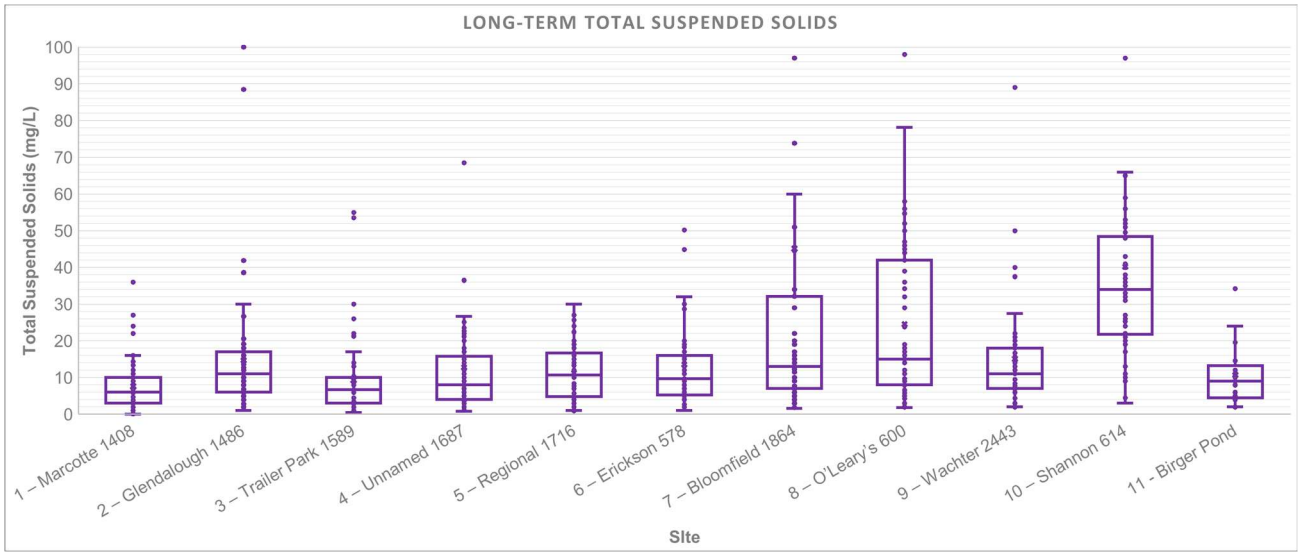
Total Suspended Solids

Sources of TSS in stormwater include deteriorated pavement, vehicle exhaust emissions, vehicle parts, building and construction material, road salt, road paint and pedestrian debris, soil material, plant and leaf litter, and atmospheric deposition of particles. Suspended solids transported into rivers and lakes eventually settle on the bottom, and over time this accumulated sediment can clog and alter the topography of bodies of water.

City-wide, the TSS long term median is 12 mg/L, which is unchanged from the previous year's long-term median. Median TSS values range from 6 mg/L at Location 1 to 34 mg/L at Location 10. The greatest variability in TSS concentrations have been seen at Location 7, Location 8 and Location 10, as demonstrated by larger inter quartile ranges (IQR), depicted as the "box" on **Chart 4.5** below. The IQR reflects the middle 50 percent of the data collected at that site. Location 1 (6 mg/L) and Location 3 (7 mg/L) have the lowest long-term median TSS and are comprised of predominately low density residential and commercial land uses. Location 10, with the greatest long-term median TSS concentration, consists of predominantly low-density residential land use.

The City's Non-Degradation Study presented an estimated event mean concentrations for TSS based on land uses, which were derived from a review of applicable research documents. These concentrations included 50 mg/L for open space, 140 mg/L for single family residential, and 215 mg/L for agricultural land uses. Basins built to NURP design standards are anticipated to provide TSS treatment efficiencies of 85 percent. The City-wide TSS median of 12 mg/L shows that overall, the monitored basins have provided effective TSS treatment.

Chart 4.5 – Total Suspended Solids



2024 Total Suspended Solids

In 2024, the City-wide TSS average concentration was 21 mg/L and had a range from 7 mg/L at Location 1 to 39 mg/L at Location 8. 2024 TSS values were higher than 2023 which had a city wide average TSS concentration of 12 mg/L.

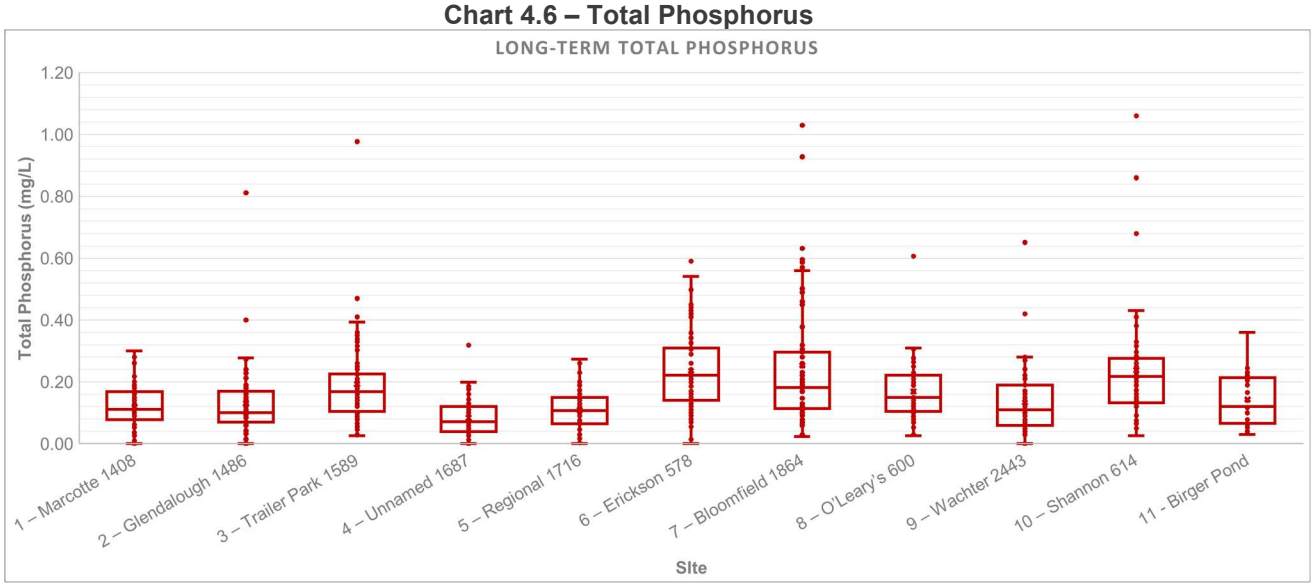
Total Phosphorus

Sources of phosphorus in urban runoff include plant and leaf litter, soil particles, pet waste, road salt, fertilizer, and atmospheric deposition of particles. Lawns and roads account for the greatest loading, which has shown to contribute about 80 percent of total and dissolved phosphorus (Waschbusch et. al 1999). Phosphorus has a direct effect on plants and algal growth in lakes and is one of the leading causes of deteriorating lake water quality.

City-wide, the average TP long term median is 0.14 mg/L, ranging from 0.07 mg/L at Location 4 (1687) to 0.22 mg/L at Location 10 and Location 6. Additionally, Location 5 and 4 have the smallest IQR, which indicates that the sample concentrations were closer to the median, with less overall variability. The greatest variability in TP concentrations was seen at Location 7. **Chart 4.6** shows the long-term TP averages and variability.

Typical concentrations of TP for untreated stormwater are 0.22 mg/L for commercial purposes, 0.30 mg/L for residential, and 0.32 for cropland land uses. Basins built to NURP design standards are anticipated to provide TP treatment efficiencies of approximately 60 percent. The City-wide average median of 0.14 mg/L TP is within the anticipated range for treated stormwater (<0.20 mg/L).

Chart 4.6 – Total Phosphorus



2024 Total Phosphorous

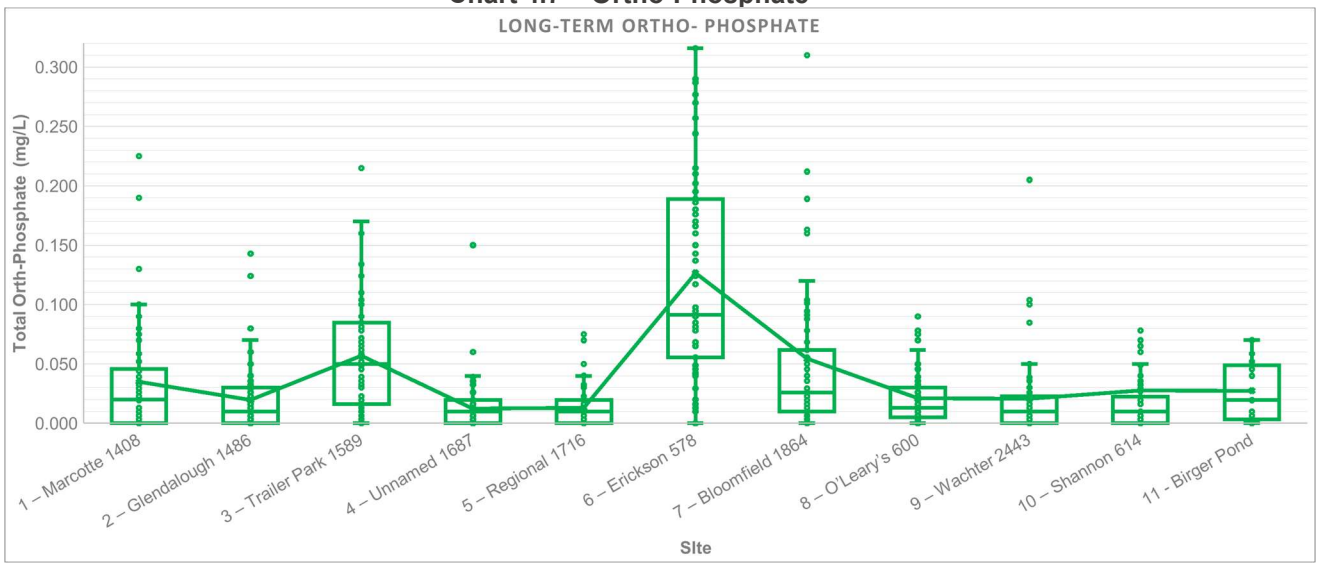
During the 2024 growing season, the City-wide TP average concentration was 0.13 mg/L, which is down from 0.15 mg/L in 2023. Location 6 and 8 had the highest average concentrations of TP at 0.20 mg/L and location 4 had the lowest concentration of TP at 0.07 mg/L.

Ortho-Phosphate

Orthophosphate is the dissolved component of total phosphorus that is readily available for algal production. Dissolved phosphorus typically accounts for about 45 percent of total phosphorus but can exceed 50 percent when the source is plant litter and lawns, and as low as 25 percent when the source is predominantly sediment (Waschbusch et. al, 1999).

City-wide, the OP long term average median is 0.024 mg/L, ranging from 0.010 mg/L at Location 2, Location 4, Location 5, Location 9, and Location 10 to 0.091 mg/L at Location 6. Location 6, with the greatest observed OP, receives water from a splash pad and contains open park space within a significant portion of its drainage area. For all monitoring locations OP on average, has been 18 percent of the TP that was observed which is much lower than the expected range when source is plant litter and lawns. **Chart 4.7** shows the long-term OP averages and variability.

Chart 4.7 – Ortho-Phosphate



2024 Ortho-Phosphate

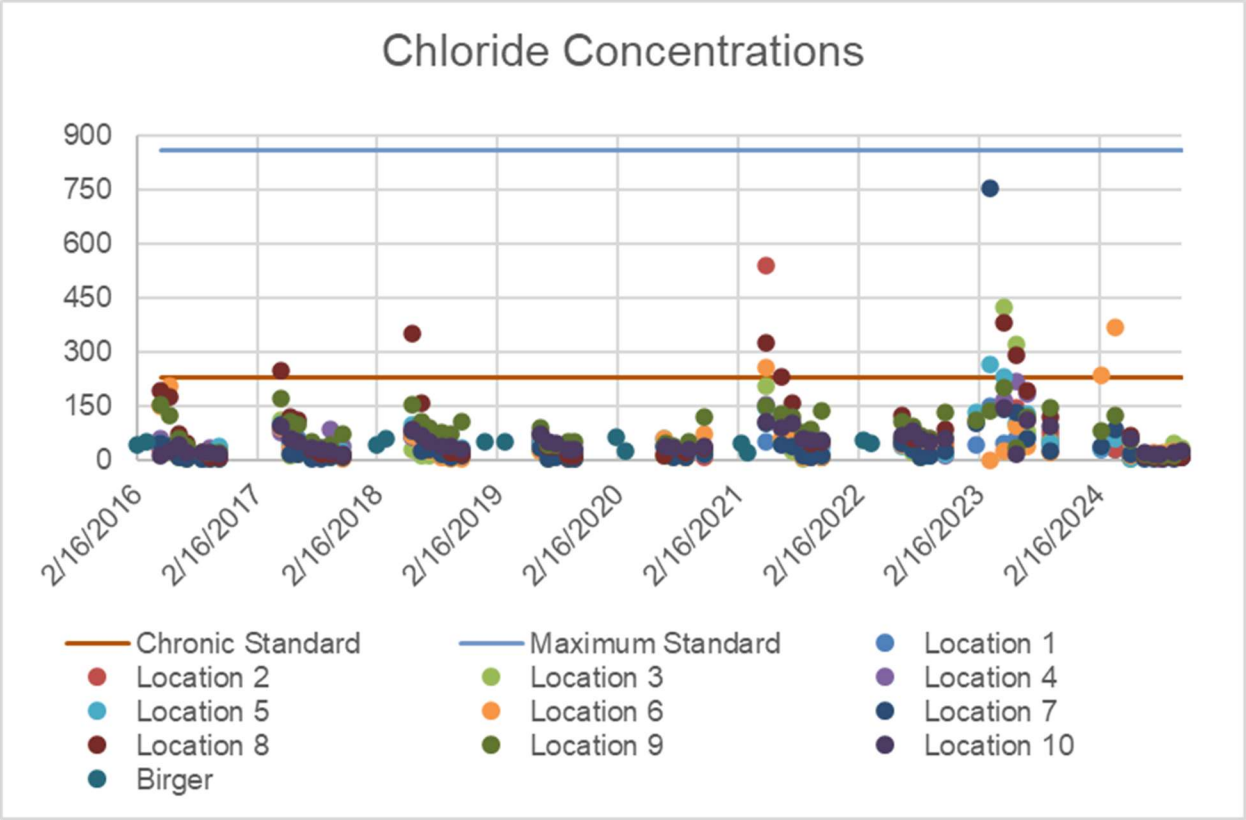
During the growing season of 2024, the City-wide OP average concentration was 0.024 mg/L, which is equal to the long-term average. Many locations saw lower values in OP 2024 compared to 2023. Location 1 was the only location that had a higher concentration of OP at 0.036 mg/L in 2024 compared to 0.013mg/L in 2023.

Chloride

Chloride is a key component of road salt, which is soluble and highly mobile in water. When snow and ice melt, the salt that has been applied to icy roads, parking lots, and sidewalks is conveyed with it into surface water and groundwater. Elevated chloride levels can affect our drinking water supplies and can be toxic to aquatic organisms. The chloride water quality standard for 2B lakes is a 4-day average of 230 mg/L for chronic toxicity and 860 mg/L as the maximum standard toxicity. These standards are used for Public Waters which include Location 9 and Birger. The other monitoring locations are only provided for comparative purposes.

Chloride sampling was implemented City-wide in 2016, with snowmelt sampling being conducted at select basins in 2016 and then again from 2018 through 2024. The chloride results are plotted on **Chart 4.8** below. Additionally, chloride charts for the individual basins are included as **Attachment C**.

Chart 4.8 – Chloride Concentrations



Location 6 exhibits significant snowmelt concentrations for chlorides, but those concentrations readily decreased over the summer months. Location 6 drainage area contains parking lots and pathways that may contribute to its higher concentration levels during winter/spring. This was the case in 2024, Location 6 snowmelt samples were above the chronic standard, but decreased over the summer months. Location 6 was the only pond do exceed the chronic standard in 2024. Location 8 has shown snowmelt and spring routine samples that have exceeded the chronic standard but were below the chronic standard throughout the entirety of the monitoring season.

In addition to elevated snowmelt chloride levels, Location 9 has the greatest growing season chloride concentrations of all the basins. One notable observation is that Location 9 chloride levels decreased throughout the growing season, which hasn't been case in previous years. The increase in these concentrations in the fall could indicate that the basin is stratified over the summer.

Locations 6, 8, and 9 all contain areas of commercial and/or downtown land use within their drainage areas, which are typically associated with higher salt use in the winter. This is reflected in the elevated chloride concentrations observed within the basins. Location 6 and Location 9 are both landlocked, which results in pollutants being concentrated within those basins and not discharged downstream.

The remaining monitoring locations have not had an exceedance of chloride water quality standards during routine sampling and have not shown any notable increasing trends with respect to chloride levels.

2024 Chloride

During 2024, the City-wide growing season chloride average concentration was 29.9 mg/L, which is less than the long-term average of 56.1 mg/L. Location 6 had the highest average chloride concentration at 99.6 mg/L. Location 1 had an average of 46.3 mg/L. Most locations saw consistent chloride levels throughout the year.

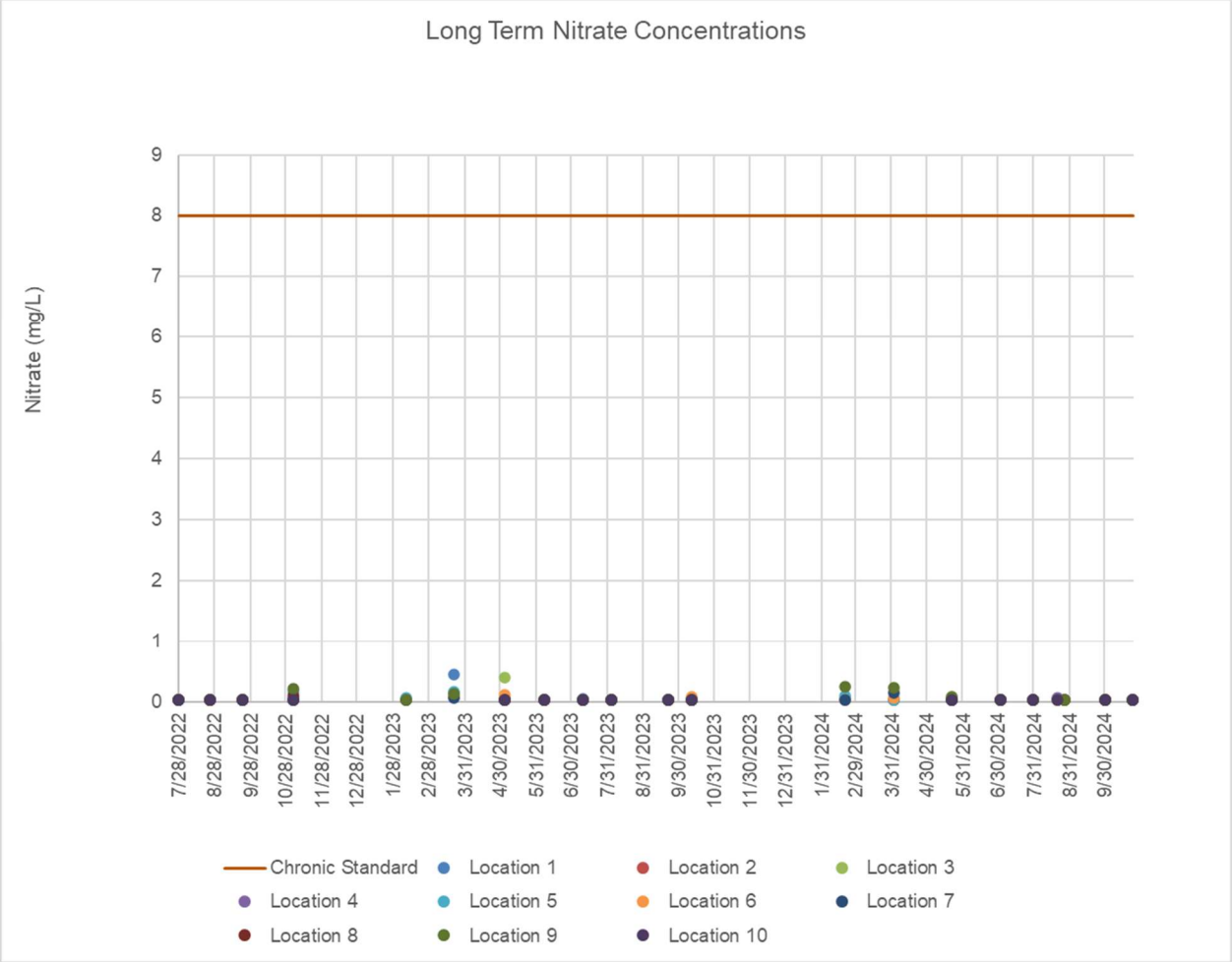
Nitrate

Nitrogen is a nutrient that is necessary for plant and algae growth. Most nitrate (a form of nitrogen) in Minnesota waters comes from agriculture practices while only one percent is estimated to come from urban stormwater (MPCA 2013). At increased levels, nitrates can be detrimental to aquatic life, cause algal blooms, and possibly dangerous to human health. In 2022, the MPCA proposed nitrate criteria to protect aquatic life. The proposed chronic 4-day standard for Class 2B lakes is 8 mg/L. Nitrate monitoring was new to the City's monitoring program in 2022.

2024 Nitrate

During the 2024 growing season, the City-wide nitrate average concentration was 0.036 mg/L. Location 9 had the highest average level of nitrate at 0.092 mg/L, which is far below the proposed standard of 8 mg/L. Long term nitrate sampling results are plotted on **Chart 4.9** below.

Chart 4.9 – 2024 Nitrate Concentrations



5. CONCLUSIONS AND OBSERVATIONS

Eleven basins were monitored for water level and water quality to provide the City with empirical data that can be used to help guide stormwater management activities. A summary of the notable findings from the monitoring activities are provided below:

Water Level Monitoring

- Landlocked basins Location 9 and Location 10 have shown a significant increasing trend in minimum, maximum, and average water levels over the long-term monitoring period, but saw lower levels in 2021 through 2023 due to low precipitation totals (drought conditions). Despite drought in September and October 2024, minimum, maximum and average water levels increased from 2023.
- Even with four years of drought, the average water level at Locations 7, 9 and 10 has remained stable and not dropped significantly since 2021. Management activities at those sites should be evaluated to ensure adequate storage capacity and acceptable water levels at those sites.
- The long-term City-wide R/R ratio was 0.21. This remains consistent from the previous year.
- Long term R/R ratios varied by site from 0.40 at Location 1 to 0.05 at Location 2. Those sites consisted of 37 percent and 25 percent impervious surfaces, respectively.
- Infiltration monitoring has shown a long-term average infiltration rate of 0.063 in/hr City-wide. Since 2015, infiltration rates have consistently decreased, until 2023 (0.066 in/hr) and 2024 (0.095 in/hr).

Water Quality Monitoring

In general, higher stormwater pollutant levels were observed at Location 6, Location 9, and Location 10. This is largely due to these basins being landlocked and pollutants staying concentrated within the basin and are not transported downstream.

TSS:

The long-term average median concentration for TSS City-wide was 12 mg/L. The long-term median TSS concentration ranged from 6 mg/L at Location 1 to 34 mg/L at Location 10.

TP:

The long-term average median concentration for TP City wide was 0.14 mg/L which is slightly below the anticipated range for treated stormwater of 0.15 to 0.20 mg/L. The long-term median TP concentration ranged from 0.07 mg/L at Location 4 to 0.22 mg/L at Location 6 and 10.

OP:

The long-term OP was noticeably greater at Location 6 than the other monitored basins. In 2024, Location 6 has the highest long-term median of OP, 0.091 mg/L.

Chloride:

- Locations 6 and 9 contain areas of commercial and/or downtown land use within their drainage areas, which is typically associated with higher salt use in the winter. Location 6 tends to see high levels during winter sampling, while Location 9 has the highest long term median chloride levels at 77.2 mg/L. Location 9 is a landlocked basin that may be contributing to the elevated chloride levels throughout the monitoring season.
- There has been an increasing trend in chloride concentrations since monitoring began in 2014

Nitrate:

- Nitrate monitoring was new in 2022. The MPCA proposed chronic nitrate concentrations for Class 2B waters are 8 mg/L.
- Nitrate levels were very low throughout the year, with the last sampling of the year having the highest levels overall. The highest nitrate concentration was 0.034 mg/L at Location 3.

6. REFERENCES

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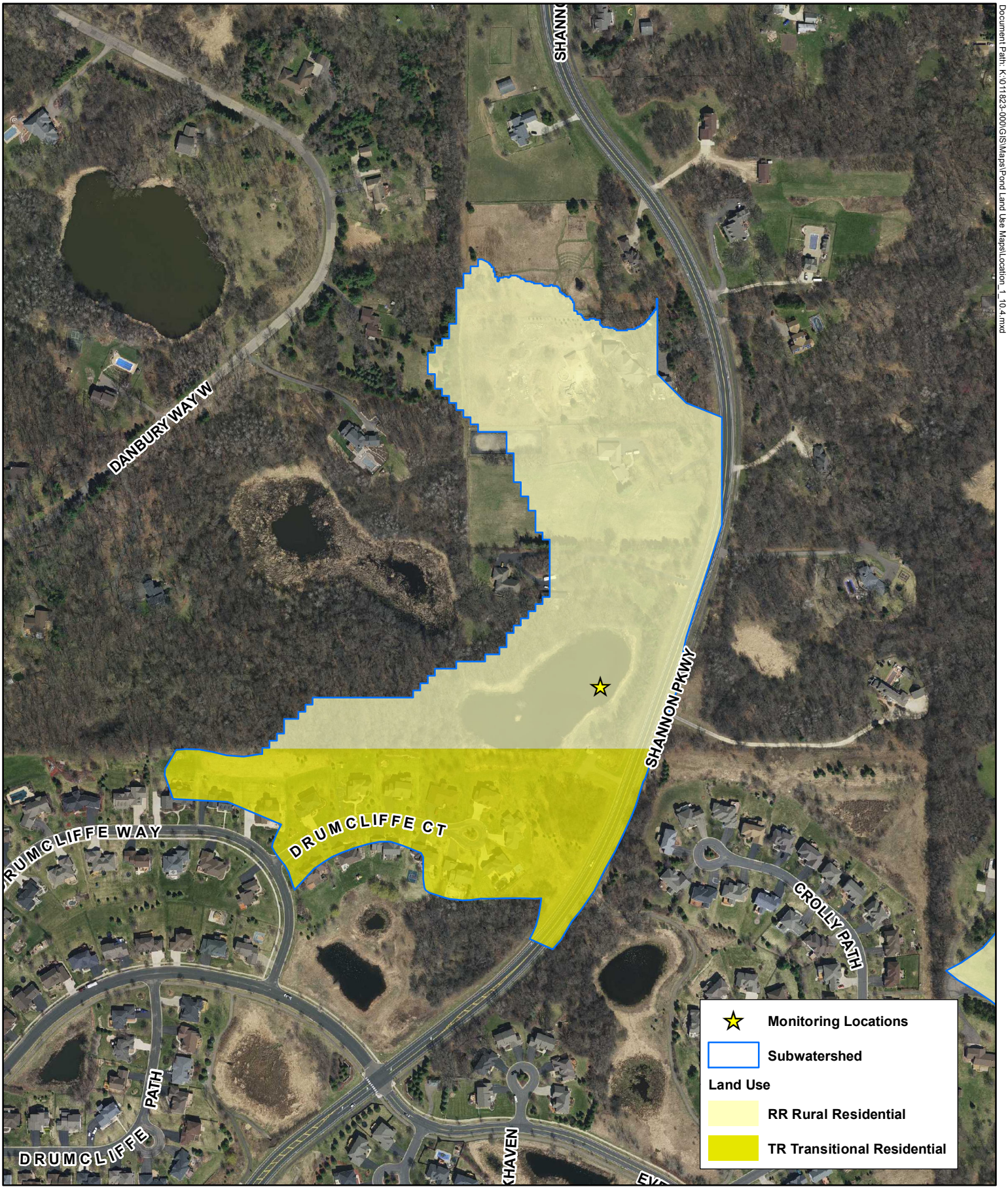
Waschbusch, R.J., W.R. Selbig, and R.T. Bannerman. 1999. Sources of Phosphorus in Stormwater and Street Dirt from Two Urban Residential Basins in Madison, Wisconsin, 1994–95. U.S. Geological Survey Water-Resources Investigations Report 99–4021.

WSB. 2007. City of Rosemount Non-Degradation Study.

Attachment A – Pond Monitoring Location and Drainage Area Maps



Location 1
2024 Evaporation & Infiltration Study

ROSEMOUNT MINNESOTA

N

0 350 Feet

wsb

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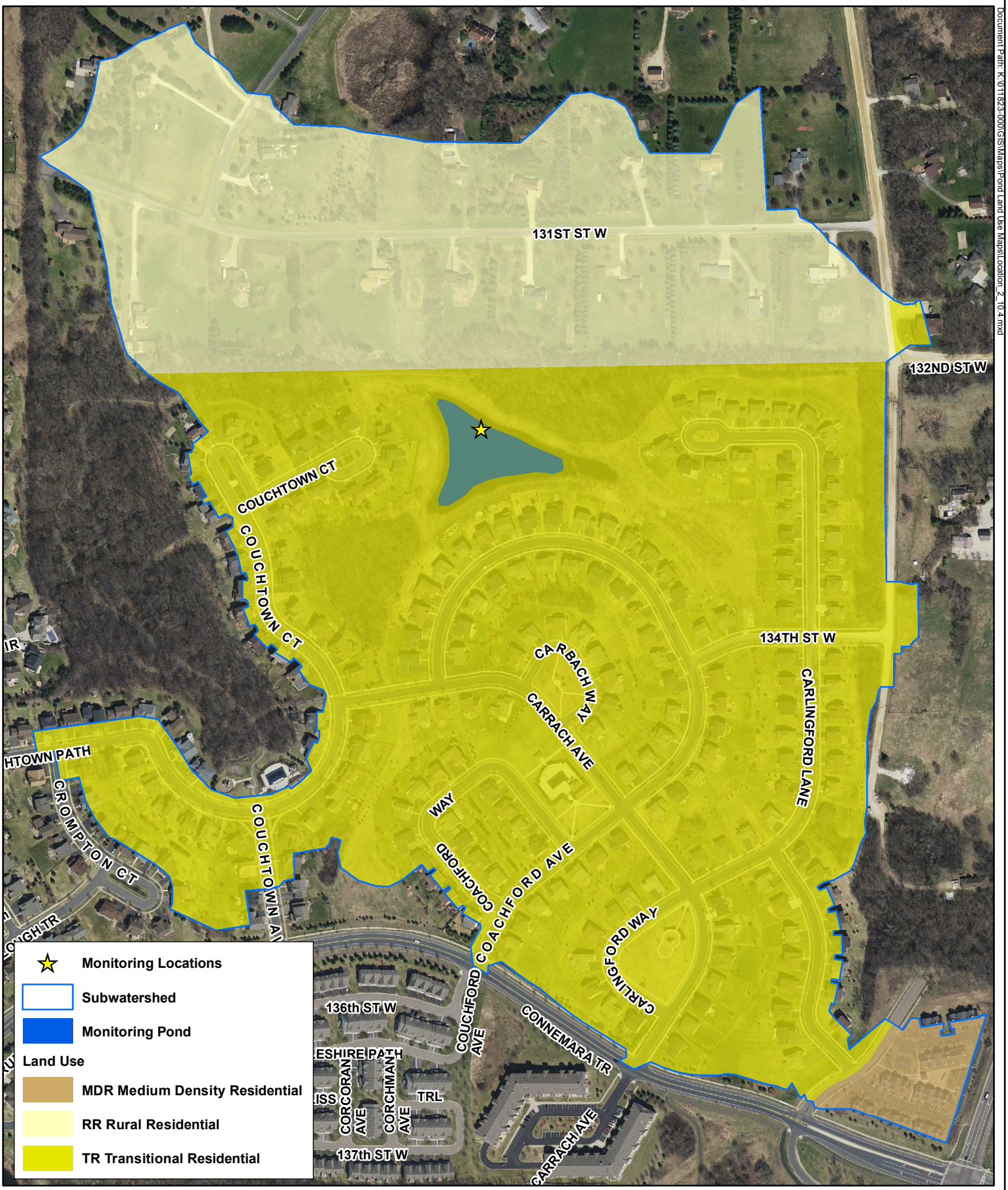

Location 2
2024 Evaporation & Infiltration Study

ROSEMOUNT
MINNESOTA

N

0 400 Feet

wsb

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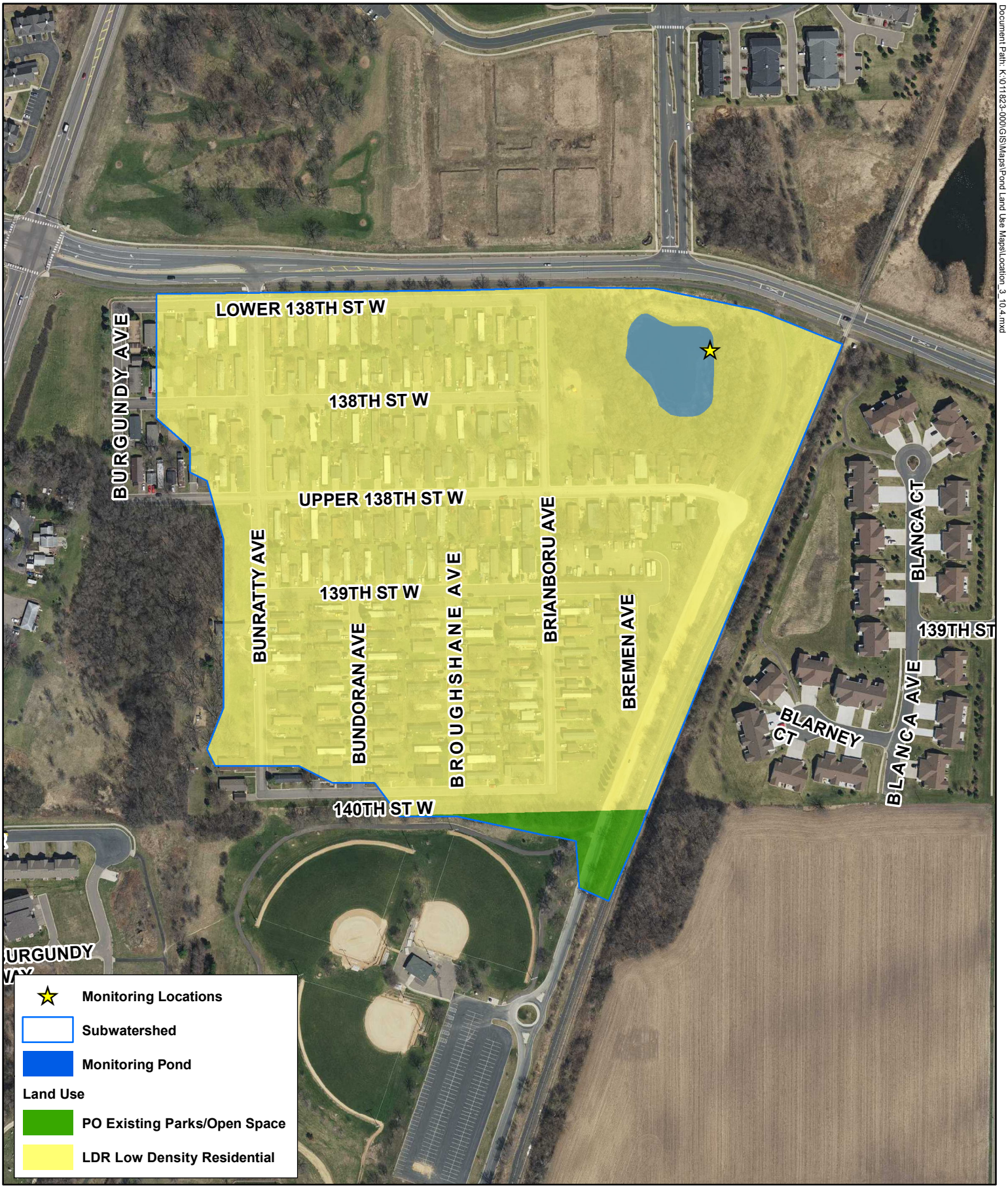

Location 3
2024 Evaporation & Infiltration Study

ROSEMOUNT MINNESOTA

N

0 300 Feet

wsb

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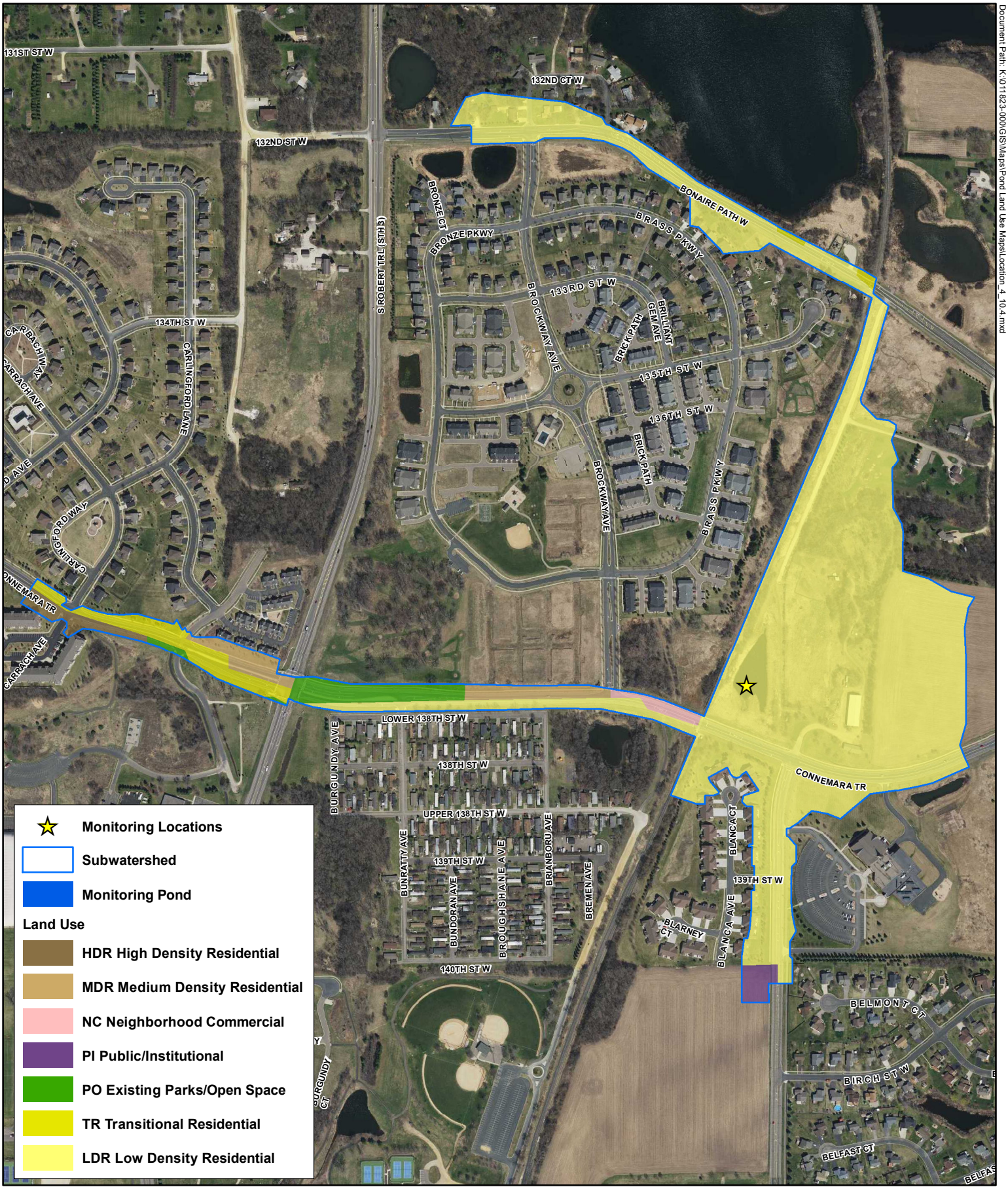

Location 4
2024 Evaporation & Infiltration Study

ROSEMOUNT
MINNESOTA

N

0 600 Feet

wsb

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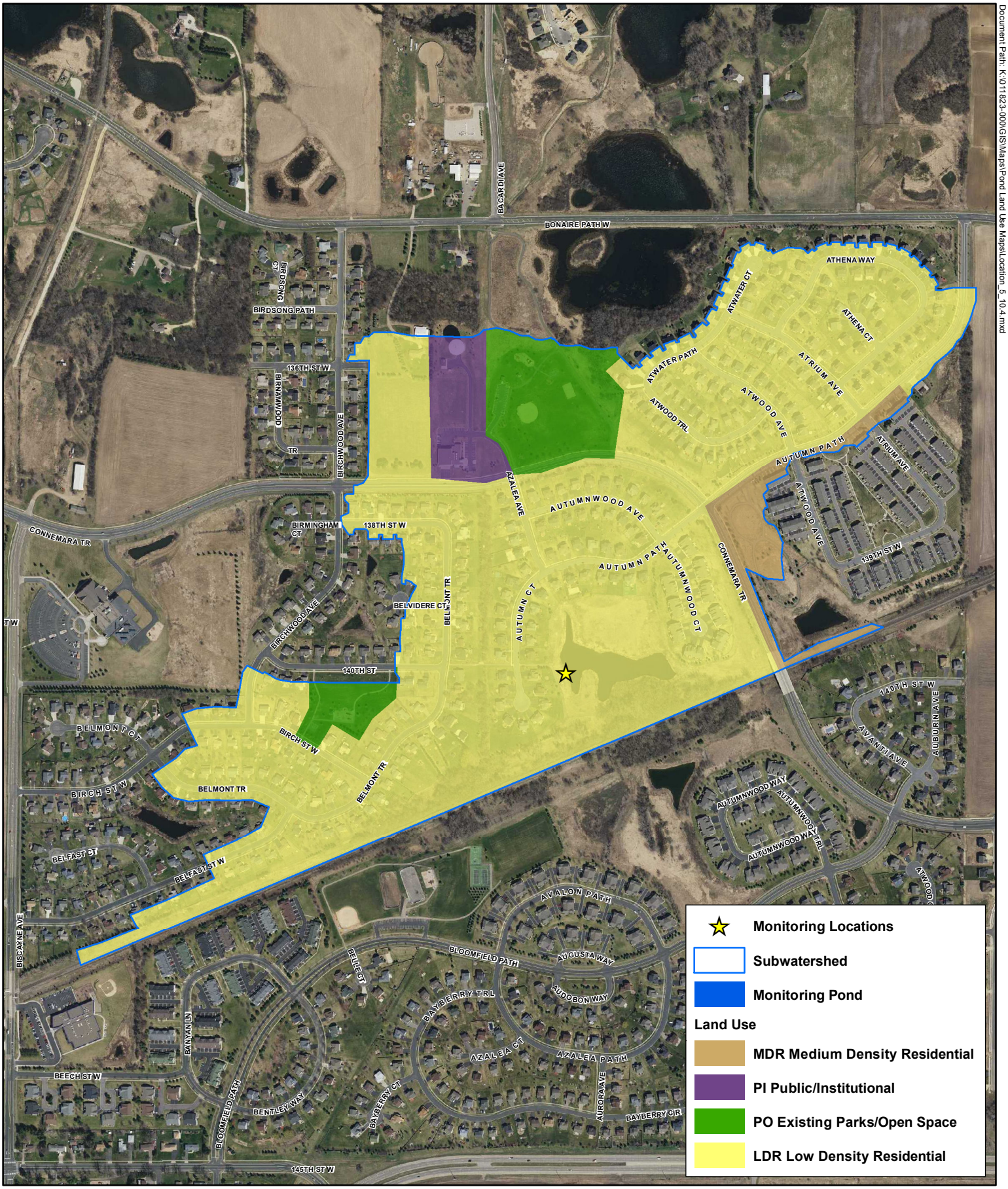

Location 5
2024 Evaporation & Infiltration Study

ROSEMOUNT
MINNESOTA

N

0 800 Feet

wsb

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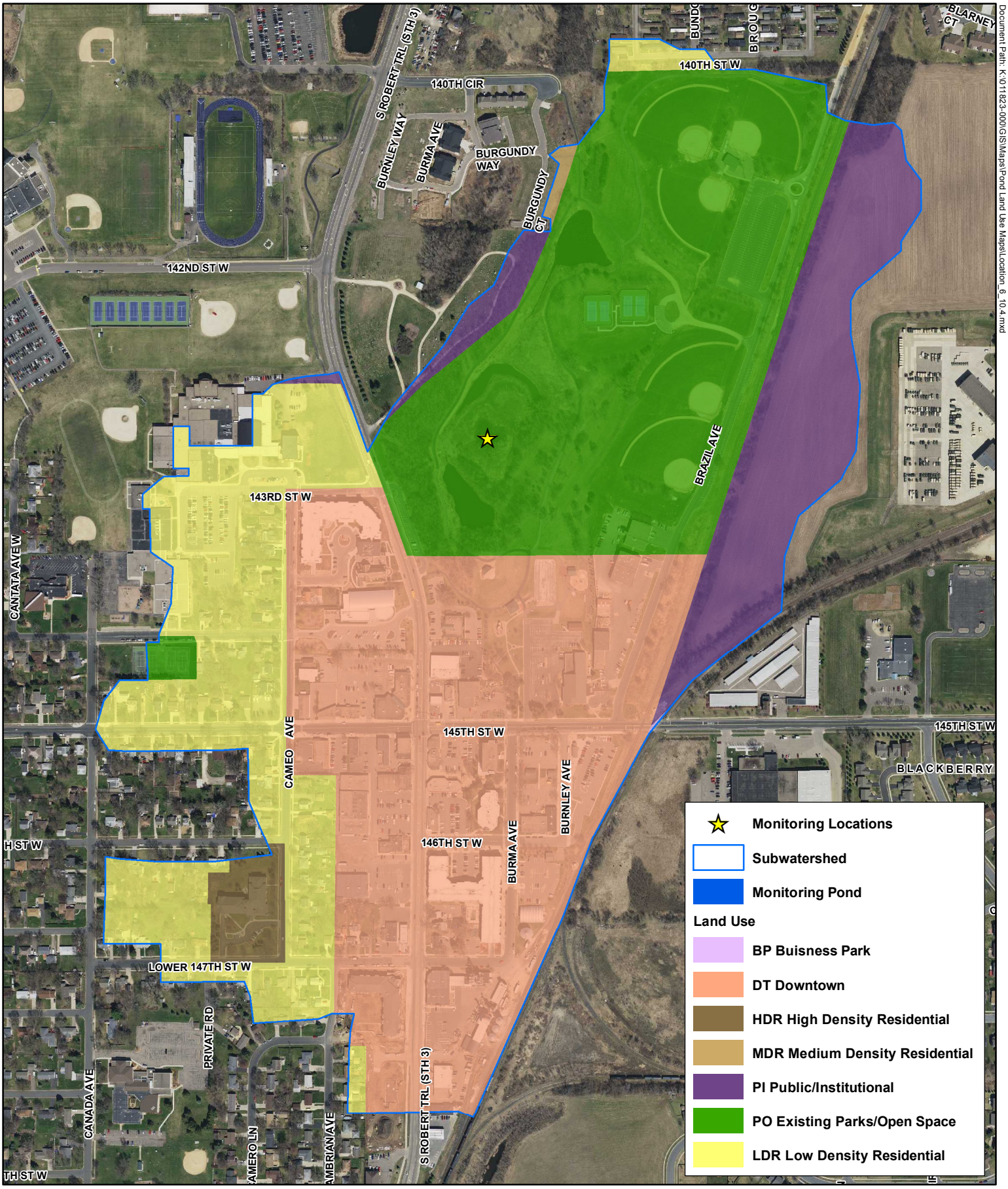

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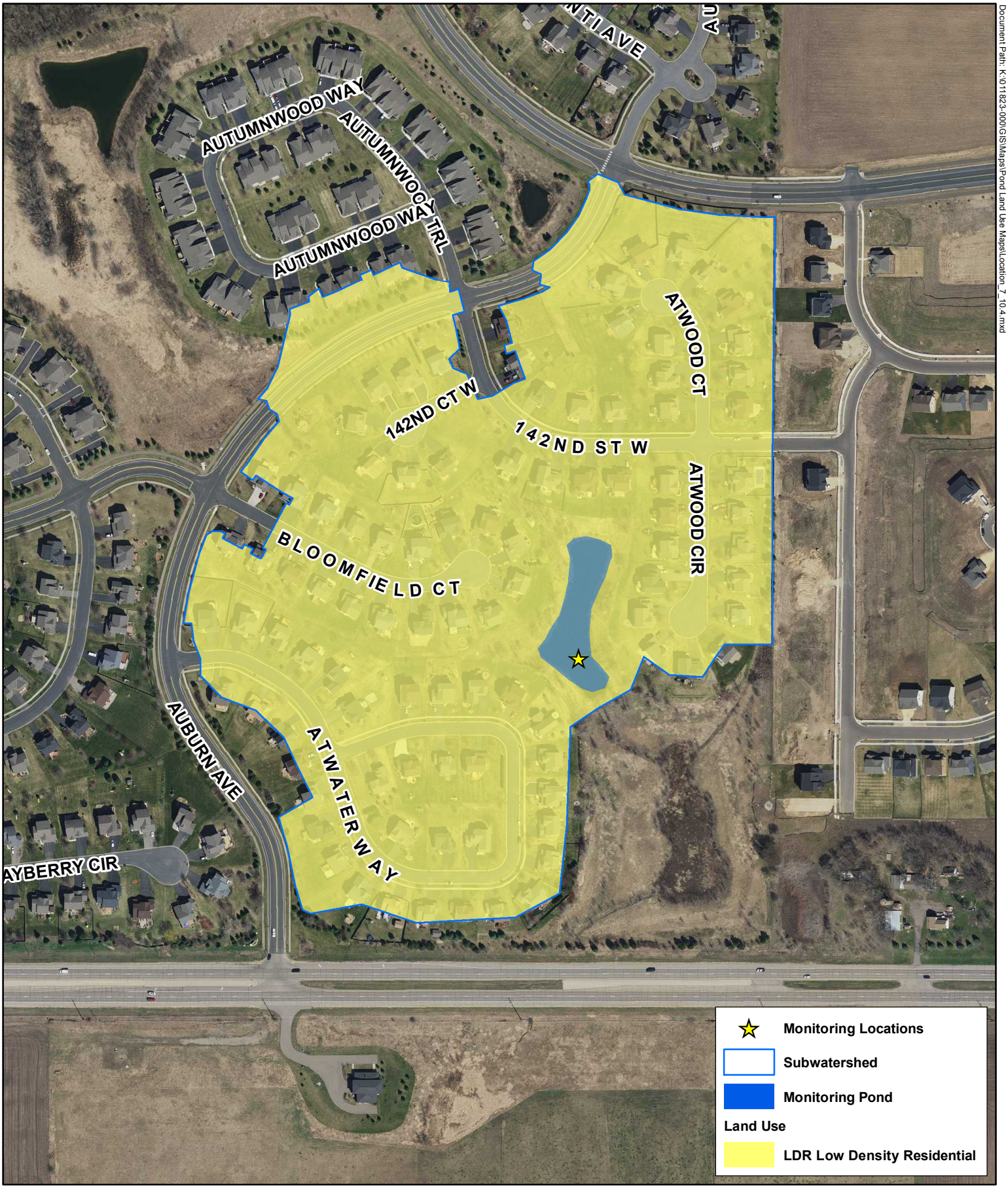
Location 6
2024 Evaporation & Infiltration Study

ROSEMOUNT
MINNESOTA

N

0 500 Feet

wsb



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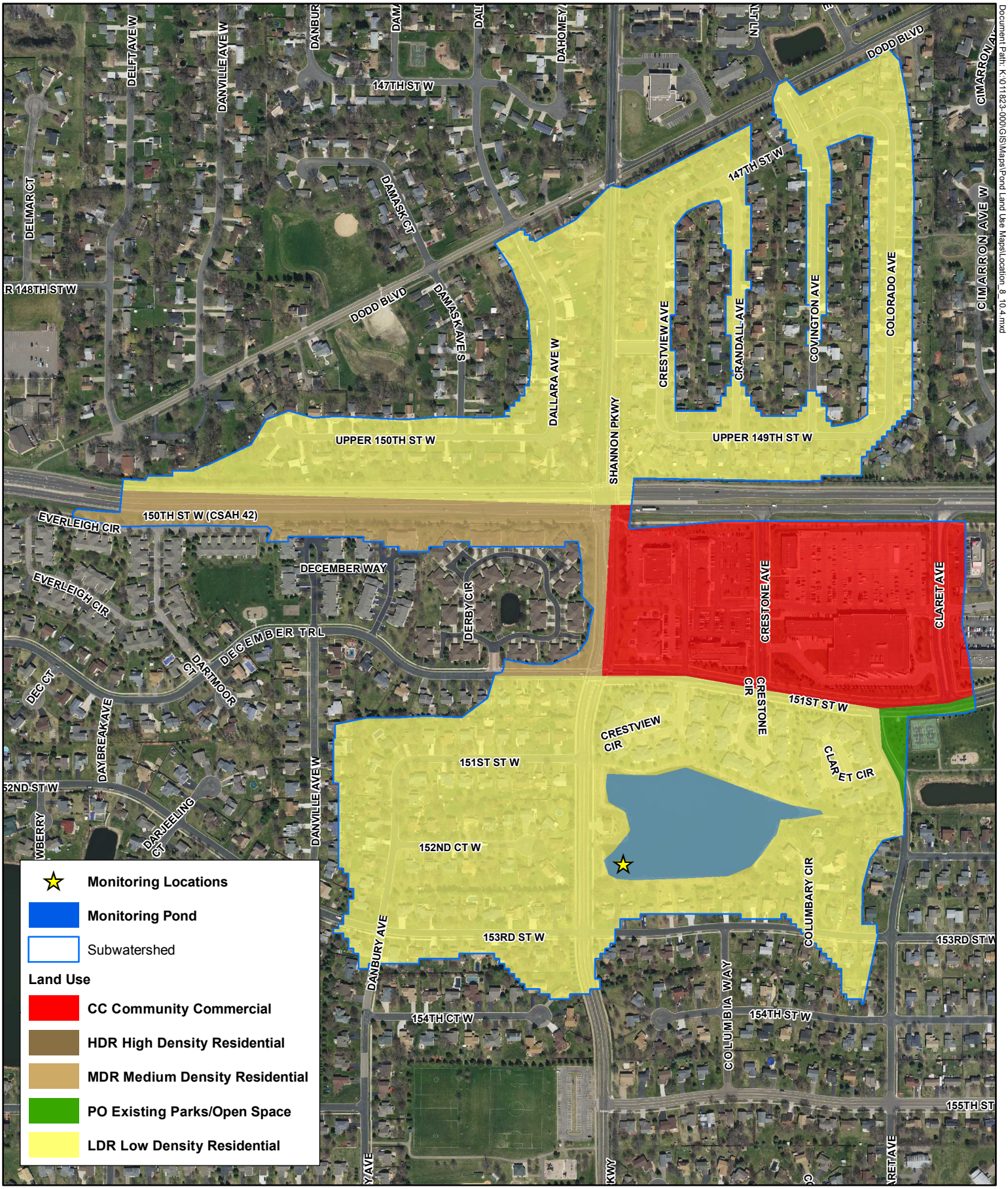
Location 7
2024 Evaporation & Infiltration Study

ROSEMOUNT
MINNESOTA

N

0 300 Feet

wsb



Location 8
2024 Evaporation & Infiltration Study

ROSEMOUNT
MINNESOTA

N

0 500 Feet

wsb

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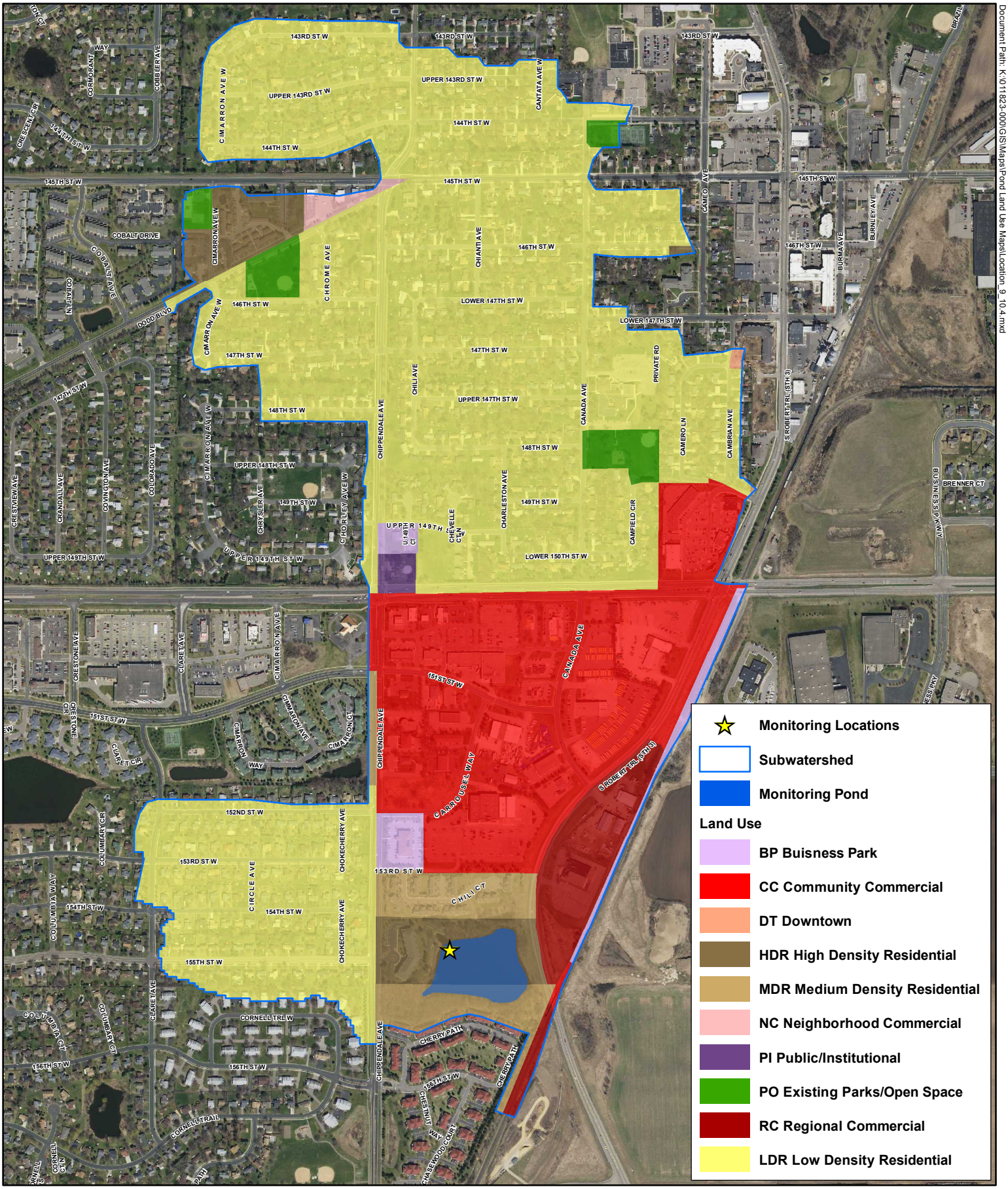

Location 9
2024 Evaporation & Infiltration Study

ROSEMOUNT
MINNESOTA

wsb

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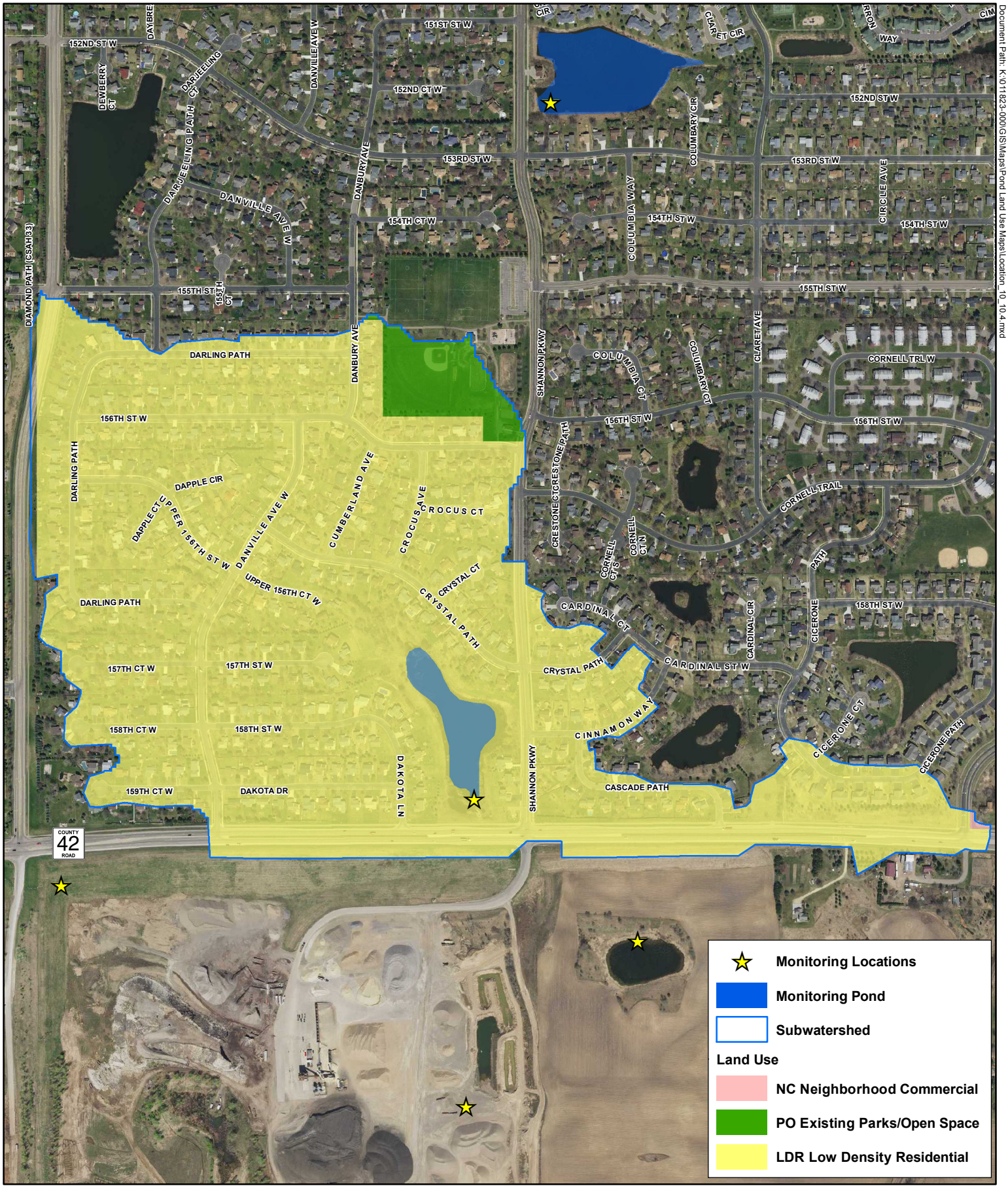

Location 10
2024 Evaporation & Infiltration Study

ROSEMOUNT MINNESOTA

N

0 650 Feet

wsb

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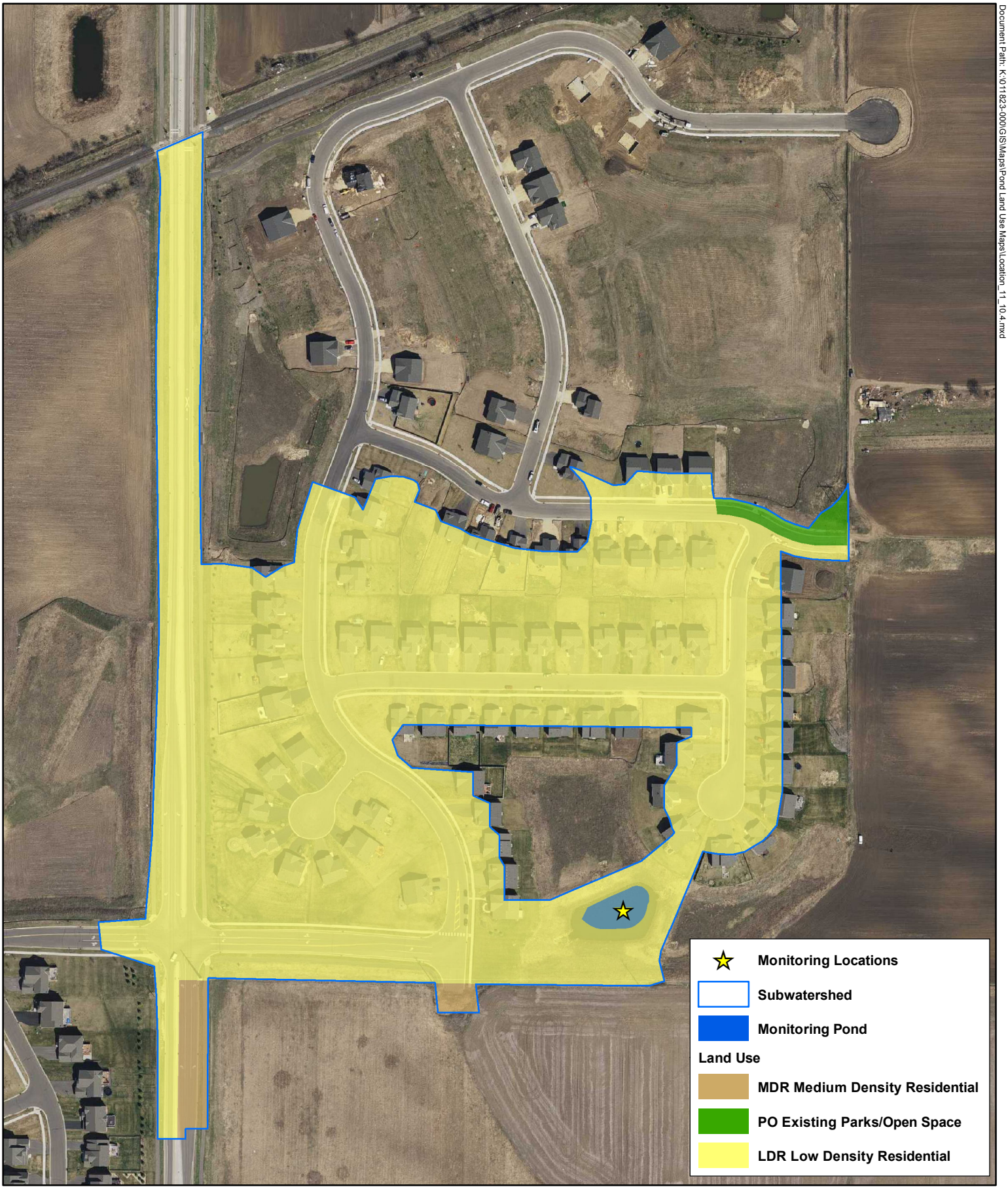

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Location 11
2024 Evaporation & Infiltration Study

ROSEMOUNT
MINNESOTA

N

0 250 Feet

wsb

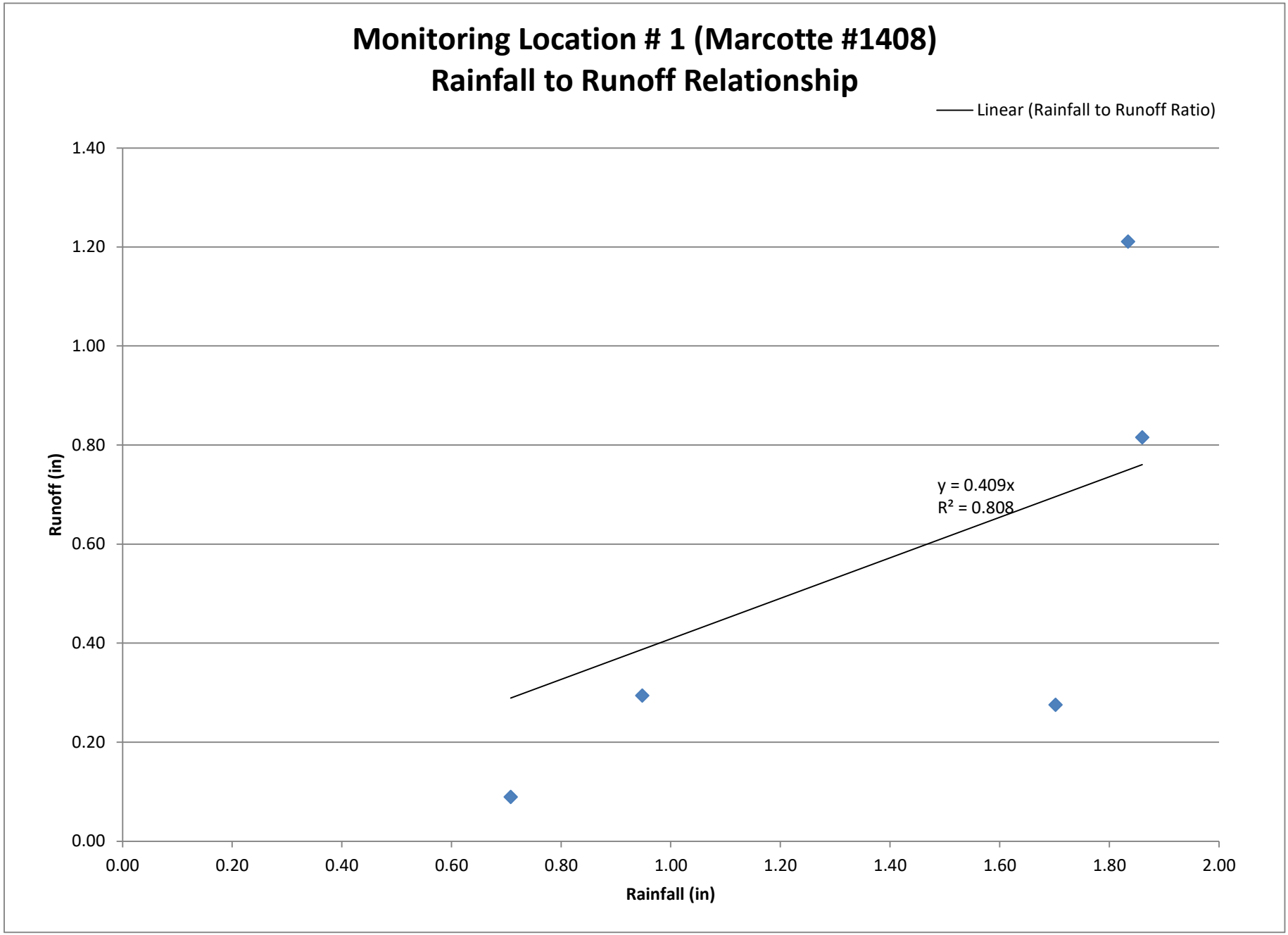
Attachment B – 2024 Water Level Tables and Charts
B.1 2024 Water Levels
B.2 2024 Rainfall to Runoff Tables and Charts
B.3 2024 Evaporation & Infiltration Tables

Infiltration and Evaporation Rates for:
Monitoring Location # 1 (Marcotte #1408)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Period of no Rainfall	Beginning Elevation (ft)	Ending Elevation (ft)	Change in Elevation (ft)	Duration of Period (hr)	Evaporation & Infiltration Rate* (in/hr)	Pond Area (ac)	Overall Volume Reduction within Period (ac-ft)
6/4--6/8	907.97	907.96	0.00	75.0	0.001	1.90	0.01
6/8--6/11	907.95	907.85	0.10	68.0	0.017	1.90	0.19
6/11--6/12	907.85	907.82	0.04	23.0	0.020	1.90	0.07
6/12--6/15	907.83	907.74	0.09	68.0	0.015	1.90	0.17
6/24--6/27	909.07	908.97	0.10	72.0	0.017	1.90	0.19
6/28--7/1	909.07	908.96	0.11	71.0	0.018	1.90	0.20
7/2--7/4	908.96	908.88	0.08	50.0	0.019	1.90	0.15
7/5--7/14	908.98	908.61	0.38	198.0	0.023	1.90	0.72
7/14--7/15	908.62	908.55	0.08	27.0	0.034	1.90	0.14
7/15--7/21	908.55	908.24	0.31	143.0	0.026	1.90	0.59
7/21--7/22	908.28	908.25	0.03	26.0	0.012	1.90	0.05
7/23--7/28	908.33	908.09	0.24	138.0	0.021	1.90	0.46
7/29--7/31	908.06	907.99	0.07	52.0	0.016	1.90	0.13
8/1--8/3	908.26	908.24	0.02	48.0	0.005	1.90	0.04
8/4--8/5	908.25	908.22	0.04	26.0	0.017	1.90	0.07
8/6--8/15	908.46	908.02	0.44	200.0	0.027	1.90	0.84
8/15--8/16	908.11	908.06	0.06	26.0	0.027	1.90	0.11
8/17--8/22	908.05	907.77	0.28	115.0	0.029	1.90	0.53
8/22--8/26	907.79	907.67	0.12	98.0	0.015	1.90	0.23
8/30--9/2	908.94	908.82	0.12	53.0	0.028	1.90	0.23
					SUM =		5.13

* Evaporation and Infiltration rates were selected from periods on no rain.

Range of Evaporation and Infiltration Rates (in/hr)	**0.001**	**0.034**
Average Evaporation and Infiltration Rate (in/hr)	**0.019**	


Monitoring Location # 1 (Marcotte #1408)
Rainfall to Runoff Relationship
Linear (Rainfall to Runoff Ratio)
y = 0.409x
R² = 0.808
Runoff (in)
Rainfall (in)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
1.80
2.00

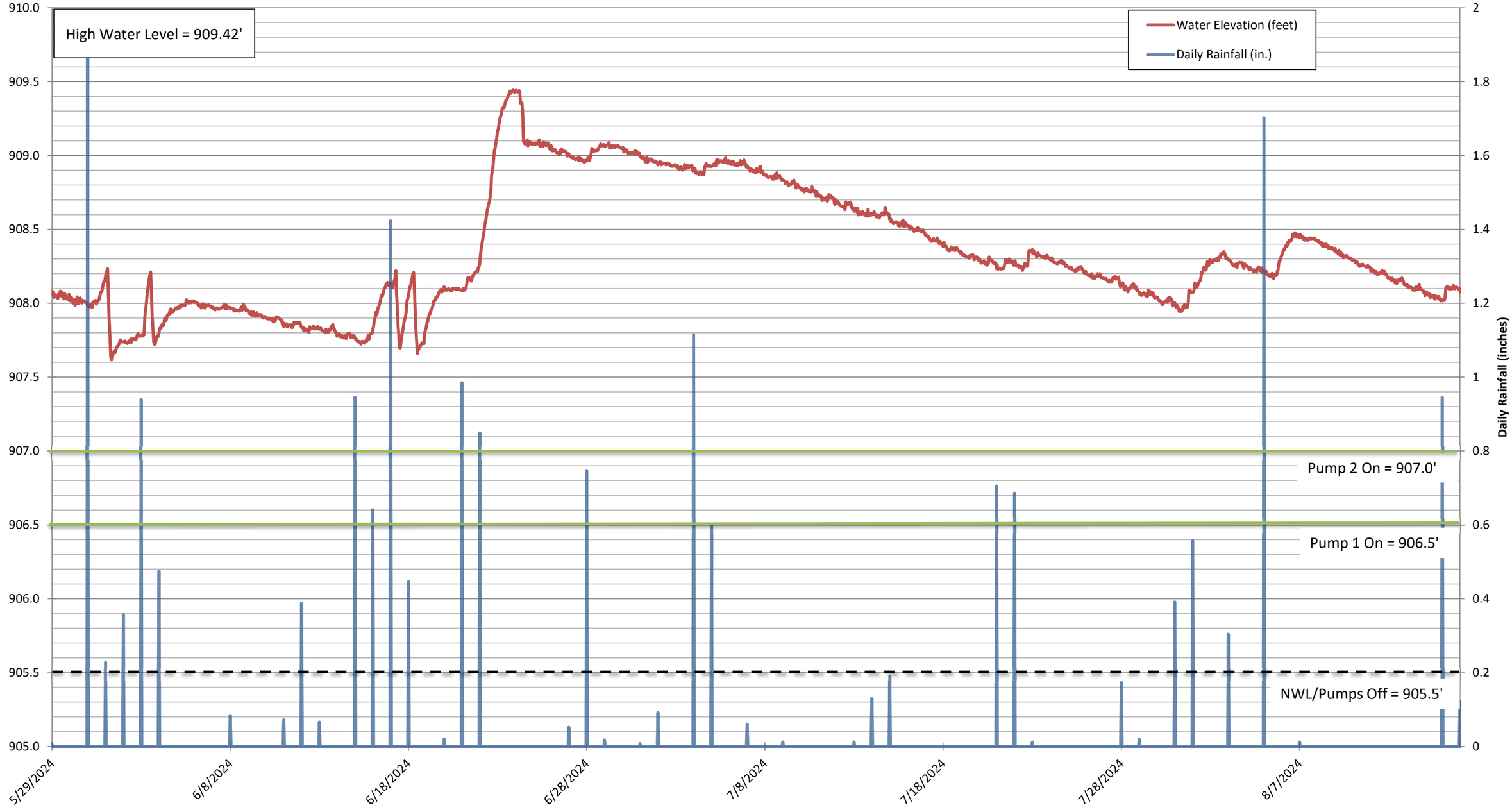
Rainfall to Runoff Ratio Data for:
Monitoring Location # 1 (Marcotte #1408)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Rain Event	Rainfall Event (in)	Start Elevation (ft)	End Elevation (ft)	Duration of Period (hr)	Hourly Average E/I (ft/hr)	Pond Area (ac)	Runoff Inflow Volume* (ac-ft)	Watershed Area (ac)	Runoff (in)	Rainfall / Runoff Ratio
21-Jun	1.83	908.08	909.44	64	0.0016	1.90	2.76	27.4	1.211	0.66
27-Jun	0.71	908.95	909.04	12	0.0016	1.90	0.20	27.4	0.089	0.13
31-Jul	0.95	907.97	908.28	27	0.0016	1.90	0.67	27.4	0.294	0.31
5-Aug	1.70	908.21	908.48	38	0.0016	1.90	0.63	27.4	0.276	0.16
29-Aug	1.86	908.03	908.96	26	0.0016	1.90	1.86	27.4	0.815	0.44

Range of Rainfall to Runoff Ratios	0.13	0.66
Rainfall to Runoff Ratio Based on Linear Regression	**0.41**	

* E/I = Evaporation and infiltration rate included in volume calculation

Monitoring Location # 1 (Marcotte #1408)
Surface Water Elevation & Rainfall

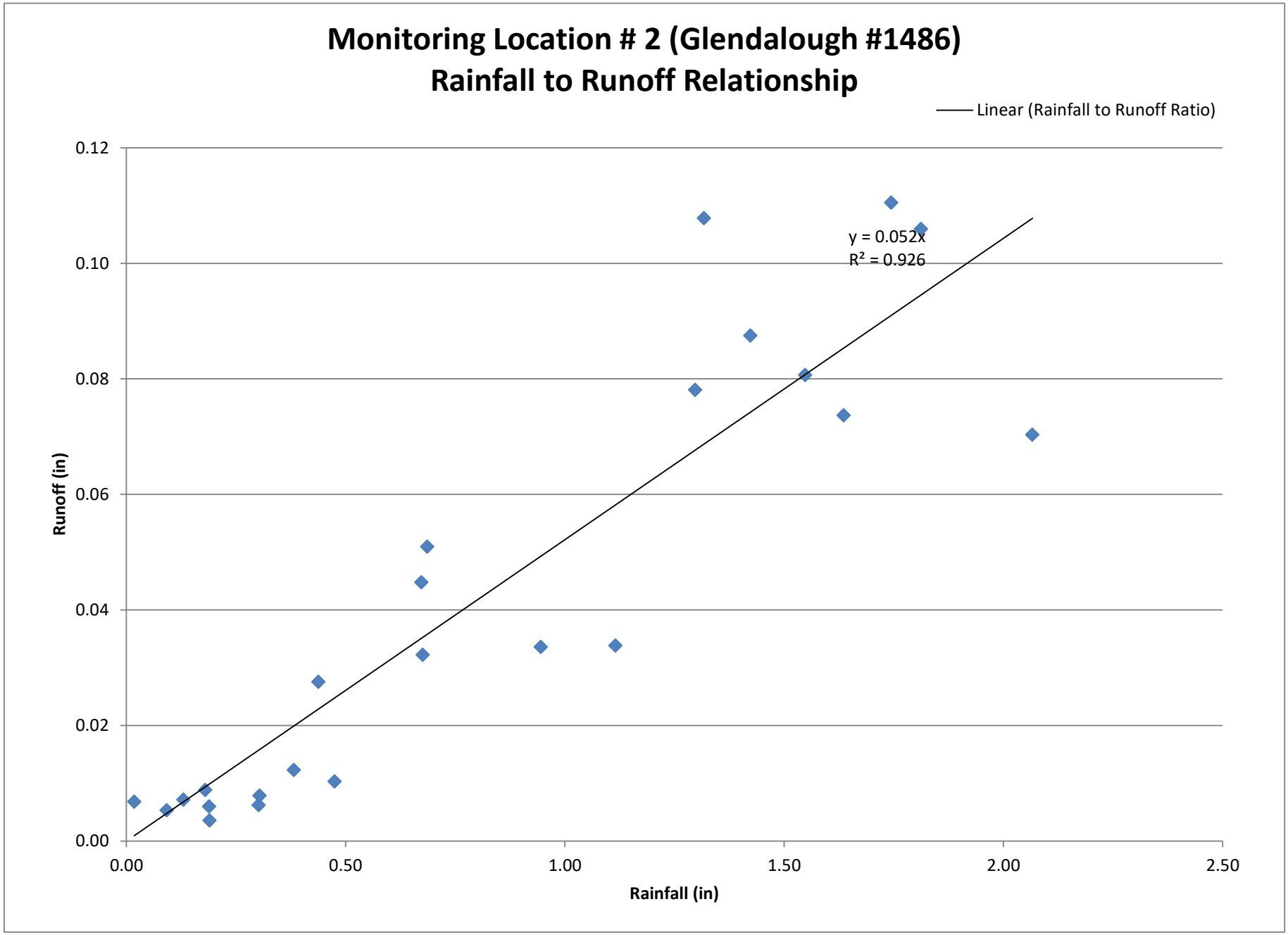


Infiltration and Evaporation Rates for:
Monitoring Location # 2 (Glendalough #1486)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Period of no Rainfall	Beginning Elevation (ft)	Ending Elevation (ft)	Change in Elevation (ft)	Duration of Period (hr)	Evaporation & Infiltration Rate* (in/hr)	Pond Area (ac)	Overall Volume Reduction within Period (ac-ft)
6/1--6/2	925.34	925.18	0.16	28	0.069	1.39	0.22
6/3--6/4	925.78	925.54	0.25	32	0.092	1.39	0.34
6/4--6/11	925.61	924.74	0.87	151	0.069	1.39	1.21
6/11--6/12	924.74	924.67	0.08	24	0.038	1.39	0.11
6/12--6/13	924.76	924.73	0.03	10	0.038	1.39	0.04
6/13--6/15	924.73	924.58	0.15	55	0.033	1.39	0.21
6/16--6/17	925.21	925.13	0.08	23	0.041	1.39	0.11
6/18--6/18	925.78	925.64	0.14	18	0.093	1.39	0.19
6/19--6/21	925.87	925.48	0.39	50	0.093	1.39	0.54
6/22--6/27	926.23	925.27	0.96	117	0.099	1.39	1.34
6/28--6/28	925.49	925.43	0.06	10	0.072	1.39	0.08
6/28--6/29	925.43	925.39	0.04	7	0.065	1.39	0.05
6/29--7/1	925.38	925.04	0.34	62	0.065	1.39	0.47
7/2--7/4	925.05	924.85	0.19	50	0.047	1.39	0.27
7/5--7/14	925.11	924.53	0.58	208	0.034	1.39	0.81
7/14--7/15	924.57	924.53	0.05	26	0.022	1.39	0.07
7/15--7/21	924.54	924.33	0.22	141	0.018	1.39	0.30
7/21--7/22	924.71	924.66	0.05	27	0.024	1.39	0.08
7/23--7/28	925.06	924.70	0.36	140	0.031	1.39	0.50
8/1--8/3	925.53	925.28	0.25	52	0.058	1.39	0.35
8/4--8/5	925.33	925.24	0.09	26	0.042	1.39	0.13
8/5--8/15	925.82	925.03	0.78	219	0.043	1.39	1.09
8/15--8/16	925.31	925.25	0.06	26	0.028	1.39	0.08
8/17--8/22	925.25	925.02	0.23	115	0.024	1.39	0.33
8/22--8/23	925.05	925.03	0.02	15	0.017	1.39	0.03
8/23--8/26	925.03	924.92	0.11	79	0.017	1.39	0.16
8/27--8/29	925.79	925.53	0.27	56	0.057	1.39	0.37
8/29--9/5	926.45	925.52	0.93	149	0.075	1.39	1.30
9/5--9/6	925.51	925.43	0.09	33	0.031	1.39	0.12
9/6--9/14	925.43	925.02	0.41	186	0.026	1.39	0.57
9/14--9/19	925.06	924.87	0.19	120	0.019	1.39	0.26
9/19--10/24	924.88	924.17	0.70	831	0.010	1.39	0.98
						SUM =	**12.7**

Range of Evaporation and Infiltration Rates (in/hr)	**0.010**	**0.099**
Average Evaporation and Infiltration Rate (in/hr)	**0.047**	

* Evaporation and Infiltration rates were selected from periods on no rain.


Monitoring Location # 2 (Glendalough #1486)
Rainfall to Runoff Relationship
Linear (Rainfall to Runoff Ratio)
y = 0.052x
R² = 0.926
Runoff (in)
Rainfall (in)
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.00
0.50
1.00
1.50
2.00
2.50

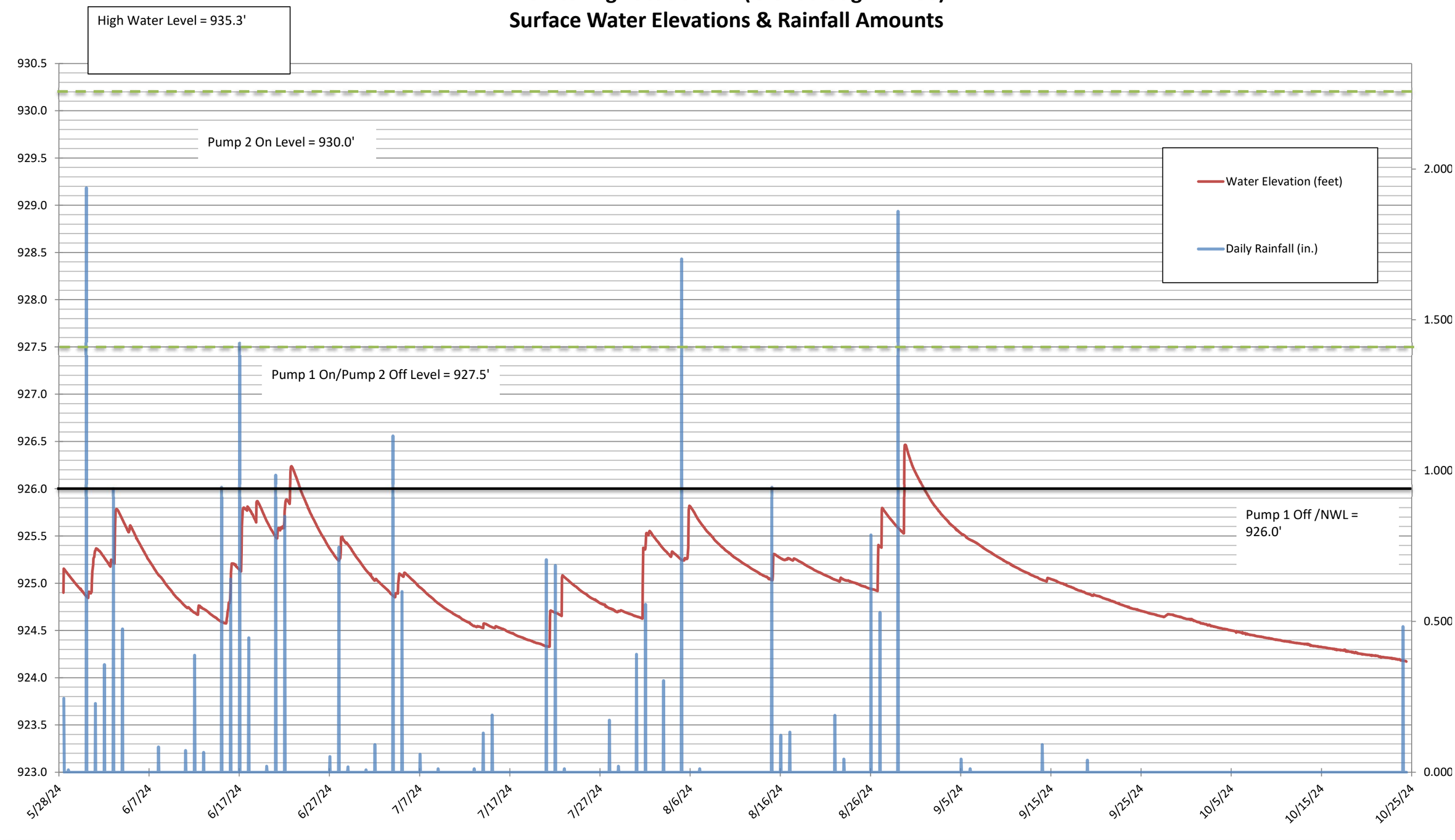
Rainfall to Runoff Ratio Data for:
Monitoring Location # 2 (Glendalough #1486)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Rain Event	Rainfall Event (in)	Start Elevation (ft)	End Elevation (ft)	Duration of Period (hr)	Hourly Average E/I (ft/hr)*	Pond Area (ac)	Runoff Inflow Volume* (ac-ft)	Watershed Area (ac)	Runoff (in)	Rainfall / Runoff Ratio
31-May	2.07	924.85	925.37	21	0.0039	1.39	0.84	143.3	0.070	0.03
2-Jun	1.30	925.18	925.79	16	0.0039	1.39	0.93	143.3	0.078	0.06
4-Jun	0.48	925.54	925.61	4	0.0039	1.39	0.12	143.3	0.010	0.02
12-Jun	0.38	924.67	924.76	2	0.0039	1.39	0.15	143.3	0.012	0.03
15-Jun	1.55	924.57	925.21	15	0.0039	1.39	0.96	143.3	0.081	0.05
17-Jun	1.42	925.13	925.81	17	0.0039	1.39	1.05	143.3	0.088	0.06
18-Jun	0.44	925.64	925.87	3	0.0039	1.39	0.33	143.3	0.028	0.06
21-Jun	1.81	925.48	926.24	38	0.0039	1.39	1.27	143.3	0.106	0.06
28-Jun	0.68	925.24	925.49	7	0.0039	1.39	0.39	143.3	0.032	0.05
4-Jul	1.12	924.85	925.10	11	0.0039	1.39	0.40	143.3	0.034	0.03
5-Jul	0.30	925.07	925.11	3	0.0039	1.39	0.07	143.3	0.006	0.02
14-Jul	0.13	924.53	924.58	3	0.0039	1.39	0.09	143.3	0.007	0.06
15-Jul	0.19	924.53	924.54	3	0.0039	1.39	0.04	143.3	0.004	0.02
21-Jul	0.67	924.33	924.71	2	0.0039	1.39	0.53	143.3	0.045	0.07
22-Jul	0.69	924.65	925.08	2	0.0039	1.39	0.61	143.3	0.051	0.07
1-Aug	0.02	925.51	925.55	3	0.0039	1.39	0.08	143.3	0.007	0.38
3-Aug	0.30	925.28	925.34	3	0.0039	1.39	0.09	143.3	0.008	0.03
5-Aug	1.64	925.24	925.82	14	0.0039	1.39	0.88	143.3	0.074	0.05
15-Aug	0.95	925.03	925.31	3	0.0039	1.39	0.40	143.3	0.034	0.04
16-Aug	0.18	925.25	925.26	17	0.0039	1.39	0.11	143.3	0.009	0.05
22-Aug	0.19	925.02	925.06	3	0.0039	1.39	0.07	143.3	0.006	0.03
26-Aug	1.32	924.92	925.80	12	0.0039	1.39	1.29	143.3	0.108	0.08
29-Aug	1.74	925.53	926.47	3	0.0039	1.39	1.32	143.3	0.111	0.06
14-Sep	0.09	925.02	925.06	2	0.0039	1.39	0.06	143.3	0.005	0.06

Range of Rainfall to Runoff Ratios	0.02	0.38
Rainfall to Runoff Ratio Based on Linear Regression	**0.05**	

* E/I = Evaporation and infiltration rate included in volume calculation

Monitoring Location # 2 (Glendalough #1486)
Surface Water Elevations & Rainfall Amounts

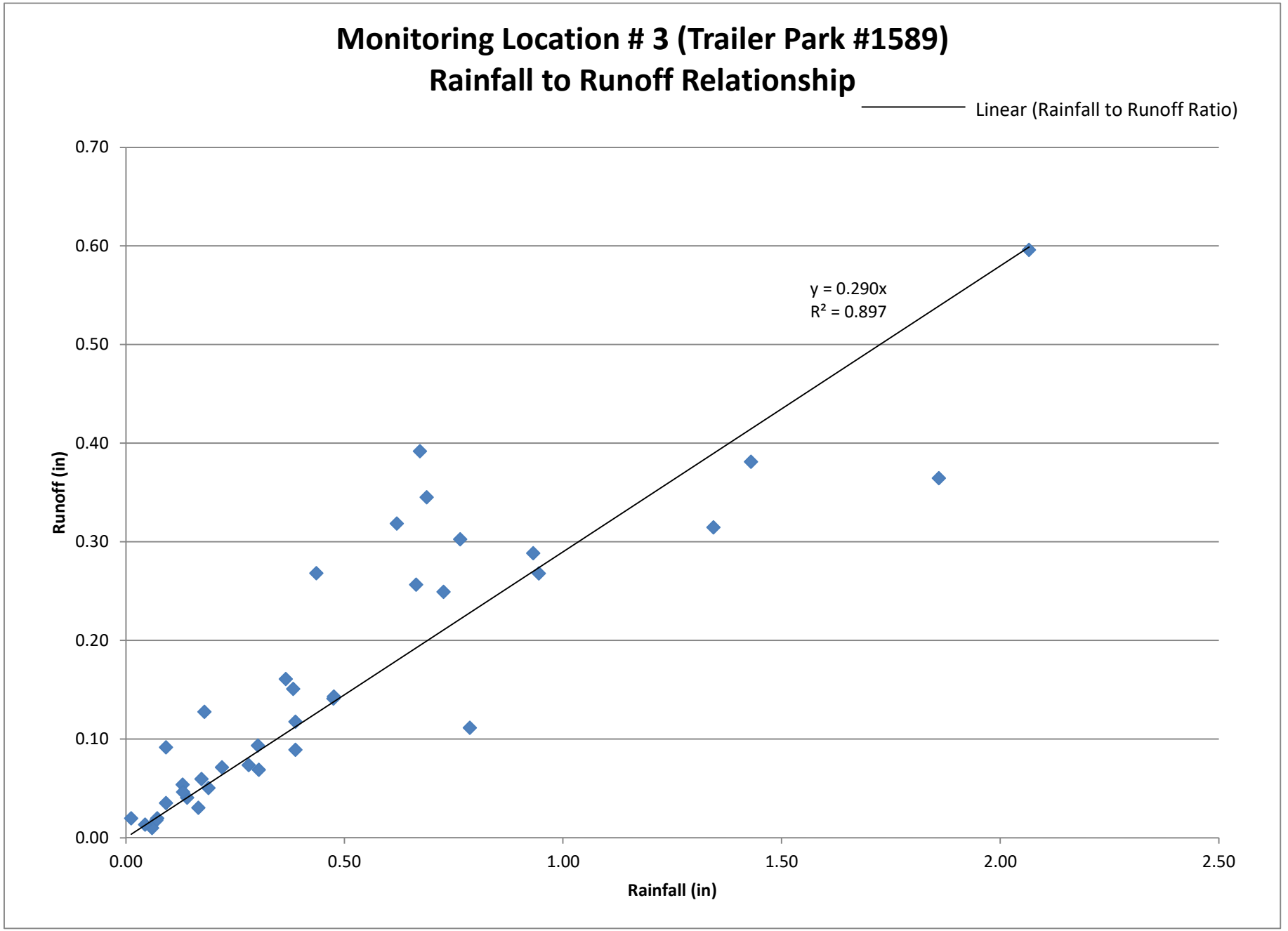


Infiltration and Evaporation Rates for:
Monitoring Location # 3 (Trailer Park #1589)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Period of no Rainfall	Beginning Elevation (ft)	Ending Elevation (ft)	Change in Elevation (ft)	Duration of Period (hr)	Evaporation & Infiltration Rate* (in/hr)	Pond Area (ac)	Overall Volume Reduction within Period (ac-ft)
6/1--6/2	927.72	926.77	0.95	36	0.318	0.87	0.83
6/2--6/3	926.99	926.27	0.72	16	0.536	0.87	0.62
6/3--6/4	927.63	927.01	0.63	21	0.359	0.87	0.55
6/5--6/7	926.96	926.38	0.58	37	0.187	0.87	0.50
6/7--6/8	926.53	926.37	0.16	13	0.145	0.87	0.14
6/8--6/11	926.32	925.82	0.50	68	0.088	0.87	0.43
6/11--6/12	925.86	925.77	0.09	23	0.047	0.87	0.08
6/12--6/13	926.15	926.10	0.05	10	0.059	0.87	0.04
6/13--6/15	926.09	925.82	0.27	55	0.059	0.87	0.24
6/16--6/17	927.58	927.07	0.51	16	0.385	0.87	0.45
6/18--6/18	926.58	926.29	0.29	4	0.876	0.87	0.25
6/18--6/18	927.60	927.23	0.37	10	0.443	0.87	0.32
6/19--6/21	927.75	926.56	1.18	50	0.283	0.87	1.03
6/22--6/27	928.46	925.96	2.49	119	0.251	0.87	2.17
6/28--6/28	927.06	926.90	0.16	10	0.190	0.87	0.14
6/29--7/1	926.80	926.18	0.63	62	0.121	0.87	0.54
7/2--7/4	926.23	925.91	0.32	49	0.078	0.87	0.28
7/4--7/5	927.00	926.90	0.10	7	0.165	0.87	0.08
7/5--7/7	927.16	926.62	0.54	39	0.167	0.87	0.47
7/7--7/9	926.63	926.10	0.53	61	0.104	0.87	0.46
7/9--7/13	926.08	925.74	0.34	91	0.045	0.87	0.29
7/13--7/14	925.75	925.74	0.01	9	0.012	0.87	0.01
7/14--7/15	925.90	925.83	0.07	27	0.033	0.87	0.06
7/15--7/21	925.91	925.61	0.30	141	0.026	0.87	0.27
7/21--7/22	926.99	926.51	0.47	29	0.196	0.87	0.41
7/22--7/28	927.65	925.90	1.75	147	0.143	0.87	1.52
7/29--7/31	926.12	925.89	0.23	52	0.053	0.87	0.20
8/1--8/3	929.24	927.95	1.29	58	0.267	0.87	1.12
8/4--8/5	928.15	927.87	0.27	26	0.126	0.87	0.24
8/6--8/7	928.96	928.29	0.66	40	0.199	0.87	0.58
8/8--8/15	928.27	927.24	1.03	170	0.072	0.87	0.89
8/15--8/16	928.17	927.93	0.25	32	0.092	0.87	0.21
8/16--8/17	928.00	927.93	0.07	12	0.068	0.87	0.06
8/17--8/22	928.02	927.36	0.66	116	0.069	0.87	0.58
8/22--8/23	927.51	927.46	0.05	16	0.038	0.87	0.04
8/23--8/26	927.45	927.21	0.24	79	0.036	0.87	0.21
8/27--8/29	927.87	926.60	1.27	52	0.293	0.87	1.10
8/29--8/30	927.31	926.80	0.50	7	0.861	0.87	0.44
8/30--9/5	927.97	925.99	1.98	133	0.179	0.87	1.73
9/5--9/14	926.00	925.53	0.47	221	0.026	0.87	0.41
9/14--9/19	925.83	925.62	0.22	120	0.022	0.87	0.19
9/19--10/24	925.61	925.25	0.37	832	0.005	0.87	0.32
					SUM =		20.50

Range of Evaporation and Infiltration Rates (in/hr)	**0.005**	**0.876**
Average Evaporation and Infiltration Rate (in/hr)	**0.184**	

* Evaporation and Infiltration rates were selected from periods of no rain.


Monitoring Location # 3 (Trailer Park #1589)
Rainfall to Runoff Relationship
Linear (Rainfall to Runoff Ratio)
y = 0.290x
R² = 0.897
Runoff (in)
Rainfall (in)
0.00
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.00
0.50
1.00
1.50
2.00
2.50

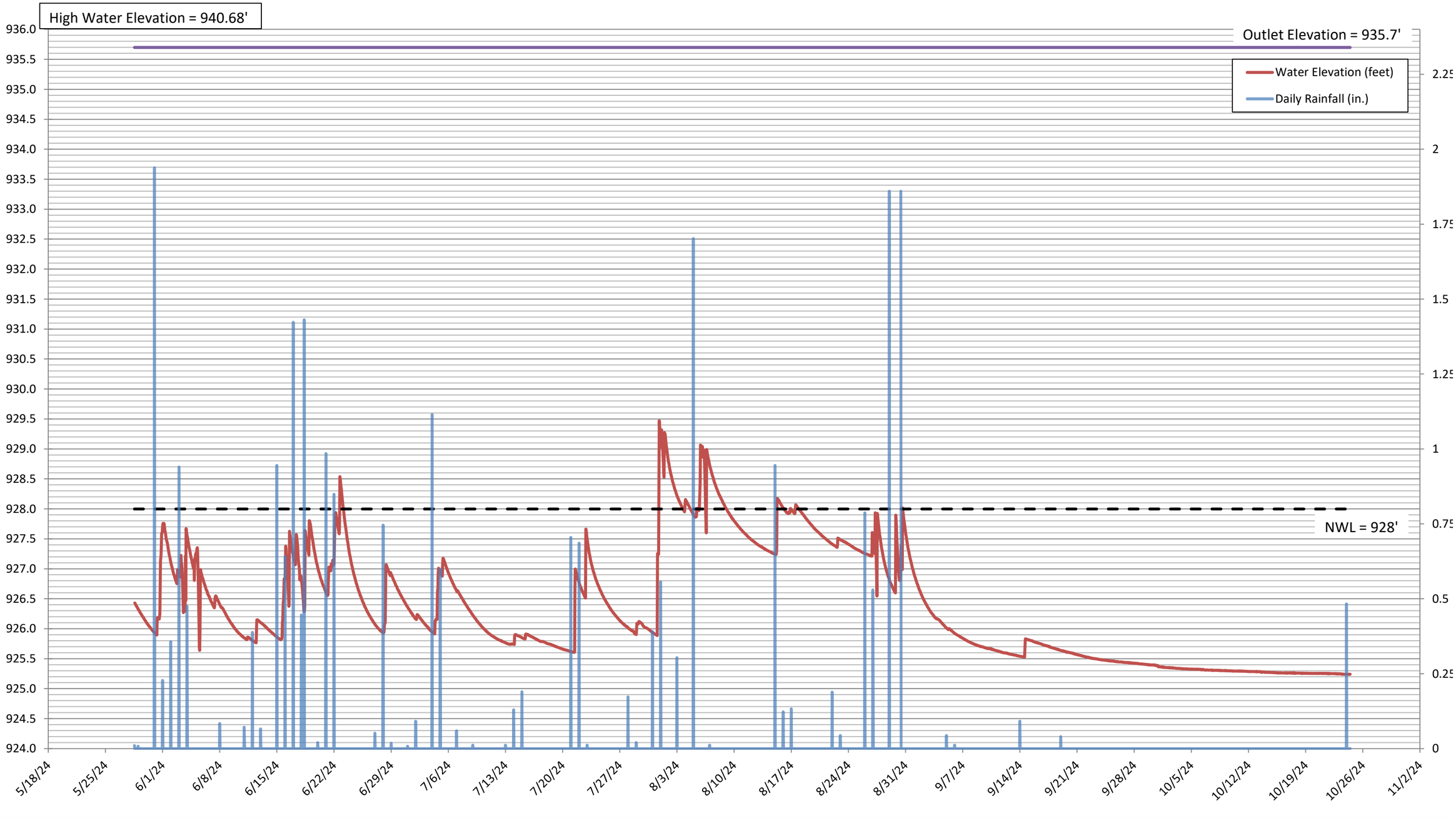
Rainfall to Runoff Ratio Data for:
Monitoring Location # 3 (Trailer Park #1589)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Rain Event	Rainfall Event (in)	Start Elevation (ft)	End Elevation (ft)	Duration of Period (hr)	Hourly Average E/I (ft/hr)*	Pond Area (ac)	Runoff Inflow Volume* (ac-ft)	Watershed Area (ac)	Runoff (in)	Rainfall / Runoff Ratio
31-May	2.07	925.90	927.76	21	0.0153	0.87	1.90	38.3	0.596	0.29
2-Jun	0.28	926.75	926.99	2	0.0153	0.87	0.23	38.3	0.074	0.26
3-Jun	0.93	926.86	927.67	16	0.0153	0.87	0.92	38.3	0.288	0.31
4-Jun	0.48	927.01	927.35	11	0.0153	0.87	0.45	38.3	0.141	0.30
7-Jun	0.22	926.35	926.55	4	0.0153	0.87	0.23	38.3	0.071	0.32
11-Jun	0.07	925.82	925.86	2	0.0153	0.87	0.06	38.3	0.020	0.27
12-Jun	0.39	925.77	926.15	3	0.0153	0.87	0.37	38.3	0.118	0.30
15-Jun	0.77	925.83	926.83	7	0.0153	0.87	0.96	38.3	0.302	0.40
15-Jun	0.38	926.86	927.38	2	0.0153	0.87	0.48	38.3	0.151	0.39
18-Jun	1.43	926.29	927.64	3	0.0153	0.87	1.22	38.3	0.381	0.27
18-Jun	0.37	927.23	927.80	1	0.0153	0.87	0.51	38.3	0.161	0.44
21-Jun	0.48	926.57	927.03	4	0.0153	0.87	0.46	38.3	0.143	0.30
21-Jun	0.14	926.97	927.08	2	0.0153	0.87	0.13	38.3	0.041	0.29
21-Jun	0.66	927.07	927.94	5	0.0153	0.87	0.82	38.3	0.256	0.39
22-Jun	0.44	927.59	928.54	2	0.0153	0.87	0.85	38.3	0.268	0.61
28-Jun	0.69	925.93	927.07	8	0.0153	0.87	1.10	38.3	0.345	0.50
28-Jun	0.07	926.89	926.94	1	0.0153	0.87	0.06	38.3	0.018	0.25
2-Jul	0.09	926.16	926.24	3	0.0153	0.87	0.11	38.3	0.035	0.38
4-Jul	0.39	925.91	926.16	5	0.0153	0.87	0.28	38.3	0.089	0.23
4-Jul	0.73	926.16	927.01	4	0.0153	0.87	0.79	38.3	0.249	0.34
5-Jul	0.30	926.88	927.18	3	0.0153	0.87	0.30	38.3	0.093	0.31
7-Jul	0.06	926.62	926.64	1	0.0153	0.87	0.03	38.3	0.010	0.17
14-Jul	0.13	925.74	925.91	2	0.0153	0.87	0.17	38.3	0.054	0.41
15-Jul	0.17	925.83	925.91	2	0.0153	0.87	0.10	38.3	0.030	0.18
21-Jul	0.67	925.61	927.00	3	0.0153	0.87	1.25	38.3	0.392	0.58
22-Jul	0.62	926.51	927.67	1	0.0153	0.87	1.02	38.3	0.319	0.51
28-Jul	0.17	925.90	926.09	2	0.0153	0.87	0.19	38.3	0.059	0.34
29-Jul	0.01	926.08	926.12	2	0.0153	0.87	0.06	38.3	0.020	1.63
3-Aug	0.30	927.95	928.16	3	0.0153	0.87	0.22	38.3	0.069	0.23
5-Aug	0.13	927.87	928.01	2	0.0153	0.87	0.15	38.3	0.046	0.35
5-Aug	1.34	927.97	929.07	4	0.0153	0.87	1.00	38.3	0.315	0.23
15-Aug	0.95	927.24	928.18	3	0.0153	0.87	0.85	38.3	0.268	0.28
16-Aug	0.18	927.93	928.07	21	0.0153	0.87	0.41	38.3	0.128	0.71
22-Aug	0.19	927.36	927.51	2	0.0153	0.87	0.16	38.3	0.050	0.27
26-Aug	0.79	927.21	927.61	1	0.0153	0.87	0.36	38.3	0.111	0.14
30-Aug	1.86	926.80	928.02	8	0.0153	0.87	1.16	38.3	0.364	0.20
5-Sep	0.04	925.99	926.00	2	0.0153	0.87	0.04	38.3	0.013	0.30
14-Sep	0.09	925.53	925.83	2	0.0153	0.87	0.29	38.3	0.092	1.00

* E/I = Evaporation and infiltration rate included in volume calculation

Range of Rainfall to Runoff Ratios	0.14	1.63
Rainfall to Runoff Ratio Based on Linear Regression	**0.29**	

Monitoring Location # 3 (Trailer Park #1589)
Surface Water Elevation & Rainfall

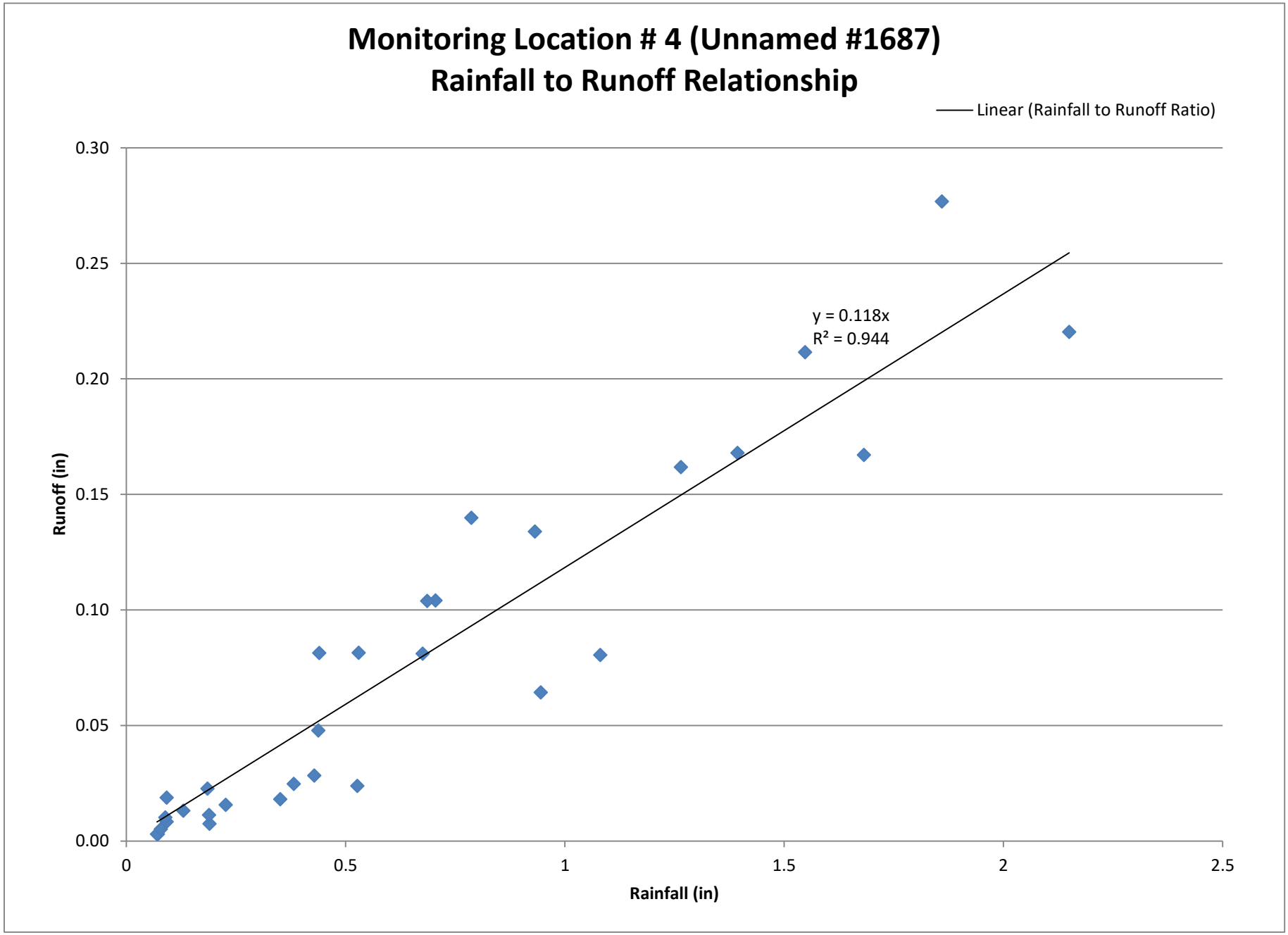


Infiltration and Evaporation Rates for:
Monitoring Location # 4 (Unnamed #1687)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Period of no Rainfall	Beginning Elevation (ft)	Ending Elevation (ft)	Change in Elevation (ft)	Duration of Period (hr)	Evaporation & Infiltration Rate* (in/hr)	Pond Area (ac)	Overall Volume Reduction within Period (ac-ft)
6/1--6/2	929.58	929.26	0.31	25	0.151	0.55	0.17
6/3--6/4	930.41	929.39	1.02	32	0.384	0.55	0.57
6/4--6/8	929.59	928.59	0.99	75	0.159	0.55	0.55
6/8--6/11	928.55	928.10	0.45	68	0.080	0.55	0.25
6/11--6/12	928.12	927.97	0.14	24	0.072	0.55	0.08
6/12--6/13	928.18	928.12	0.06	11	0.070	0.55	0.04
6/13--6/15	928.11	927.81	0.30	55	0.065	0.55	0.17
6/16--6/17	929.52	929.32	0.20	21	0.115	0.55	0.11
6/18--6/18	929.90	929.56	0.34	16	0.256	0.55	0.19
6/19--6/21	929.91	929.08	0.83	49	0.203	0.55	0.46
6/22--6/22	930.32	930.01	0.31	8	0.468	0.55	0.17
6/22--6/27	930.69	928.50	2.19	118	0.223	0.55	1.21
6/29--7/1	929.06	928.50	0.55	62	0.107	0.55	0.31
7/2--7/4	928.55	928.28	0.26	50	0.063	0.55	0.14
7/5--7/14	929.02	927.95	1.07	208	0.062	0.55	0.59
7/14--7/15	928.06	927.96	0.10	29	0.040	0.55	0.05
7/15--7/21	928.01	927.56	0.45	142	0.038	0.55	0.25
7/21--7/22	928.44	928.27	0.17	27	0.076	0.55	0.09
7/23--7/28	929.09	928.12	0.96	140	0.082	0.55	0.53
7/29--7/31	928.25	928.03	0.22	57	0.046	0.55	0.12
8/1--8/3	929.60	928.98	0.61	52	0.141	0.55	0.34
8/4--8/5	929.10	928.92	0.18	27	0.079	0.55	0.10
8/6--8/15	930.20	928.44	1.76	217	0.097	0.55	0.97
8/15--8/16	928.96	928.82	0.14	24	0.070	0.55	0.08
8/16--8/16	928.81	928.81	0.01	6	0.012	0.55	0.00
8/16--8/17	928.84	928.79	0.05	12	0.052	0.55	0.03
8/17--8/22	928.83	928.36	0.47	115	0.049	0.55	0.26
8/22--8/23	928.44	928.40	0.04	16	0.034	0.55	0.02
8/23--8/26	928.39	928.16	0.22	79	0.034	0.55	0.12
8/27--8/29	929.99	929.06	0.93	56	0.198	0.55	0.51
8/29--9/14	931.42	928.25	3.17	374	0.102	0.55	1.76
9/14--10/24	928.39	927.02	1.38	954	0.017	0.55	0.76
						SUM =	11.02

Range of Evaporation and Infiltration Rates (in/hr)	**0.012**	**0.468**
Average Evaporation and Infiltration Rate (in/hr)	**0.114**	

* Evaporation and Infiltration rates were selected from periods on no rain.


Monitoring Location # 4 (Unnamed #1687)
Rainfall to Runoff Relationship
Linear (Rainfall to Runoff Ratio)
y = 0.118x
R² = 0.944
Runoff (in)
Rainfall (in)
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0
0.5
1
1.5
2
2.5

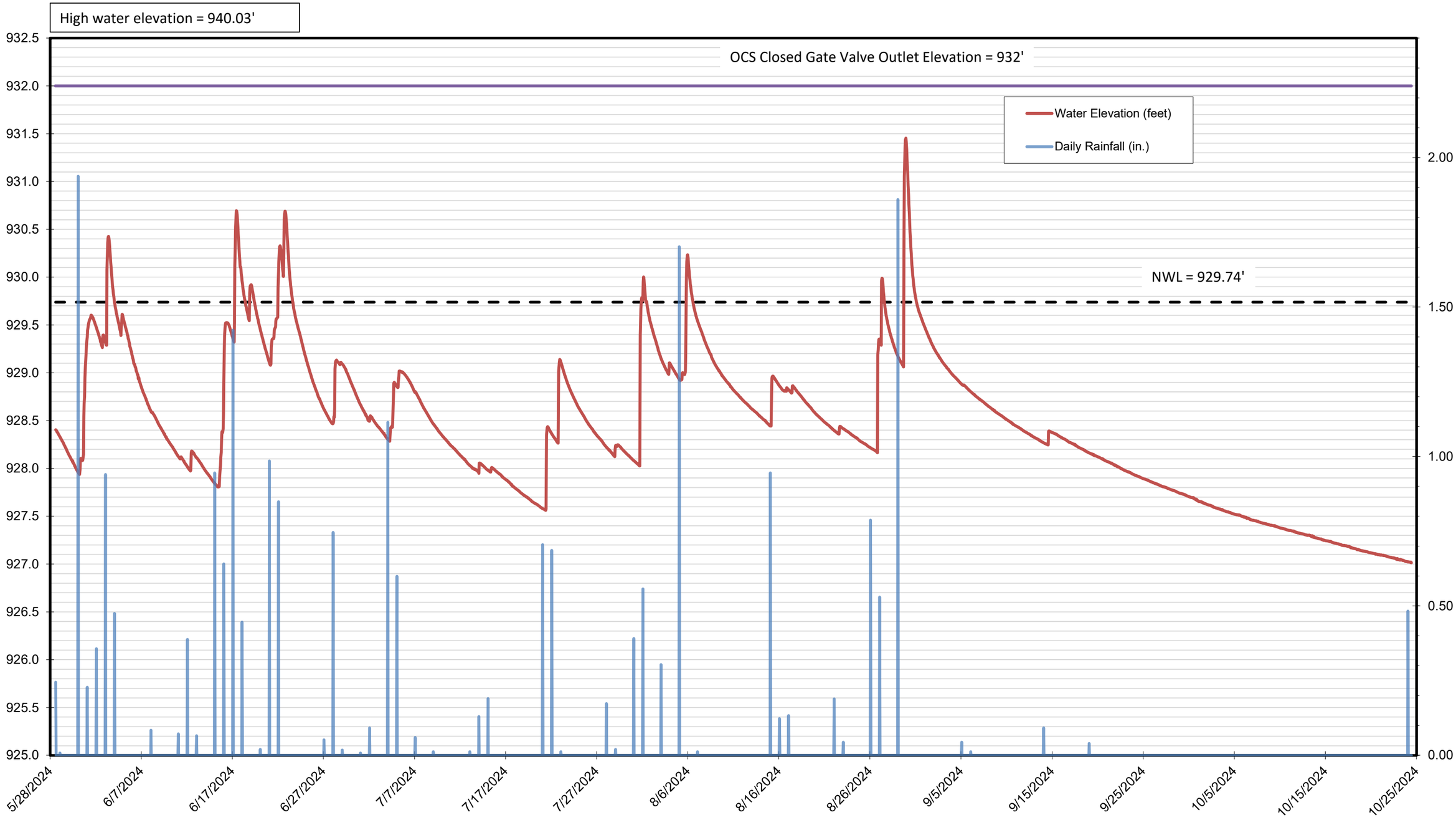
Rainfall to Runoff Ratio Data for:
Monitoring Location # 4 (Unnamed #1687)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Rain Event	Rainfall Event (in)	Start Elevation (ft)	End Elevation (ft)	Duration of Period (hr)	Hourly Average E/I (ft/hr)*	Pond Area (ac)	Runoff Inflow Volume* (ac-ft)	Watershed Area (ac)	Runoff (in)	Rainfall / Runoff Ratio
31-May	2.15	927.94	929.60	30	0.0095	0.55	1.08	58.8	0.220	0.10
2-Jun	0.351	929.26	929.40	3	0.0095	0.55	0.09	58.8	0.018	0.05
3-Jun	0.932	929.29	930.43	5	0.0095	0.55	0.66	58.8	0.134	0.14
4-Jun	0.429	929.39	929.61	3	0.0095	0.55	0.14	58.8	0.028	0.07
11-Jun	0.072	928.10	928.12	1	0.0095	0.55	0.01	58.8	0.003	0.04
12-Jun	0.382	927.98	928.18	2	0.0095	0.55	0.12	58.8	0.025	0.06
15-Jun	1.548	927.81	929.52	17	0.0095	0.55	1.04	58.8	0.212	0.14
17-Jun	1.265	929.32	930.70	6	0.0095	0.55	0.79	58.8	0.162	0.13
18-Jun	0.438	929.55	929.92	5	0.0095	0.55	0.23	58.8	0.048	0.11
21-Jun	1.394	929.08	930.33	25	0.0095	0.55	0.82	58.8	0.168	0.12
22-Jun	0.44	930.01	930.69	4	0.0095	0.55	0.40	58.8	0.081	0.18
28-Jun	0.676	928.47	929.12	7	0.0095	0.55	0.40	58.8	0.081	0.12
28-Jun	0.07	929.09	929.11	1	0.0095	0.55	0.01	58.8	0.003	0.04
2-Jul	0.092	928.50	928.55	2	0.0095	0.55	0.04	58.8	0.008	0.09
4-Jul	1.081	928.28	928.89	11	0.0095	0.55	0.39	58.8	0.080	0.07
5-Jul	0.527	928.85	929.02	4	0.0095	0.55	0.12	58.8	0.024	0.05
14-Jul	0.13	927.95	928.06	1	0.0095	0.55	0.06	58.8	0.013	0.10
15-Jul	0.19	927.96	928.01	2	0.0095	0.55	0.04	58.8	0.007	0.04
21-Jul	0.705	927.56	928.44	5	0.0095	0.55	0.51	58.8	0.104	0.15
22-Jul	0.686	928.27	929.14	5	0.0095	0.55	0.51	58.8	0.104	0.15
28-Jul	0.185	928.12	928.25	8	0.0095	0.55	0.11	58.8	0.023	0.12
3-Aug	0.227	928.98	929.10	2	0.0095	0.55	0.08	58.8	0.016	0.07
5-Aug	1.682	928.93	930.23	18	0.0095	0.55	0.82	58.8	0.167	0.10
15-Aug	0.945	928.44	928.97	5	0.0095	0.55	0.32	58.8	0.064	0.07
16-Aug	0.079	928.81	928.84	1	0.0095	0.55	0.03	58.8	0.005	0.07
17-Aug	0.089	928.79	928.87	2	0.0095	0.55	0.05	58.8	0.010	0.11
22-Aug	0.189	928.36	928.44	2	0.0095	0.55	0.06	58.8	0.011	0.06
26-Aug	0.787	928.16	929.36	5	0.0095	0.55	0.69	58.8	0.140	0.18
27-Aug	0.53	929.29	929.99	2	0.0095	0.55	0.40	58.8	0.081	0.15
29-Aug	1.86	929.06	931.45	6	0.0095	0.55	1.36	58.8	0.277	0.15
14-Sep	0.092	928.25	928.39	2	0.0095	0.55	0.09	58.8	0.019	0.20

Range of Rainfall to Runoff Ratios	0.04	0.20
Rainfall to Runoff Ratio Based on Linear Regression	**0.12**	

* E/I = Evaporation and infiltration rate included in volume calculation

Monitoring Location # 4 (Unnamed #1687)
Surface Water Elevation & Rainfall

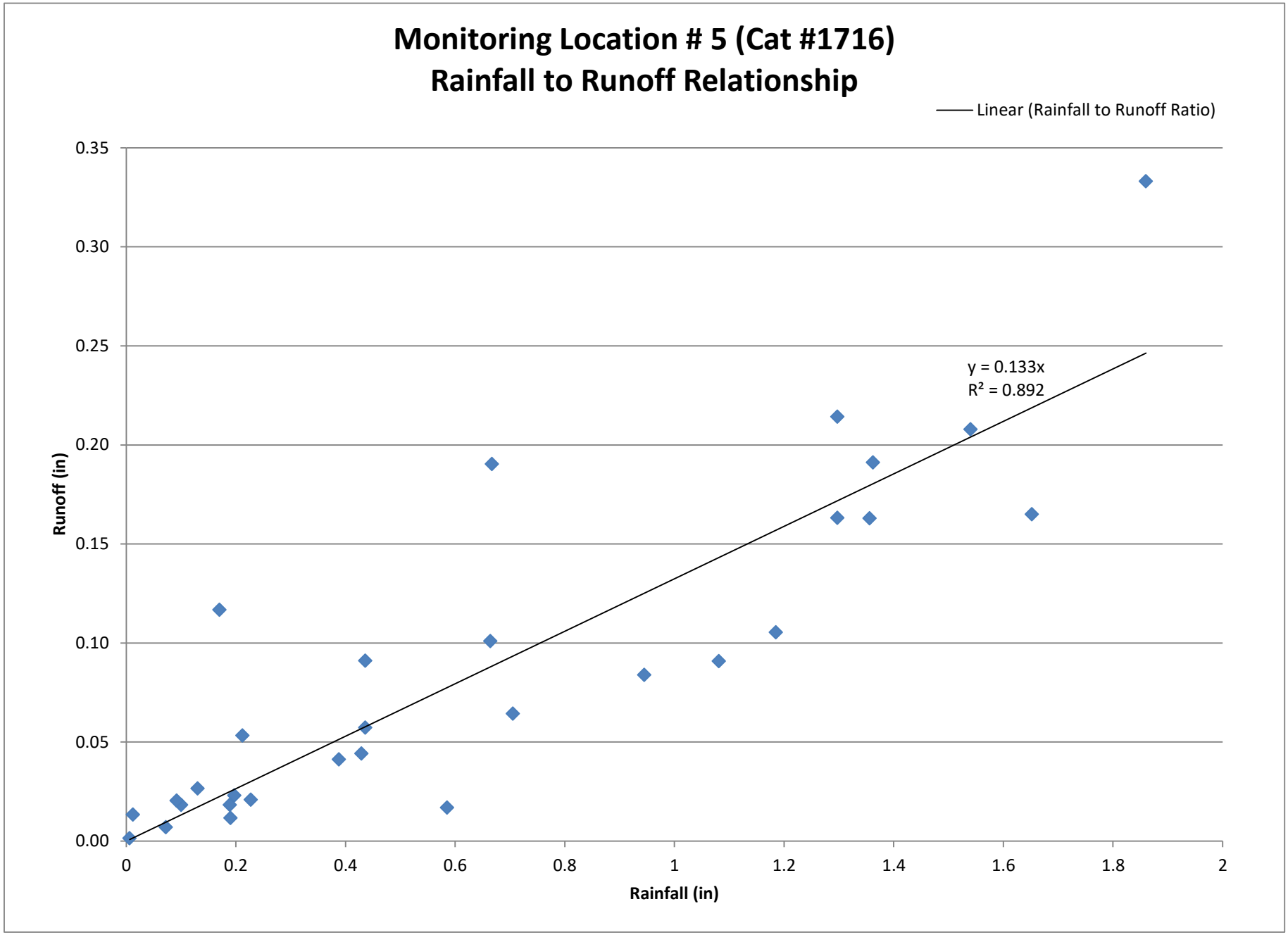


Infiltration and Evaporation Rates for:
Monitoring Location # 5 (Cat #1716)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Period of no Rainfall	Beginning Elevation (ft)	Ending Elevation (ft)	Change in Elevation (ft)	Duration of Period (hr)	Evaporation & Infiltration Rate* (in/hr)	Pond Area (ac)	Overall Volume Reduction within Period (ac-ft)
6/1--6/2	916.70	916.35	0.35	34	0.124	0.55	0.19
6/3--6/4	917.09	916.43	0.67	33	0.242	0.55	0.37
6/4--6/8	916.63	916.19	0.43	76	0.069	0.55	0.24
6/8--6/11	916.19	916.00	0.19	68	0.033	0.55	0.10
6/11--6/12	916.01	915.96	0.05	23	0.026	0.55	0.03
6/12--6/13	916.14	916.14	0.00	9	0.004	0.55	0.00
6/13--6/15	916.14	916.02	0.12	55	0.027	0.55	0.07
6/16--6/17	916.92	916.41	0.51	23	0.269	0.55	0.28
6/18--6/18	916.72	916.72	0.01	18	0.004	0.55	0.00
6/19--6/20	916.74	916.40	0.34	37	0.109	0.55	0.19
6/20--6/21	916.39	916.37	0.03	11	0.029	0.55	0.01
6/22--6/22	917.17	916.87	0.30	10	0.361	0.55	0.17
6/22--6/27	917.30	916.34	0.96	120	0.096	0.55	0.53
6/28--6/28	916.81	916.57	0.24	12	0.240	0.55	0.13
6/28--6/29	916.55	916.49	0.06	7	0.099	0.55	0.03
6/29--7/1	916.49	916.29	0.19	62	0.037	0.55	0.11
7/2--7/4	916.34	916.25	0.09	49	0.022	0.55	0.05
7/4--7/5	916.63	916.53	0.09	7	0.161	0.55	0.05
7/5--7/5	916.58	916.52	0.06	7	0.098	0.55	0.03
7/5--7/7	916.50	916.35	0.16	31	0.061	0.55	0.09
7/7--7/9	916.35	916.22	0.13	62	0.025	0.55	0.07
7/9--7/13	916.22	916.03	0.20	101	0.023	0.55	0.11
7/14--7/15	916.13	916.09	0.04	25	0.018	0.55	0.02
7/15--7/21	916.13	915.92	0.21	143	0.018	0.55	0.12
7/21--7/22	916.18	916.17	0.02	19	0.010	0.55	0.01
7/23--7/28	916.59	916.08	0.51	138	0.044	0.55	0.28
7/29--7/31	916.72	916.28	0.44	55	0.096	0.55	0.24
8/1--8/3	917.20	916.33	0.87	66	0.159	0.55	0.48
8/4--8/5	916.42	916.34	0.08	26	0.037	0.55	0.04
8/5--8/7	917.23	916.42	0.81	50	0.195	0.55	0.45
8/8--8/15	916.42	916.13	0.29	169	0.021	0.55	0.16
8/15--8/16	916.55	916.37	0.18	26	0.083	0.55	0.10
8/17--8/22	916.43	916.17	0.27	114	0.028	0.55	0.15
8/22--8/26	916.23	916.12	0.11	95	0.014	0.55	0.06
8/27--8/29	917.08	916.33	0.74	55	0.162	0.55	0.41
8/29--9/5	917.52	916.32	1.20	149	0.097	0.55	0.66
9/5--9/6	916.33	916.29	0.04	27	0.017	0.55	0.02
9/6--9/14	916.32	916.06	0.26	186	0.017	0.55	0.14
9/14--9/19	916.15	916.00	0.15	120	0.015	0.55	0.08
9/19--10/24	916.00	915.24	0.76	831	0.011	0.55	0.42
						SUM =	6.70

Range of Evaporation and Infiltration Rates (in/hr)	**0.004**	**0.361**
Average Evaporation and Infiltration Rate (in/hr)	**0.080**	

* Evaporation and Infiltration rates were selected from periods on no rain.


Monitoring Location # 5 (Cat #1716)
Rainfall to Runoff Relationship
Linear (Rainfall to Runoff Ratio)
y = 0.133x
R² = 0.892
Runoff (in)
Rainfall (in)
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2

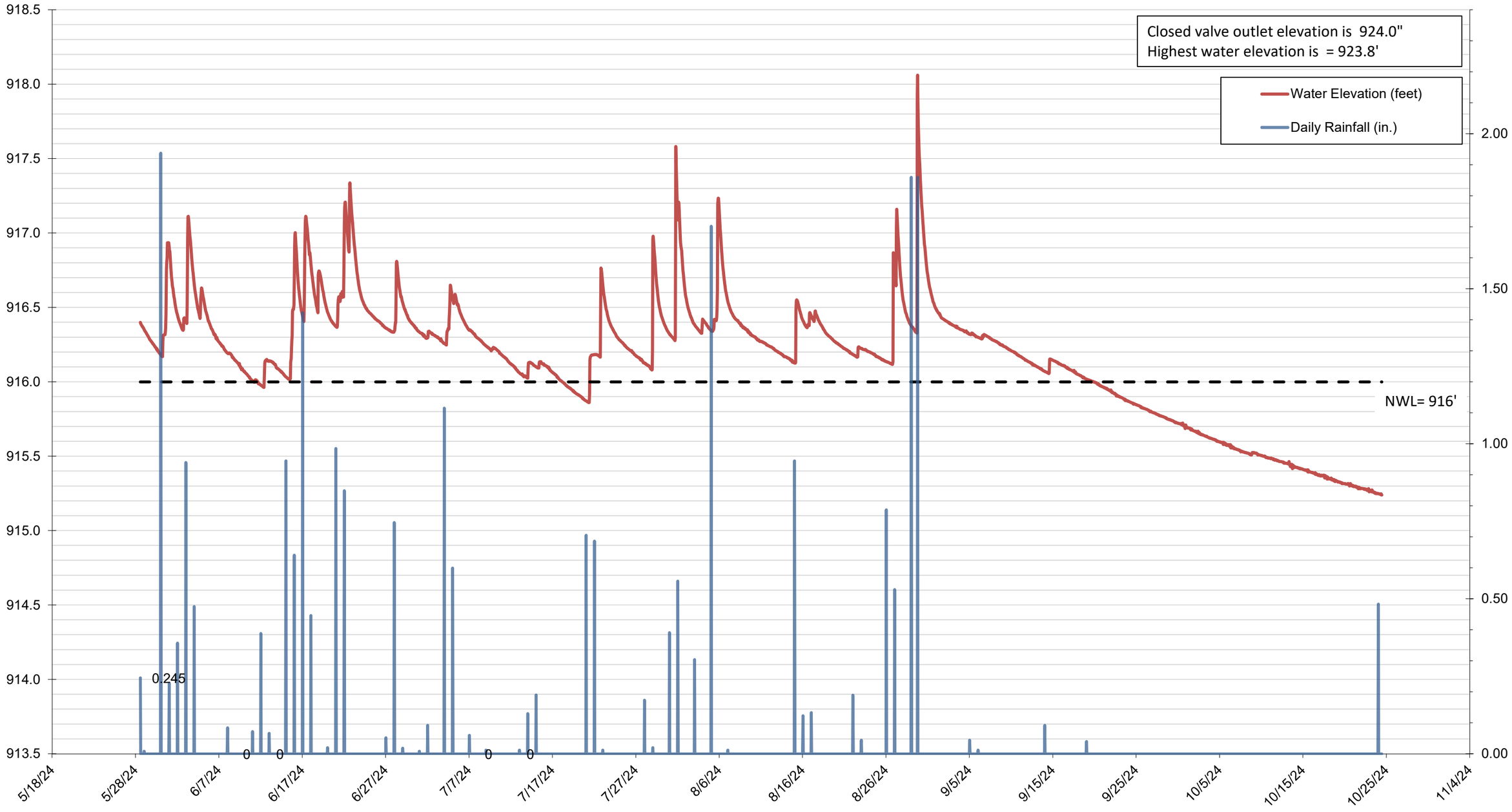
Rainfall to Runoff Ratio Data for:
Monitoring Location # 5 (Cat #1716)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Rain Event	Rainfall Event (in)	Start Elevation (ft)	End Elevation (ft)	Duration of Period (hr)	Hourly Average E/I (ft/hr)*	Pond Area (ac)	Runoff Inflow Volume* (ac-ft)	Watershed Area (ac)	Runoff (in)	Rainfall / Runoff Ratio
31-May	1.652	916.17	916.94	15	0.0067	2.69	2.33	169.2	0.165	0.10
2-Jun	1.297	916.35	917.11	14	0.0067	2.69	2.30	169.2	0.163	0.13
4-Jun	0.429	916.43	916.63	4	0.0067	2.69	0.62	169.2	0.044	0.10
11-Jun	0.072	916.00	916.01	3	0.0067	2.69	0.10	169.2	0.007	0.10
12-Jun	0.388	915.96	916.15	5	0.0067	2.69	0.58	169.2	0.041	0.11
15-Jun	1.54	916.02	917.00	16	0.0067	2.69	2.93	169.2	0.208	0.13
17-Jun	1.185	916.59	917.11	4	0.0067	2.69	1.49	169.2	0.105	0.09
18-Jun	0.436	916.47	916.75	3	0.0067	2.69	0.81	169.2	0.057	0.13
21-Jun	1.362	916.37	917.21	24	0.0067	2.69	2.70	169.2	0.191	0.14
22-Jun	0.436	916.87	917.34	2	0.0067	2.69	1.28	169.2	0.091	0.21
27-Jun	0.664	916.33	916.81	8	0.0067	2.69	1.42	169.2	0.101	0.15
1-Jul	0.1	916.29	916.34	7	0.0067	2.69	0.26	169.2	0.018	0.18
4-Jul	1.081	916.25	916.65	11	0.0067	2.69	1.28	169.2	0.091	0.08
5-Jul	0.585	916.53	916.59	4	0.0067	2.69	0.24	169.2	0.017	0.03
9-Jul	0.006	916.22	916.22	1	0.0067	2.69	0.02	169.2	0.001	0.24
14-Jul	0.13	916.03	916.13	5	0.0067	2.69	0.37	169.2	0.027	0.20
15-Jul	0.19	916.09	916.13	3	0.0067	2.69	0.16	169.2	0.012	0.06
21-Jul	0.705	915.92	916.18	11	0.0067	2.69	0.91	169.2	0.064	0.09
22-Jul	0.17	916.17	916.77	2	0.0067	2.69	1.65	169.2	0.117	0.69
31-Jul	0.667	916.28	917.21	10	0.0067	2.69	2.68	169.2	0.190	0.29
3-Aug	0.227	916.33	916.42	2	0.0067	2.69	0.29	169.2	0.021	0.09
5-Aug	0.197	916.34	916.42	6	0.0067	2.69	0.33	169.2	0.023	0.12
5-Aug	1.356	916.41	917.23	5	0.0067	2.69	2.30	169.2	0.163	0.12
15-Aug	0.945	916.13	916.55	3	0.0067	2.69	1.18	169.2	0.084	0.09
16-Aug	0.212	916.37	916.48	26	0.0067	2.69	0.75	169.2	0.053	0.25
22-Aug	0.189	916.17	916.24	4	0.0067	2.69	0.26	169.2	0.018	0.10
26-Aug	1.297	916.12	917.16	12	0.0067	2.69	3.02	169.2	0.214	0.17
29-Aug	1.86	916.33	918.06	2	0.0067	2.69	4.70	169.2	0.333	0.18
6-Sep	0.012	916.29	916.32	6	0.0067	2.69	0.19	169.2	0.013	1.11
14-Sep	0.092	916.06	916.15	2	0.0067	2.69	0.29	169.2	0.020	0.22

Range of Rainfall to Runoff Ratios	0.03	1.11
Rainfall to Runoff Ratio Based on Linear Regression	**0.13**	

* E/I = Evaporation and infiltration rate included in volume calculation

Monitoring Location # 5 (Cat #1716)
Surface Water Elevations & Rainfall Amounts

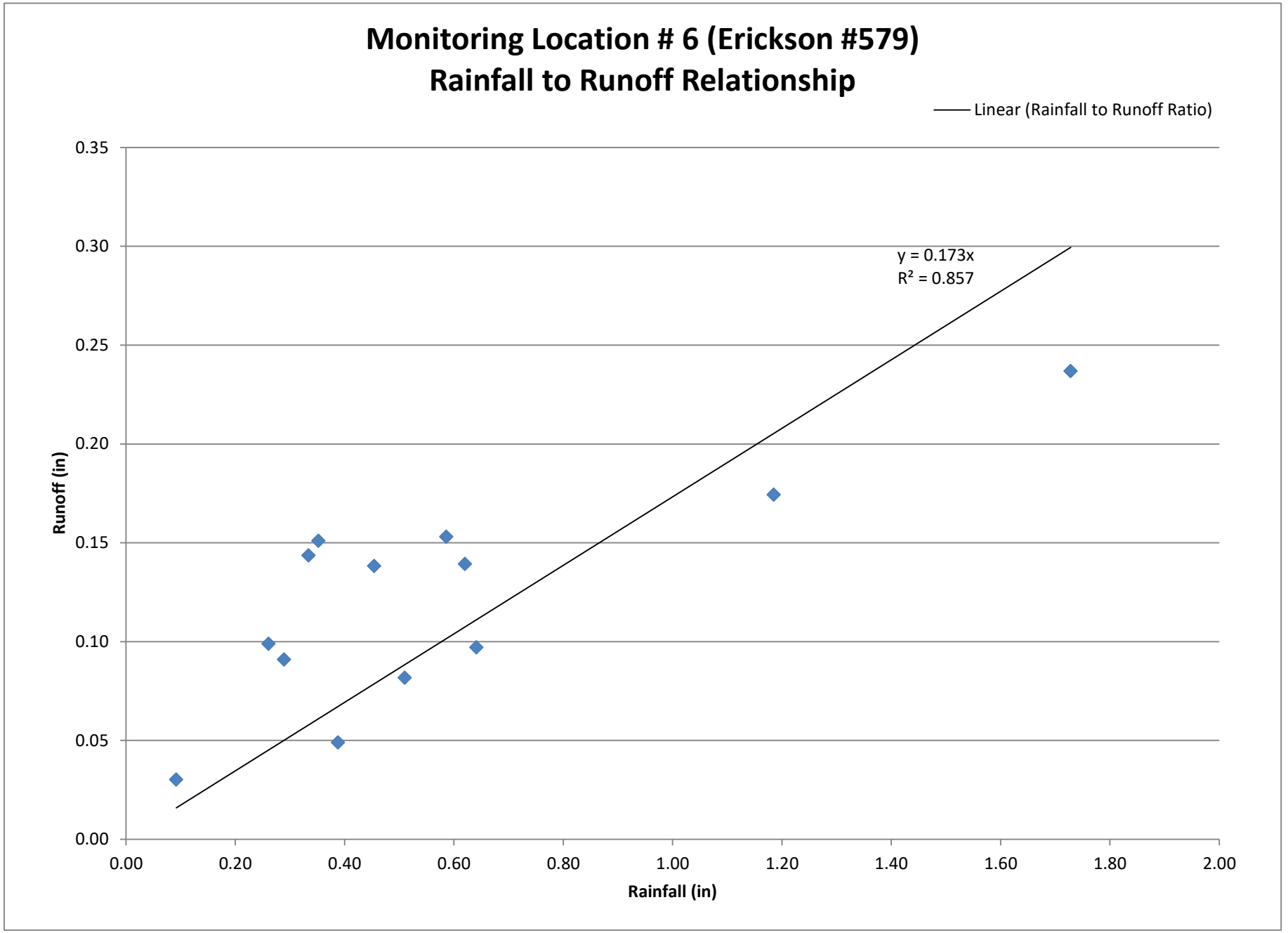


Infiltration and Evaporation Rates for:
Monitoring Location # 6 (Erickson #579)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Period of no Rainfall	Beginning Elevation (ft)	Ending Elevation (ft)	Change in Elevation (ft)	Duration of Period (hr)	Evaporation & Infiltration Rate* (in/hr)	Pond Area (ac)	Overall Volume Reduction within Period (ac-ft)
6/12--6/13	919.69	919.54	0.14	14	0.121	2.26	0.32
6/16--6/17	920.11	919.63	0.48	25	0.230	2.26	1.08
6/18--6/18	920.10	919.81	0.29	16	0.220	2.26	0.66
6/19--6/21	920.03	919.45	0.57	49	0.140	2.26	1.29
7/2--7/2	919.67	919.53	0.14	7	0.247	2.26	0.33
7/5--7/6	919.67	919.49	0.18	17	0.126	2.26	0.40
7/23--7/23	919.85	919.68	0.17	8	0.256	2.26	0.39
8/5--8/7	920.03	919.47	0.56	34	0.198	2.26	1.27
8/27--8/28	919.97	919.54	0.43	27	0.193	2.26	0.98
8/29--8/31	920.64	919.66	0.98	35	0.336	2.26	2.22
9/15--10/24	919.68	918.74	0.94	930	0.012	2.26	2.12
					SUM =		11.06

Range of Evaporation and Infiltration Rates (in/hr)	**0.012**	**0.336**
Average Evaporation and Infiltration Rate (in/hr)	**0.189**	

* Evaporation and Infiltration rates were calculated during periods of no rain and when the splash pad was not in operation.


Monitoring Location # 6 (Erickson #579)
Rainfall to Runoff Relationship
Linear (Rainfall to Runoff Ratio)
y = 0.173x
R² = 0.857
Runoff (in)
Rainfall (in)
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
1.80
2.00

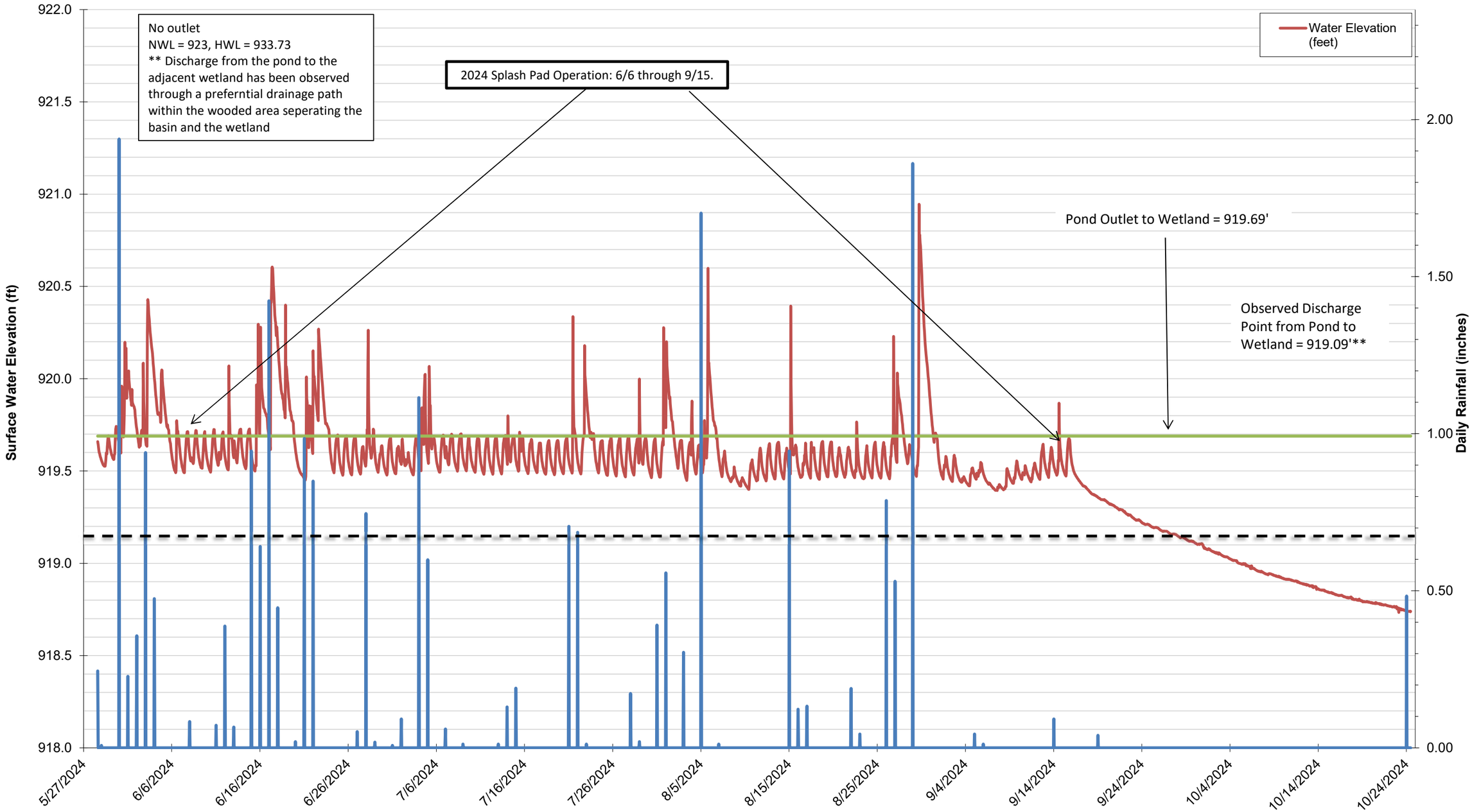
Rainfall to Runoff Ratio Data for:
Monitoring Location # 6 (Erickson #579)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Rain Event	Rainfall Event (in)	Start Elevation (ft)	End Elevation (ft)	Duration of Period (hr)	Hourly Average E/I (ft/hr)*	Pond Area (ac)	Watershed Area (ac)	Runoff (in)	Rainfall / Runoff Ratio
12-Jun	0.39	919.51	919.70	7	0.0158	2.26	166.2	0.049	0.13
15-Jun	0.59	919.50	920.30	9	0.0158	2.26	166.2	0.153	0.26
17-Jun	1.19	919.62	920.61	5	0.0158	2.26	166.2	0.174	0.15
15-Jun	0.26	919.45	920.01	3	0.0158	2.26	166.2	0.099	0.38
17-Jun	0.45	919.53	920.26	7	0.0158	2.26	166.2	0.138	0.30
21-Jun	0.09	919.54	919.67	3	0.0158	2.26	166.2	0.030	0.33
2-Jul	0.29	919.54	920.07	2	0.0158	2.26	166.2	0.091	0.31
4-Jul	0.33	919.49	920.34	2	0.0158	2.26	166.2	0.144	0.43
5-Jul	0.62	919.48	920.18	10	0.0158	2.26	166.2	0.139	0.22
22-Jul	0.35	919.48	920.39	1	0.0158	2.26	166.2	0.151	0.43
5-Aug	0.64	919.65	920.23	1	0.0158	2.26	166.2	0.097	0.15
15-Aug	0.51	919.55	920.03	1	0.0158	2.26	166.2	0.082	0.16
26-Aug	1.73	919.47	920.78	9	0.0158	2.26	166.2	0.237	0.14

Range of Rainfall to Runoff Ratios	0.13	0.43
Rainfall to Runoff Ratio Based on Linear Regression	**0.17**	

* E/I = Evaporation and infiltration rate included in volume calculation

Monitoring Location # 6 (Erickson #579)
Surface Water Elevations & Rainfall Amounts

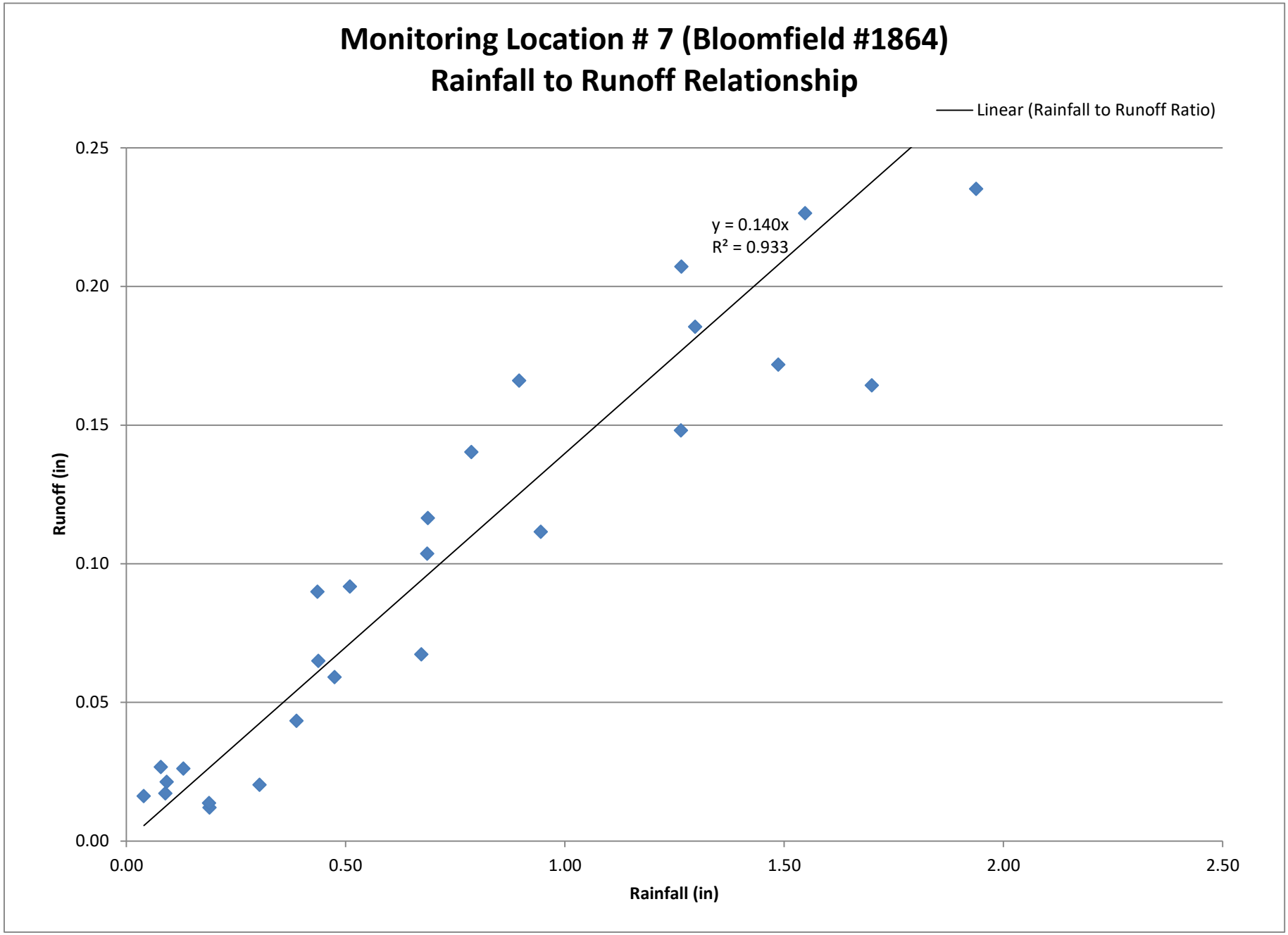


Infiltration and Evaporation Rates for:
Monitoring Location # 7 (Bloomfield #1864)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Period of no Rainfall	Beginning Elevation (ft)	Ending Elevation (ft)	Change in Elevation (ft)	Duration of Period (hr)	Evaporation & Infiltration Rate* (in/hr)	Pond Area (ac)	Overall Volume Reduction within Period (ac-ft)
6/1--6/2	908.73	908.44	0.28	28	0.120	0.79	0.22
6/3--6/4	909.00	908.58	0.41	31	0.161	0.79	0.33
6/4--6/11	908.78	908.17	0.62	151	0.049	0.79	0.49
6/11--6/12	908.17	908.13	0.04	24	0.022	0.79	0.03
6/12--6/15	908.28	908.15	0.13	68	0.022	0.79	0.10
6/16--6/17	908.94	908.55	0.38	24	0.192	0.79	0.30
6/18--6/18	908.79	908.62	0.18	18	0.117	0.79	0.14
6/19--6/21	908.85	908.52	0.32	50	0.078	0.79	0.26
6/22--6/22	909.00	908.94	0.06	3	0.240	0.79	0.05
6/23--6/27	908.98	908.47	0.51	111	0.055	0.79	0.41
6/28--6/28	908.87	908.78	0.09	10	0.103	0.79	0.07
6/28--7/1	908.78	908.53	0.25	71	0.042	0.79	0.20
7/2--7/4	908.54	908.44	0.10	50	0.024	0.79	0.08
7/5--7/7	908.96	908.72	0.24	40	0.073	0.79	0.19
7/7--7/9	908.72	908.56	0.15	61	0.030	0.79	0.12
7/9--7/14	908.56	908.39	0.17	102	0.020	0.79	0.13
7/14--7/15	908.48	908.44	0.04	27	0.017	0.79	0.03
7/15--7/21	908.46	908.26	0.21	141	0.018	0.79	0.16
7/21--7/22	908.51	908.46	0.05	27	0.021	0.79	0.04
7/22--7/28	908.86	908.41	0.44	147	0.036	0.79	0.35
7/29--7/31	908.98	908.64	0.33	56	0.071	0.79	0.26
8/1--8/3	909.00	908.71	0.29	52	0.066	0.79	0.23
8/4--8/5	908.78	908.69	0.08	26	0.037	0.79	0.06
8/6--8/15	908.99	908.43	0.56	209	0.032	0.79	0.44
8/15--8/16	908.85	908.71	0.13	26	0.061	0.79	0.11
8/16--8/17	908.79	908.75	0.04	12	0.042	0.79	0.03
8/17--8/22	908.77	908.52	0.25	116	0.026	0.79	0.20
8/22--8/23	908.57	908.54	0.02	16	0.019	0.79	0.02
8/27--8/29	908.99	908.71	0.29	50	0.068	0.79	0.23
8/30--9/5	908.99	908.54	0.45	139	0.039	0.79	0.36
9/5--9/14	908.54	908.30	0.24	222	0.013	0.79	0.19
9/14--9/19	908.37	908.26	0.11	120	0.011	0.79	0.09
9/19--10/24	908.31	907.72	0.59	832	0.009	0.79	0.47

* Evaporation and Infiltration rates were selected from periods on no rain. SUM = 6.39

Range of Evaporation and Infiltration Rates (in/hr)	**0.009**	**0.240**
Average Evaporation and Infiltration Rate (in/hr)	**0.059**	


Monitoring Location # 7 (Bloomfield #1864)
Rainfall to Runoff Relationship
Linear (Rainfall to Runoff Ratio)
y = 0.140x
R² = 0.933
Runoff (in)
Rainfall (in)
0.00
0.05
0.10
0.15
0.20
0.25
0.00
0.50
1.00
1.50
2.00
2.50

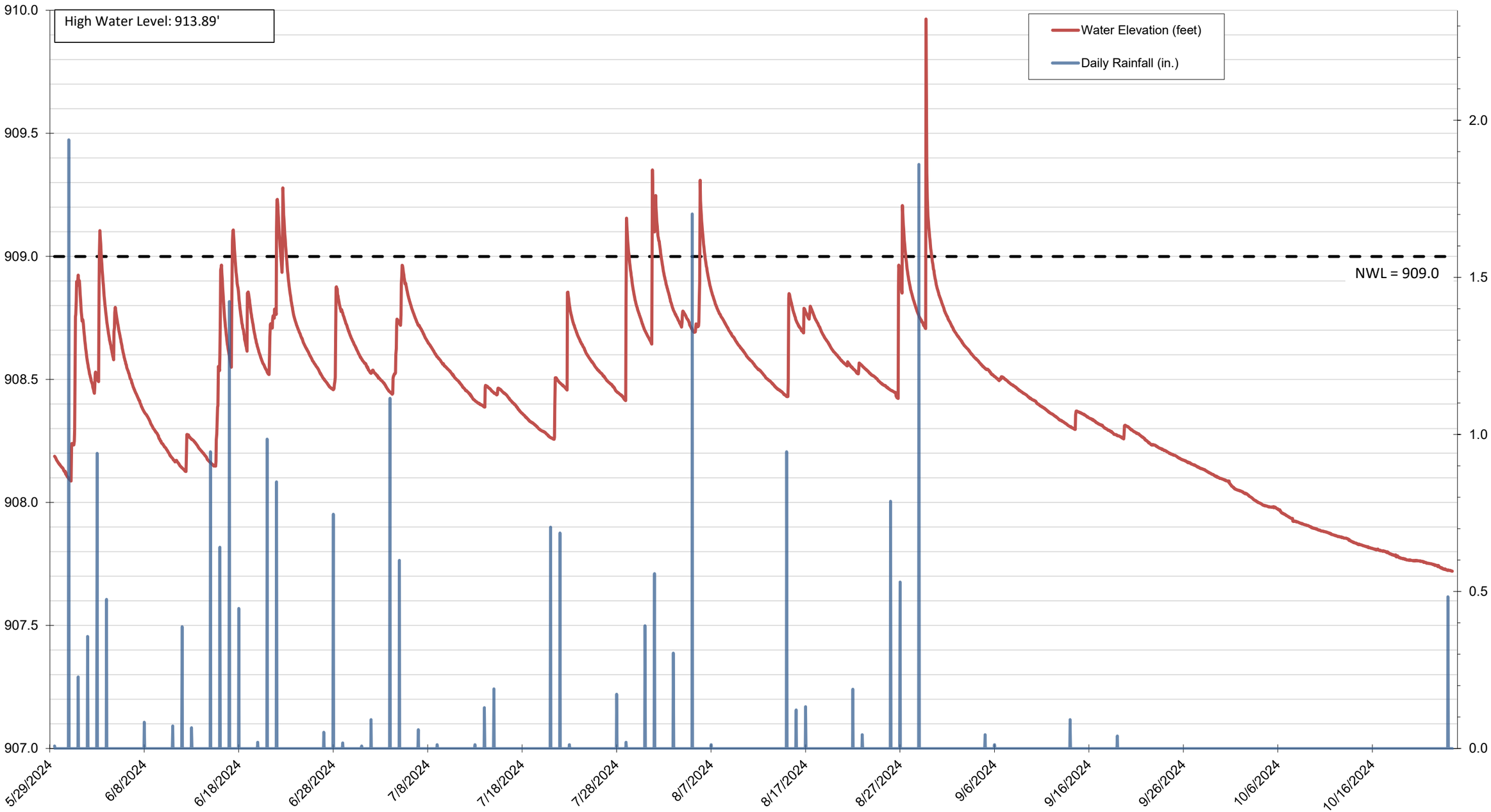
Rainfall to Runoff Ratio Data for:
Monitoring Location # 7 (Bloomfield #1864)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Rain Event	Rainfall Event (in)	Start Elevation (ft)	End Elevation (ft)	Duration of Period (hr)	Hourly Average E/I (ft/hr)*	Pond Area (ac)	Runoff Inflow Volume* (ac-ft)	Watershed Area (ac)	Runoff (in)	Rainfall / Runoff Ratio
31-May	1.94	908.09	908.92	18	0.0049	0.79	0.73	37.3	0.235	0.12
2-Jun	1.30	908.44	909.11	14	0.0049	0.79	0.58	37.3	0.185	0.14
4-Jun	0.48	908.58	908.79	4	0.0049	0.79	0.18	37.3	0.059	0.12
12-Jun	0.39	908.13	908.28	4	0.0049	0.79	0.13	37.3	0.043	0.11
15-Jun	1.55	908.15	908.97	15	0.0049	0.79	0.70	37.3	0.226	0.15
17-Jun	1.27	908.55	909.11	5	0.0049	0.79	0.46	37.3	0.148	0.12
18-Jun	0.44	908.62	908.86	3	0.0049	0.79	0.20	37.3	0.065	0.15
21-Jun	1.27	908.52	909.23	21	0.0049	0.79	0.64	37.3	0.207	0.16
22-Jun	0.44	908.94	909.28	2	0.0049	0.79	0.28	37.3	0.090	0.21
28-Jun	0.69	908.46	908.88	8	0.0049	0.79	0.36	37.3	0.116	0.17
4-Jul	1.70	908.44	908.96	25	0.0049	0.79	0.51	37.3	0.164	0.10
14-Jul	0.13	908.39	908.48	3	0.0049	0.79	0.08	37.3	0.026	0.20
15-Jul	0.19	908.44	908.47	4	0.0049	0.79	0.04	37.3	0.012	0.06
21-Jul	0.67	908.26	908.51	3	0.0049	0.79	0.21	37.3	0.067	0.10
22-Jul	0.69	908.46	908.86	2	0.0049	0.79	0.32	37.3	0.104	0.15
31-Jul	0.90	908.64	909.25	10	0.0049	0.79	0.52	37.3	0.166	0.19
3-Aug	0.30	908.71	908.78	3	0.0049	0.79	0.06	37.3	0.020	0.07
5-Aug	1.49	908.69	909.31	12	0.0049	0.79	0.53	37.3	0.172	0.12
15-Aug	0.95	908.43	908.85	4	0.0049	0.79	0.35	37.3	0.112	0.12
16-Aug	0.08	908.69	908.79	1	0.0049	0.79	0.08	37.3	0.027	0.34
17-Aug	0.09	908.75	908.80	3	0.0049	0.79	0.05	37.3	0.017	0.19
22-Aug	0.19	908.52	908.57	2	0.0049	0.79	0.04	37.3	0.014	0.07
26-Aug	0.79	908.42	908.97	2	0.0049	0.79	0.44	37.3	0.140	0.18
27-Aug	0.51	908.85	909.21	1	0.0049	0.79	0.29	37.3	0.092	0.18
29-Aug	1.41	908.71	909.97	1	0.0049	0.79	1.00	37.3	0.321	0.23
14-Sep	0.09	908.30	908.37	2	0.0049	0.79	0.07	37.3	0.021	0.23
19-Sep	0.04	908.26	908.31	2	0.0049	0.79	0.05	37.3	0.016	0.41

Range of Rainfall to Runoff Ratios	0.06	0.41
Rainfall to Runoff Ratio Based on Linear Regression	**0.14**	

* E/I = Evaporation and infiltration rate included in volume calculation

Monitoring Location # 7 (Bloomfield #1864)
Surface Water Elevations & Rainfall Amounts



Infiltration and Evaporation Rates for:
Monitoring Location # 8 (O'Leary's #600)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

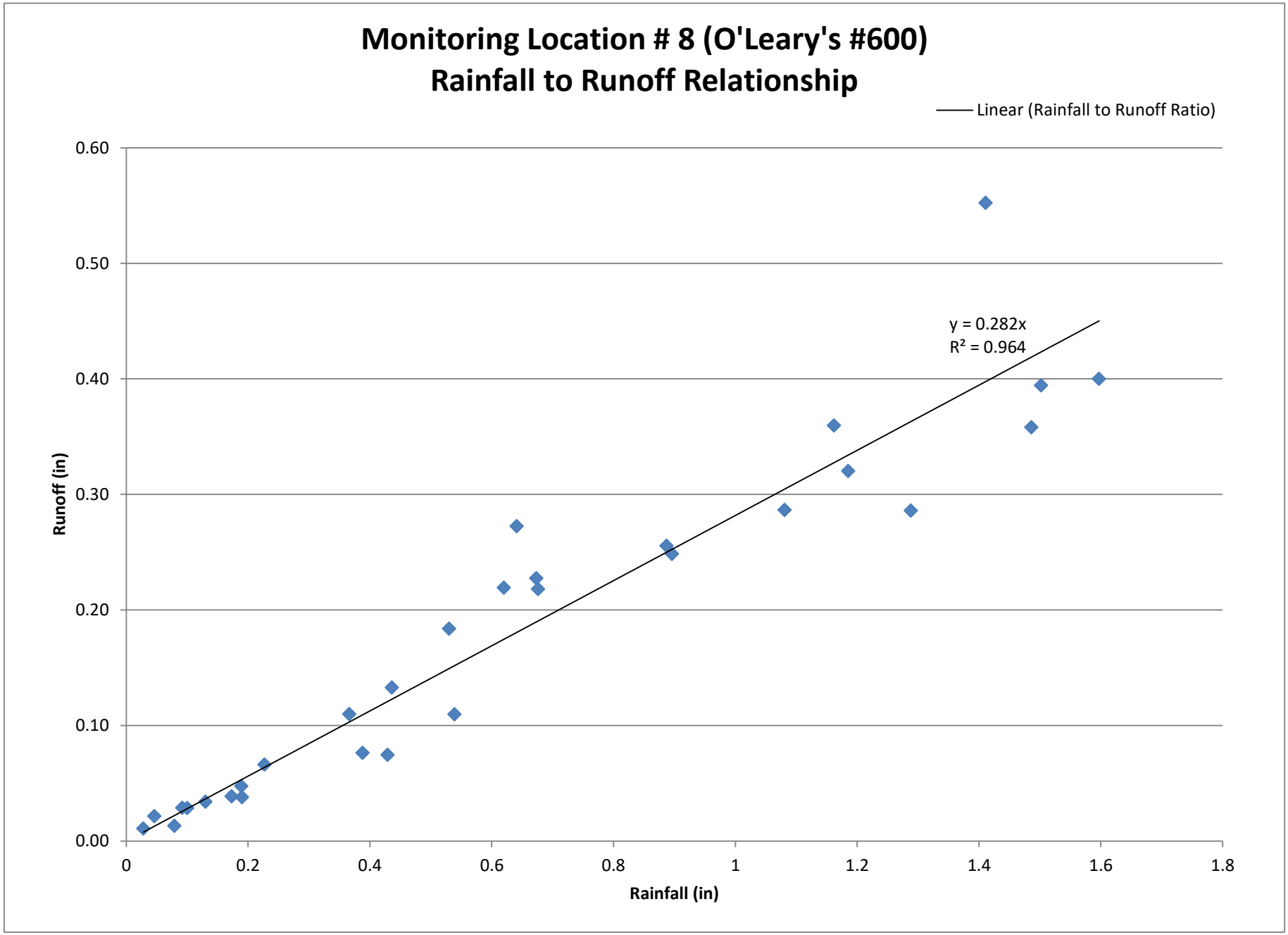
Period of no Rainfall	Beginning Elevation (ft)	Ending Elevation (ft)	Change in Elevation (ft)	Duration of Period (hr)	Evaporation & Infiltration Rate* (in/hr)	Pond Area (ac)	Overall Volume Reduction within Period (ac-ft)
5/29--5/31	930.07	929.97	0.10	43	0.028	5.56	0.56
6/1--6/2	930.33	930.10	0.23	27	0.101	5.56	1.27
6/4--6/8	930.33	930.04	0.29	75	0.046	5.56	1.61
6/8--6/11	930.04	929.94	0.10	68	0.018	5.56	0.56
6/11--6/12	929.95	929.92	0.03	21	0.017	5.56	0.16
6/13--6/15	930.05	929.95	0.10	55	0.021	5.56	0.53
6/16--6/17	930.58	930.27	0.31	23	0.161	5.56	1.71
6/18--6/18	930.46	930.33	0.13	17	0.095	5.56	0.75
6/19--6/20	930.50	930.28	0.23	37	0.074	5.56	1.26
6/22--6/22	930.63	930.47	0.16	8	0.242	5.56	0.90
6/22--6/27	930.65	930.09	0.56	119	0.057	5.56	3.12
6/28--6/28	930.43	930.33	0.09	10	0.112	5.56	0.52
6/29--7/1	930.28	930.12	0.16	62	0.031	5.56	0.90
7/2--7/4	930.15	930.08	0.07	49	0.016	5.56	0.37
7/5--7/7	930.55	930.24	0.31	39	0.094	5.56	1.71
7/7--7/14	930.24	930.00	0.24	165	0.018	5.56	1.34
7/14--7/15	930.05	930.03	0.02	26	0.012	5.56	0.14
7/15--7/21	930.08	929.92	0.16	139	0.014	5.56	0.88
7/21--7/22	930.32	930.17	0.15	27	0.065	5.56	0.82
7/23--7/28	930.43	930.01	0.42	128	0.039	5.56	2.32
7/29--7/31	930.05	930.00	0.06	55	0.012	5.56	0.32
8/1--8/3	930.29	930.11	0.19	52	0.043	5.56	1.04
8/4--8/5	930.22	930.15	0.07	27	0.030	5.56	0.38
8/5--8/15	930.77	930.01	0.76	219	0.041	5.56	4.20
8/15--8/16	930.46	930.24	0.22	35	0.075	5.56	1.22
8/17--8/22	930.22	930.04	0.19	114	0.020	5.56	1.05
8/22--8/23	930.10	930.08	0.02	15	0.013	5.56	0.09
8/23--8/26	930.08	930.02	0.07	74	0.011	5.56	0.36
8/27--8/29	930.71	930.23	0.48	48	0.119	5.56	2.66
8/29--9/4	930.97	930.10	0.87	135	0.078	5.56	4.85
9/4--9/14	930.10	929.94	0.17	235	0.008	5.56	0.92
9/14--9/19	929.98	929.90	0.08	114	0.008	5.56	0.43
9/19--10/24	929.90	929.53	0.37	831	0.005	5.56	2.06
						sum =	41.00

Range of Evaporation and Infiltration Rates (in/hr)	**0.005**	**0.242**
Average Evaporation and Infiltration Rate (in/hr)	**0.052**	

* Evaporation and Infiltration rates were selected from periods of no rain.

Weir Overflow Calculations for:
Monitoring Location # 8 (O'Leary's #600)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Event No	Outflow Start Time	Pond Elev	Outflow End Time	Pond Elev	Event Hours	Weir Overflow Volume (ac-ft)
1	5/31/24 7:45	930.06	6/7/24 16:45	930.05	177	565329.18
2	6/15/24 15:45	930.06	7/11/24 20:45	930.05	629	2001650.29
3	7/21/24 11:45	930.33	7/27/24 10:45	930.05	143	457079.77
4	7/29/24 0:45	930.06	7/29/24 10:45	930.05	10	34846.65
5	7/31/24 18:45	930.23	8/12/24 21:45	930.05	291	927016.16
6	8/15/24 4:45	930.44	8/21/24 21:45	930.05	161	514131.41
7	8/22/24 15:45	930.09	8/25/24 3:45	930.05	60	193293.73
8	8/26/24 19:45	930.06	9/7/24 7:45	930.05	276	880156.57
			Total Outflow Volume		**1747**	**5573503.8**


Monitoring Location # 8 (O'Leary's #600)
Rainfall to Runoff Relationship
Linear (Rainfall to Runoff Ratio)
y = 0.282x
R² = 0.964
Runoff (in)
Rainfall (in)
0.00
0.10
0.20
0.30
0.40
0.50
0.60
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8

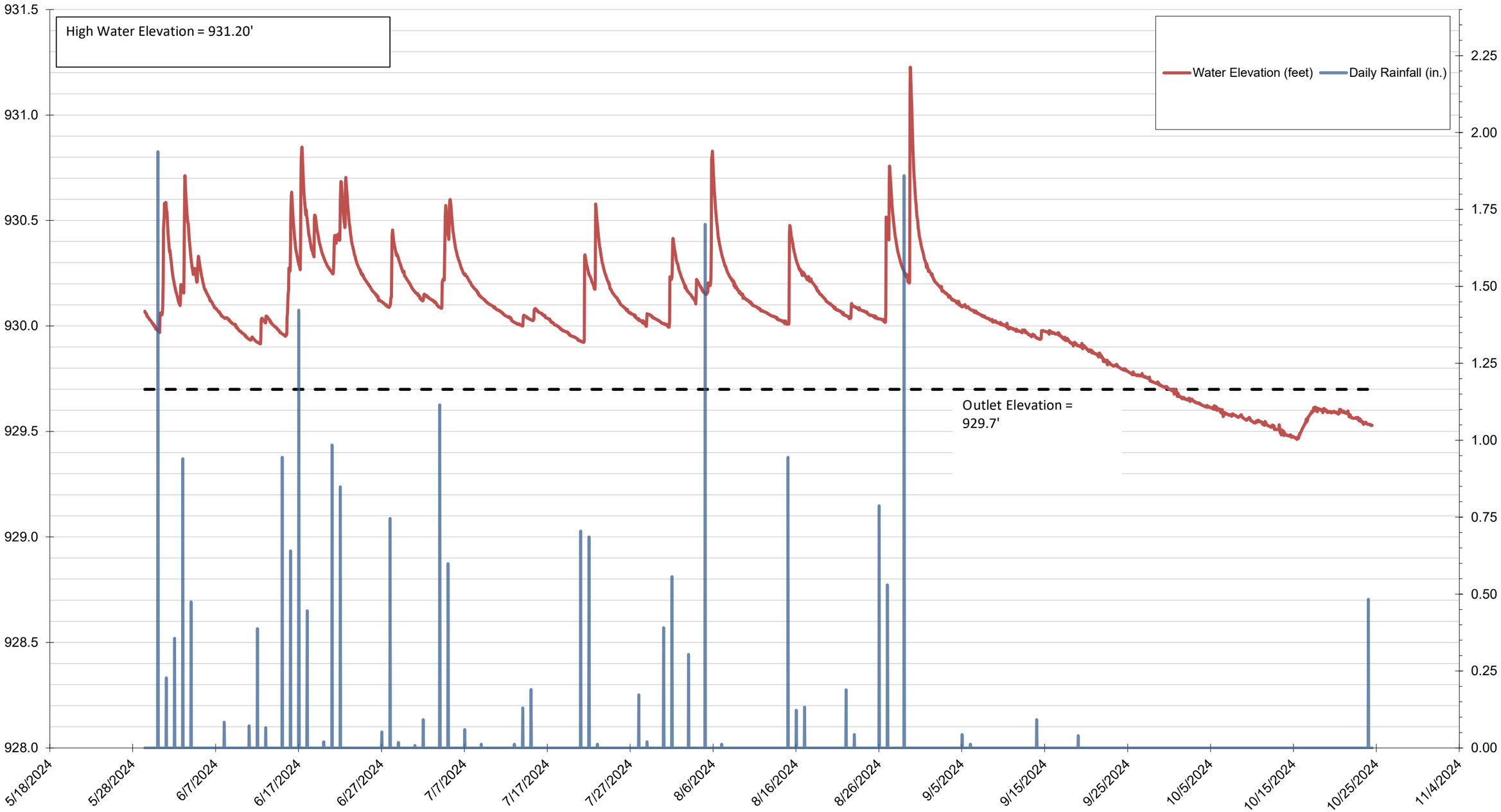
Rainfall to Runoff Ratio Data for:
Monitoring Location # 8 (O'Leary's #600)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Rain Event	Rainfall Event (in)	Start Elevation (ft)	End Elevation (ft)	Duration of Period (hr)	Hourly Average E/I (ft/hr)*	Pond Area (ac)	Runoff Inflow Volume* (ac-ft)	Watershed Area (ac)	Runoff (in)	Rainfall / Runoff Ratio
31-May	1.486	929.97	930.58	14	0.0044	5.56	3.75	125.5	0.358	0.24
2-Jun	1.162	930.10	930.71	14	0.0044	5.56	3.76	125.5	0.360	0.31
4-Jun	0.429	930.21	930.33	4	0.0044	5.56	0.78	125.5	0.075	0.17
12-Jun	0.388	929.92	930.04	5	0.0044	5.56	0.80	125.5	0.076	0.20
12-Jun	0.046	930.02	930.05	2	0.0044	5.56	0.23	125.5	0.022	0.47
15-Jun	1.502	929.96	930.63	15	0.0044	5.56	4.13	125.5	0.394	0.26
17-Jun	1.185	930.27	930.85	5	0.0044	5.56	3.35	125.5	0.320	0.27
18-Jun	0.366	930.33	930.53	2	0.0044	5.56	1.15	125.5	0.110	0.30
21-Jun	1.288	930.25	930.69	23	0.0044	5.56	2.99	125.5	0.286	0.22
22-Jun	0.436	930.47	930.70	3	0.0044	5.56	1.39	125.5	0.133	0.30
27-Jun	0.676	930.09	930.46	10	0.0044	5.56	2.28	125.5	0.218	0.32
1-Jul	0.1	930.12	930.15	5	0.0044	5.56	0.30	125.5	0.029	0.29
4-Jul	1.081	930.08	930.57	12	0.0044	5.56	3.00	125.5	0.287	0.27
5-Jul	0.539	930.41	930.60	4	0.0044	5.56	1.15	125.5	0.110	0.20
14-Jul	0.13	930.00	930.05	3	0.0044	5.56	0.36	125.5	0.034	0.26
15-Jul	0.19	930.03	930.08	4	0.0044	5.56	0.40	125.5	0.038	0.20
21-Jul	0.673	929.92	930.34	3	0.0044	5.56	2.38	125.5	0.227	0.34
22-Jul	0.62	930.17	930.58	2	0.0044	5.56	2.29	125.5	0.219	0.35
28-Jul	0.173	930.00	930.06	3	0.0044	5.56	0.41	125.5	0.039	0.22
31-Jul	0.896	930.00	930.42	11	0.0044	5.56	2.60	125.5	0.249	0.28
3-Aug	0.227	930.11	930.22	2	0.0044	5.56	0.69	125.5	0.066	0.29
5-Aug	1.597	930.15	930.83	17	0.0044	5.56	4.18	125.5	0.400	0.25
15-Aug	0.887	930.01	930.48	3	0.0044	5.56	2.67	125.5	0.256	0.29
16-Aug	0.079	930.24	930.26	2	0.0044	5.56	0.14	125.5	0.013	0.17
17-Aug	0.028	930.22	930.24	1	0.0044	5.56	0.11	125.5	0.011	0.39
22-Aug	0.189	930.04	930.11	4	0.0044	5.56	0.50	125.5	0.048	0.25
26-Aug	0.641	930.02	930.52	3	0.0044	5.56	2.85	125.5	0.273	0.43
27-Aug	0.53	930.41	930.74	3	0.0044	5.56	1.92	125.5	0.184	0.35
29-Aug	1.411	930.23	931.23	10	0.0044	5.56	5.78	125.5	0.552	0.39
14-Sep	0.092	929.94	929.98	3	0.0044	5.56	0.30	125.5	0.029	0.31

Range of Rainfall to Runoff Ratios	0.17	0.47
Rainfall to Runoff Ratio Based on Linear Regression	**0.28**	

* E/I = Evaporation and infiltration rate included in volume calculation

Monitoring Location # 8 (O'Leary's #600)
Surface Water Elevations & Rainfall Amounts

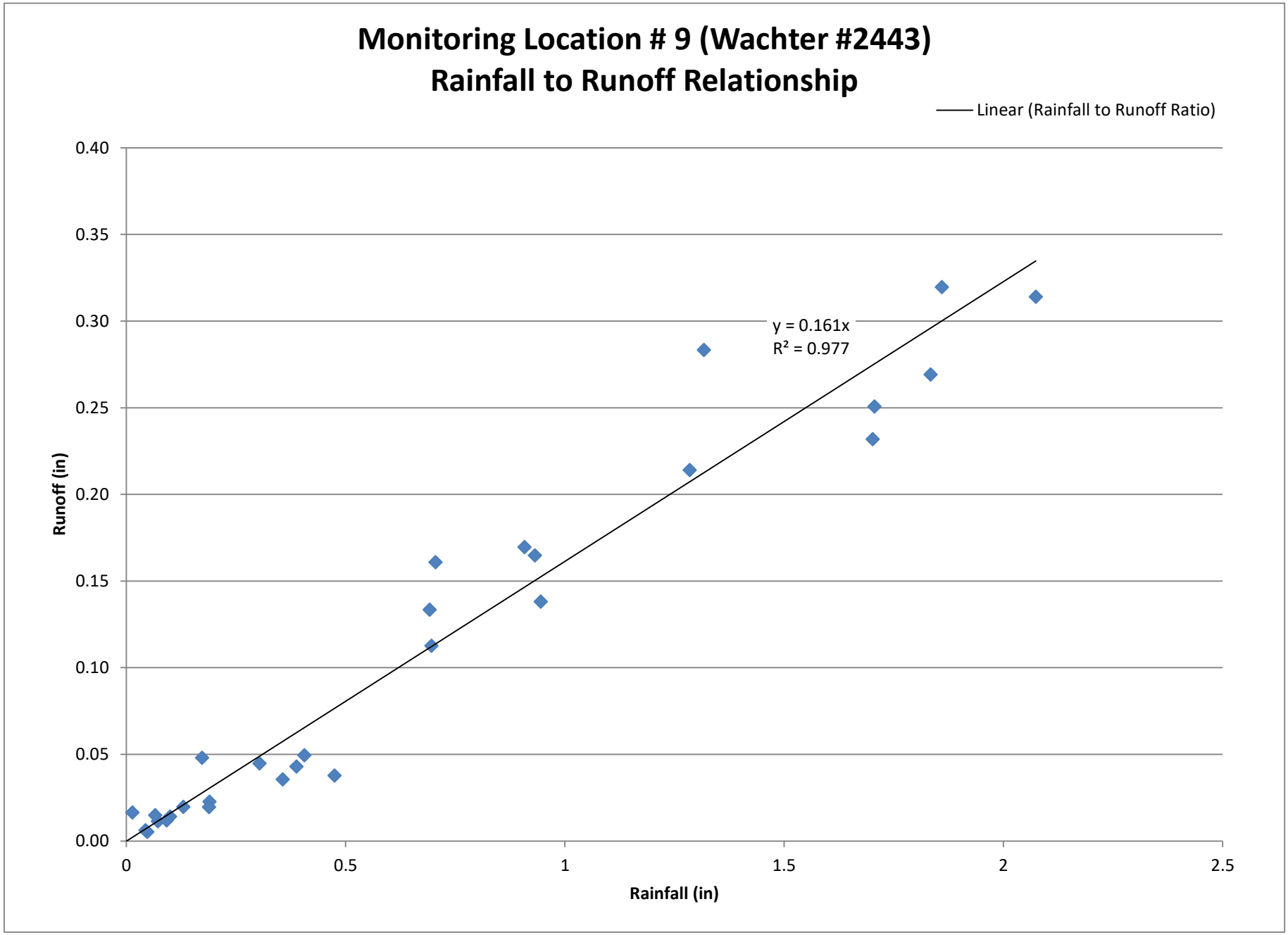


Infiltration and Evaporation Rates for:
Monitoring Location # 9 (Wachter #2443)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Period of no Rainfall	Beginning Elevation (ft)	Ending Elevation (ft)	Change in Elevation (ft)	Duration of Period (hr)	Evaporation & Infiltration Rate* (in/hr)	Pond Area (ac)	Overall Volume Reduction within Period (ac-ft)
5/29--5/31	914.52	914.32	0.21	42	0.059	5.1	1.05
6/1--6/2	916.02	915.48	0.54	28	0.231	5.1	2.74
6/3--6/4	916.53	915.88	0.66	33	0.239	5.1	3.35
6/5--6/8	916.06	915.09	0.97	73	0.159	5.1	4.93
6/8--6/11	915.07	914.50	0.56	67	0.101	5.1	2.87
6/11--6/12	914.49	914.31	0.18	23	0.093	5.1	0.91
6/13--6/15	914.54	914.25	0.28	52	0.066	5.1	1.45
6/16--6/17	915.78	915.57	0.21	16	0.158	5.1	1.08
6/18--6/18	916.75	916.29	0.46	19	0.289	5.1	2.34
6/19--6/21	916.58	915.67	0.91	50	0.218	5.1	4.63
6/22--6/27	917.02	915.27	1.75	123	0.171	5.1	8.95
6/28--6/28	915.83	915.81	0.02	5	0.058	5.1	0.12
6/29--6/29	915.82	915.77	0.05	6	0.094	5.1	0.24
6/29--7/1	915.76	915.26	0.50	59	0.101	5.1	2.53
7/2--7/4	915.28	915.00	0.28	48	0.070	5.1	1.42
7/5--7/13	916.31	914.94	1.37	199	0.083	5.1	6.99
7/14--7/15	915.01	914.87	0.15	28	0.063	5.1	0.75
7/15--7/21	914.97	914.42	0.55	140	0.047	5.1	2.82
7/21--7/22	915.32	915.25	0.07	18	0.049	5.1	0.37
7/23--7/28	916.00	915.14	0.87	138	0.075	5.1	4.43
7/29--7/31	915.35	915.13	0.22	61	0.044	5.1	1.14
8/1--8/3	916.04	915.54	0.51	59	0.103	5.1	2.58
8/4--8/5	915.79	915.62	0.16	27	0.072	5.1	0.83
8/6--8/15	916.84	915.17	1.66	216	0.092	5.1	8.48
8/15--8/16	915.91	915.85	0.06	21	0.035	5.1	0.32
8/17--8/22	915.78	915.28	0.50	113	0.053	5.1	2.53
8/22--8/23	915.37	915.30	0.07	15	0.053	5.1	0.34
8/23--8/26	915.30	915.06	0.23	72	0.039	5.1	1.18
8/27--8/29	916.59	916.03	0.56	53	0.127	5.1	2.85
8/30--9/5	917.95	915.70	2.24	146	0.184	5.1	11.44
9/5--9/14	915.71	914.88	0.83	221	0.045	5.1	4.24
9/14--9/19	914.92	914.59	0.32	119	0.033	5.1	1.66
9/19--10/24	914.63	913.08	1.55	834	0.022	5.1	7.93
						SUM =	99.48

Range of Evaporation and Infiltration Rates (in/hr)	**0.022**	**0.289**
Average Evaporation and Infiltration Rate (in/hr)	**0.101**	

* Evaporation and Infiltration rates were selected from periods of no rain.


Monitoring Location # 9 (Wachter #2443)
Rainfall to Runoff Relationship
Linear (Rainfall to Runoff Ratio)
y = 0.161x
R² = 0.977
Runoff (in)
Rainfall (in)
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0
0.5
1
1.5
2
2.5

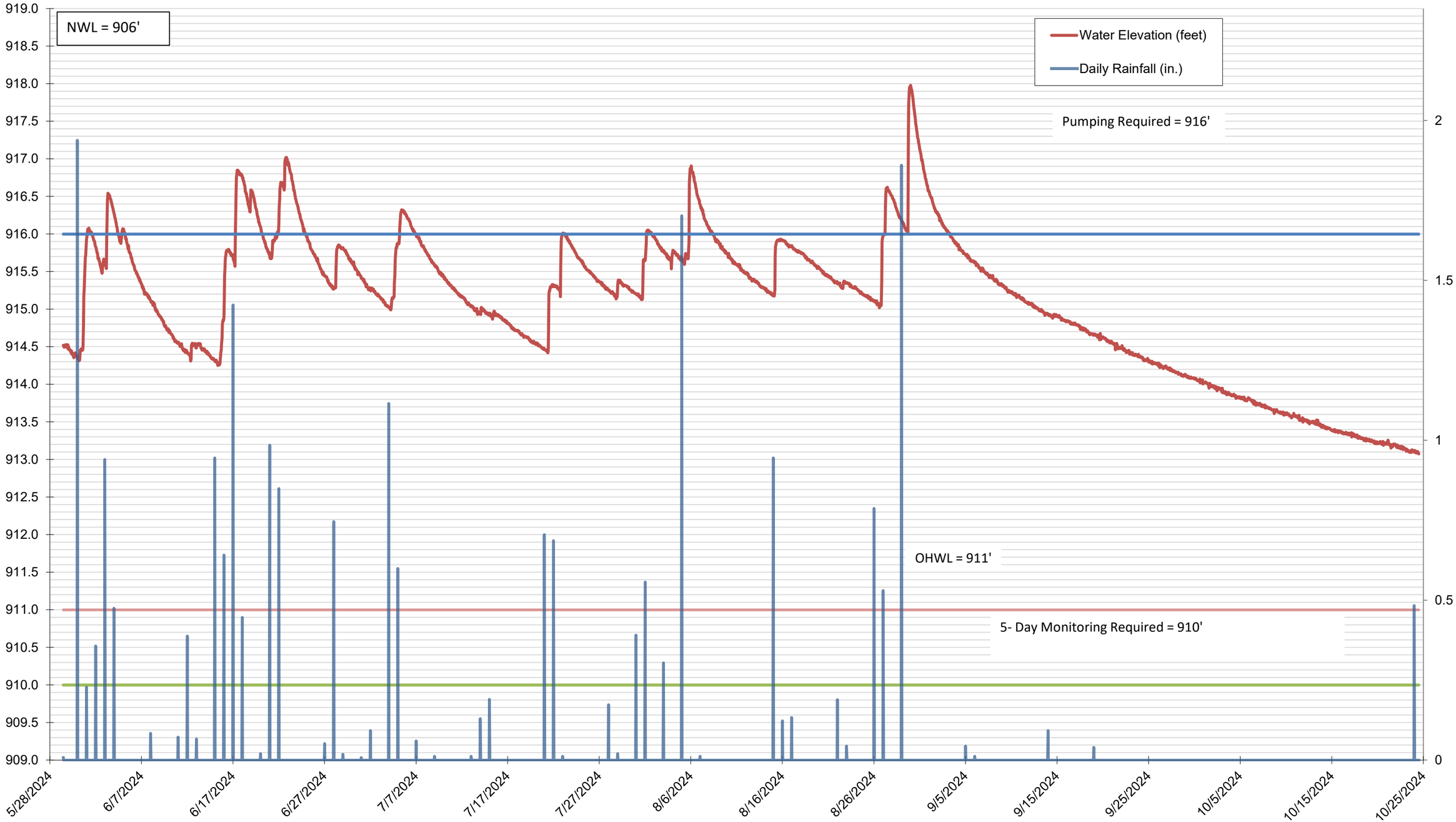
Rainfall to Runoff Ratio Data for:
Monitoring Location # 9 (Wachter #2443)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Rain Event	Rainfall Event (in)	Start Elevation (ft)	End Elevation (ft)	Duration of Period (hr)	Hourly Average E/I (ft/hr)*	Pond Area (ac)	Runoff Inflow Volume* (ac-ft)	Watershed Area (ac)	Runoff (in)	Rainfall / Runoff Ratio
31-May	2.074	914.32	916.08	25	0.0084	5.10	10.07	384.8	0.314	0.15
2-Jun	0.357	915.48	915.67	4	0.0084	5.10	1.14	384.8	0.036	0.10
3-Jun	0.932	915.54	916.54	4	0.0084	5.10	5.29	384.8	0.165	0.18
4-Jun	0.475	915.88	916.07	5	0.0084	5.10	1.21	384.8	0.038	0.08
8-Jun	0.048	915.09	915.10	3	0.0084	5.10	0.17	384.8	0.005	0.11
11-Jun	0.072	914.50	914.54	4	0.0084	5.10	0.37	384.8	0.011	0.16
12-Jun	0.388	914.31	914.55	4	0.0084	5.10	1.38	384.8	0.043	0.11
12-Jun	0.066	914.48	914.54	4	0.0084	5.10	0.48	384.8	0.015	0.23
15-Jun	1.586	914.25	915.80	28	0.0084	5.10	9.08	384.8	0.283	0.18
17-Jun	1.285	915.57	916.83	10	0.0084	5.10	6.86	384.8	0.214	0.17
18-Jun	0.406	916.29	916.59	2	0.0084	5.10	1.59	384.8	0.049	0.12
21-Jun	1.834	915.67	917.02	41	0.0084	5.10	8.63	384.8	0.269	0.15
27-Jun	0.696	915.27	915.86	14	0.0084	5.10	3.61	384.8	0.113	0.16
1-Jul	0.1	915.26	915.28	8	0.0084	5.10	0.45	384.8	0.014	0.14
4-Jul	1.706	915.00	916.32	30	0.0084	5.10	8.04	384.8	0.251	0.15
13-Jul	0.13	914.94	915.03	4	0.0084	5.10	0.63	384.8	0.020	0.15
15-Jul	0.19	914.87	914.98	4	0.0084	5.10	0.73	384.8	0.023	0.12
21-Jul	0.705	914.42	915.33	12	0.0084	5.10	5.16	384.8	0.161	0.23
22-Jul	0.692	915.25	916.02	9	0.0084	5.10	4.28	384.8	0.134	0.19
28-Jul	0.173	915.14	915.39	6	0.0084	5.10	1.54	384.8	0.048	0.28
31-Jul	0.908	915.13	916.05	17	0.0084	5.10	5.44	384.8	0.170	0.19
3-Aug	0.304	915.54	915.79	4	0.0084	5.10	1.44	384.8	0.045	0.15
5-Aug	1.702	915.62	916.91	21	0.0084	5.10	7.44	384.8	0.232	0.14
15-Aug	0.945	915.17	915.93	14	0.0084	5.10	4.43	384.8	0.138	0.15
22-Aug	0.189	915.28	915.37	3	0.0084	5.10	0.63	384.8	0.020	0.10
23-Aug	0.044	915.30	915.32	2	0.0084	5.10	0.20	384.8	0.006	0.14
26-Aug	1.317	915.02	916.62	21	0.0084	5.10	9.08	384.8	0.283	0.22
29-Aug	1.86	916.03	917.98	7	0.0084	5.10	10.25	384.8	0.320	0.17
14-Sep	0.092	914.88	914.93	3	0.0084	5.10	0.38	384.8	0.012	0.13
19-Sep	0.014	914.59	914.68	2	0.0084	5.10	0.53	384.8	0.017	1.18

Range of Rainfall to Runoff Ratios	0.08	1.18
Rainfall to Runoff Ratio Based on Linear Regression	**0.16**	

* E/I = Evaporation and infiltration rate included in volume calculation

Monitoring Location # 9 (Wachter #2443)
Surface Water Elevations & Rainfall Amounts

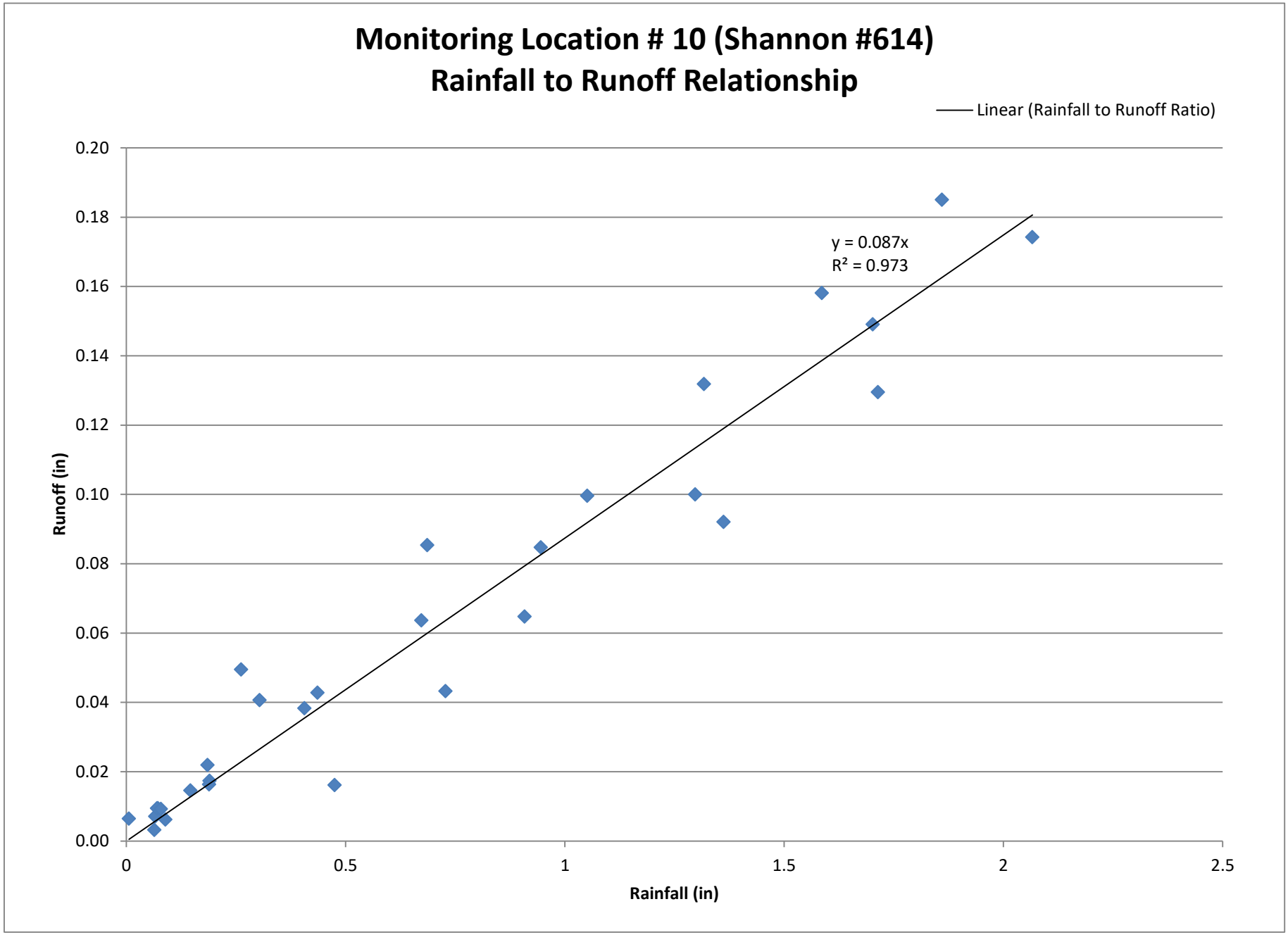


Infiltration and Evaporation Rates for:
Monitoring Location # 10 (Shannon #614)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Period of no Rainfall	Beginning Elevation (ft)	Ending Elevation (ft)	Change in Elevation (ft)	Duration of Period (hr)	Evaporation & Infiltration Rate* (in/hr)	Pond Area (ac)	Overall Volume Reduction within Period (ac-ft)
5/29--5/31	919.67	919.64	0.03	42	0.009	3.17	0.10
6/1--6/2	920.44	920.27	0.17	28	0.073	3.17	0.54
6/3--6/4	920.70	920.49	0.21	33	0.078	3.17	0.68
6/5--6/8	920.56	920.08	0.48	73	0.079	3.17	1.52
6/8--6/11	920.10	919.74	0.36	69	0.063	3.17	1.16
6/11--6/12	919.70	919.50	0.20	23	0.103	3.17	0.63
6/13--6/15	919.65	919.40	0.25	54	0.057	3.17	0.81
6/18--6/18	920.62	920.54	0.09	17	0.061	3.17	0.27
6/19--6/21	920.68	920.37	0.31	48	0.077	3.17	0.98
6/22--6/27	920.93	920.31	0.62	118	0.063	3.17	1.96
6/29--7/1	920.53	920.27	0.25	69	0.044	3.17	0.80
7/2--7/4	920.27	920.10	0.17	50	0.041	3.17	0.54
7/5--7/7	920.68	920.61	0.07	31	0.027	3.17	0.22
7/7--7/9	920.62	920.40	0.22	61	0.043	3.17	0.69
7/9--7/15	920.37	920.01	0.36	129	0.033	3.17	1.13
7/15--7/21	920.06	919.62	0.44	141	0.038	3.17	1.41
7/23--7/28	920.18	919.82	0.36	132	0.033	3.17	1.14
7/29--7/31	919.88	919.73	0.15	54	0.034	3.17	0.48
8/1--8/3	920.03	919.84	0.19	58	0.040	3.17	0.61
8/4--8/5	920.03	919.93	0.10	23	0.052	3.17	0.32
8/6--8/15	920.60	919.98	0.62	209	0.035	3.17	1.96
8/16--8/17	920.37	920.35	0.02	11	0.025	3.17	0.07
8/17--8/22	920.35	920.11	0.24	115	0.025	3.17	0.77
8/22--8/23	920.14	920.11	0.02	13	0.021	3.17	0.07
8/23--8/26	920.11	919.94	0.16	76	0.026	3.17	0.52
8/27--8/29	920.55	920.46	0.09	55	0.019	3.17	0.27
8/30--9/5	921.30	920.93	0.37	146	0.030	3.17	1.17
9/5--9/18	920.93	920.81	0.12	322	0.005	3.17	0.38
9/20--10/24	921.31	920.04	1.27	817	0.019	3.17	4.02
						SUM=	25.21

Range of Evaporation and Infiltration Rates (in/hr)	**0.005**	**0.103**
Average Evaporation and Infiltration Rate (in/hr)	**0.043**	

* Evaporation and Infiltration rates were selected from periods on no rain.


Monitoring Location # 10 (Shannon #614)
Rainfall to Runoff Relationship
Linear (Rainfall to Runoff Ratio)
y = 0.087x
R² = 0.973
Runoff (in)
Rainfall (in)
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.18
0.20
0
0.5
1
1.5
2
2.5

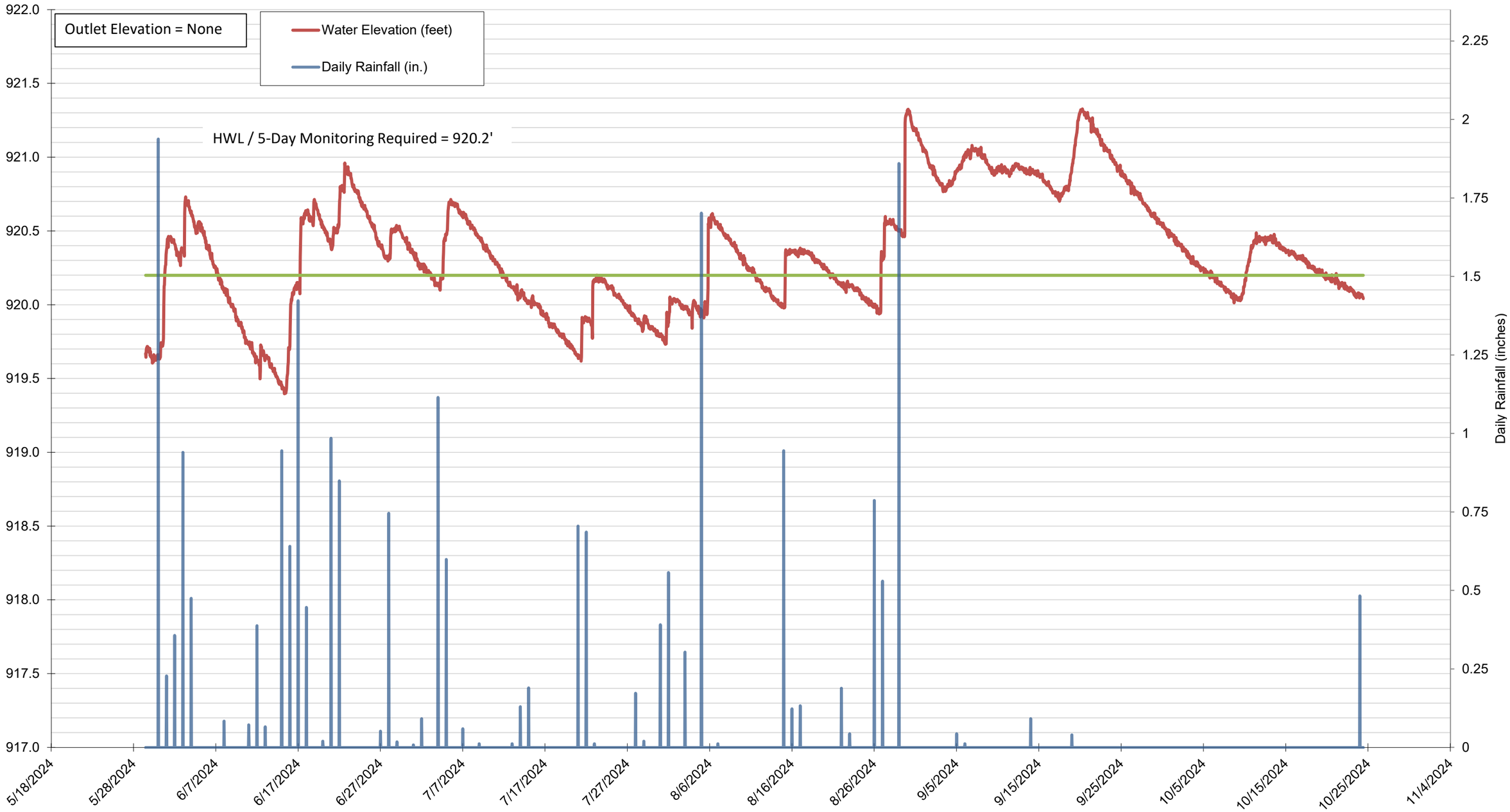
Rainfall to Runoff Ratio Data for:
Monitoring Location # 10 (Shannon #614)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Rain Event	Rainfall Event (in)	Start Elevation (ft)	End Elevation (ft)	Duration of Period (hr)	Hourly Average E/I (ft/hr)*	Pond Area (ac)	Runoff Inflow Volume* (ac-ft)	Watershed Area (ac)	Runoff (in)	Rainfall / Runoff Ratio
31-May	2.066	919.64	920.45	22	0.0000	3.17	2.57	176.8	0.174	0.08
2-Jun	1.297	920.27	920.73	15	0.0000	3.17	1.47	176.8	0.100	0.08
4-Jun	0.475	920.49	920.56	5	0.0000	3.17	0.24	176.8	0.016	0.03
8-Jun	0.064	920.08	920.10	6	0.0000	3.17	0.05	176.8	0.003	0.05
11-Jun	0.072	919.70	919.74	4	0.0000	3.17	0.14	176.8	0.009	0.13
12-Jun	0.262	919.50	919.73	2	0.0000	3.17	0.73	176.8	0.049	0.19
12-Jun	0.066	919.62	919.65	3	0.0000	3.17	0.10	176.8	0.007	0.11
15-Jun	1.586	919.40	920.13	32	0.0000	3.17	2.33	176.8	0.158	0.10
17-Jun	1.051	920.08	920.54	3	0.0000	3.17	1.47	176.8	0.100	0.09
17-Jun	0.146	920.57	920.64	9	0.0000	3.17	0.22	176.8	0.015	0.10
18-Jun	0.406	920.54	920.71	3	0.0000	3.17	0.56	176.8	0.038	0.09
21-Jun	1.362	920.37	920.80	25	0.0000	3.17	1.36	176.8	0.092	0.07
22-Jun	0.436	920.76	920.96	2	0.0000	3.17	0.63	176.8	0.043	0.10
27-Jun	0.728	920.31	920.51	17	0.0000	3.17	0.64	176.8	0.043	0.06
28-Jun	0.07	920.49	920.54	5	0.0000	3.17	0.14	176.8	0.009	0.14
4-Jul	1.714	920.10	920.70	34	0.0000	3.17	1.91	176.8	0.130	0.08
9-Jul	0.006	920.38	920.41	3	0.0000	3.17	0.10	176.8	0.006	1.08
15-Jul	0.19	919.98	920.06	4	0.0000	3.17	0.26	176.8	0.017	0.09
21-Jul	0.673	919.62	919.91	3	0.0000	3.17	0.94	176.8	0.064	0.09
22-Jul	0.686	919.77	920.17	5	0.0000	3.17	1.26	176.8	0.085	0.12
28-Jul	0.185	919.82	919.92	10	0.0000	3.17	0.32	176.8	0.022	0.12
31-Jul	0.908	919.73	920.03	18	0.0000	3.17	0.95	176.8	0.065	0.07
3-Aug	0.304	919.84	920.03	5	0.0000	3.17	0.60	176.8	0.041	0.13
5-Aug	1.702	919.93	920.62	30	0.0000	3.17	2.20	176.8	0.149	0.09
15-Aug	0.945	919.98	920.37	4	0.0000	3.17	1.25	176.8	0.085	0.09
16-Aug	0.079	920.33	920.37	2	0.0000	3.17	0.14	176.8	0.009	0.12
17-Aug	0.089	920.34	920.37	2	0.0000	3.17	0.09	176.8	0.006	0.07
22-Aug	0.189	920.08	920.16	4	0.0000	3.17	0.24	176.8	0.016	0.09
26-Aug	1.317	919.94	920.56	15	0.0000	3.17	1.94	176.8	0.132	0.10
29-Aug	1.86	920.46	921.32	9	0.0000	3.17	2.73	176.8	0.185	0.10

Range of Rainfall to Runoff Ratios	0.03	1.08
Rainfall to Runoff Ratio Based on Linear Regression	**0.09**	

* E/I = Evaporation and infiltration rate included in volume calculation

Monitoring Location # 10 (Shannon# 614)
Surface Water Elevations & Rainfall Amounts

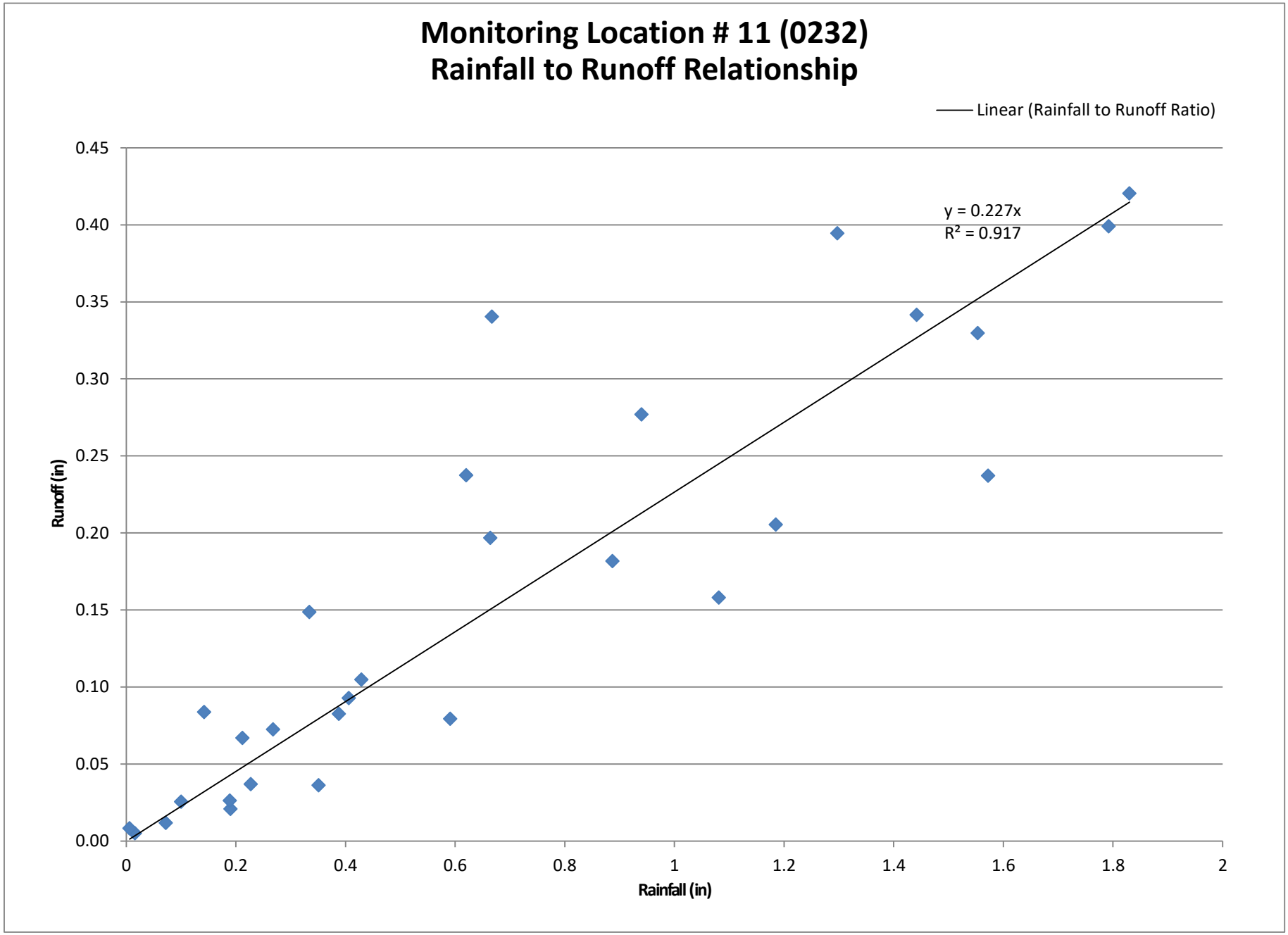


Infiltration and Evaporation Rates for:
Monitoring Location # 11 (#0232)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Period of no Rainfall	Beginning Elevation (ft)	Ending Elevation (ft)	Change in Elevation (ft)	Duration of Period (hr)	Evaporation & Infiltration Rate* (in/hr)	Pond Area (ac)	Overall Volume Reduction within Period (ac-ft)
6/1--6/2	913.91	913.15	0.77	28	0.329	0.58	0.44
6/3--6/4	915.03	913.35	1.69	31	0.653	0.58	0.98
6/4--6/8	913.96	912.70	1.26	75	0.202	0.58	0.73
6/8--6/11	912.68	912.31	0.37	68	0.065	0.58	0.21
6/11--6/12	912.36	912.26	0.10	24	0.048	0.58	0.06
6/12--6/13	912.78	912.71	0.07	10	0.082	0.58	0.04
6/13--6/15	912.70	912.41	0.29	55	0.063	0.58	0.17
6/16--6/17	914.64	913.27	1.36	25	0.654	0.58	0.79
6/18--6/18	913.69	913.21	0.48	17	0.340	0.58	0.28
6/19--6/20	913.78	913.02	0.76	37	0.246	0.58	0.44
6/20--6/21	913.01	912.91	0.09	11	0.101	0.58	0.05
6/22--6/27	915.20	912.67	2.53	120	0.253	0.58	1.47
6/28--6/28	913.90	913.59	0.31	11	0.336	0.58	0.18
6/28--7/1	913.57	912.86	0.71	71	0.120	0.58	0.41
7/2--7/4	912.94	912.71	0.23	50	0.055	0.58	0.13
7/4--7/5	913.63	913.52	0.11	7	0.187	0.58	0.06
7/5--7/7	913.83	913.33	0.49	31	0.190	0.58	0.29
7/7--7/9	913.35	912.91	0.44	61	0.086	0.58	0.25
7/9--7/13	912.94	912.57	0.37	91	0.049	0.58	0.21
7/14--7/15	912.95	912.83	0.12	28	0.051	0.58	0.07
7/15--7/21	912.92	912.46	0.46	142	0.039	0.58	0.27
7/21--7/22	913.49	913.03	0.46	29	0.190	0.58	0.27
7/22--7/28	914.58	912.67	1.92	146	0.158	0.58	1.11
7/29--7/31	914.25	912.99	1.26	56	0.269	0.58	0.73
8/1--8/3	914.14	913.22	0.92	52	0.213	0.58	0.54
8/4--8/5	913.44	913.24	0.20	27	0.088	0.58	0.11
8/5--8/15	915.30	912.76	2.54	219	0.139	0.58	1.48
8/15--8/16	914.00	913.33	0.66	27	0.295	0.58	0.39
8/17--8/22	913.32	912.72	0.60	117	0.062	0.58	0.35
8/22--8/23	912.87	912.81	0.05	16	0.040	0.58	0.03
8/23--8/26	912.80	912.61	0.20	79	0.030	0.58	0.11
8/27--8/29	915.13	913.19	1.94	57	0.408	0.58	1.13
8/29--8/31	915.77	913.57	2.20	48	0.549	0.58	1.27
						sum =	15.05

* Evaporation and Infiltration rates were selected from periods on no rain.

Range of Evaporation and Infiltration Rates (in/hr)	**0.030**	**0.654**
Average Evaporation and Infiltration Rate (in/hr)	**0.200**	


Monitoring Location # 11 (0232)
Rainfall to Runoff Relationship
Linear (Rainfall to Runoff Ratio)
y = 0.227x
R² = 0.917
Runoff (in)
Rainfall (in)
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2

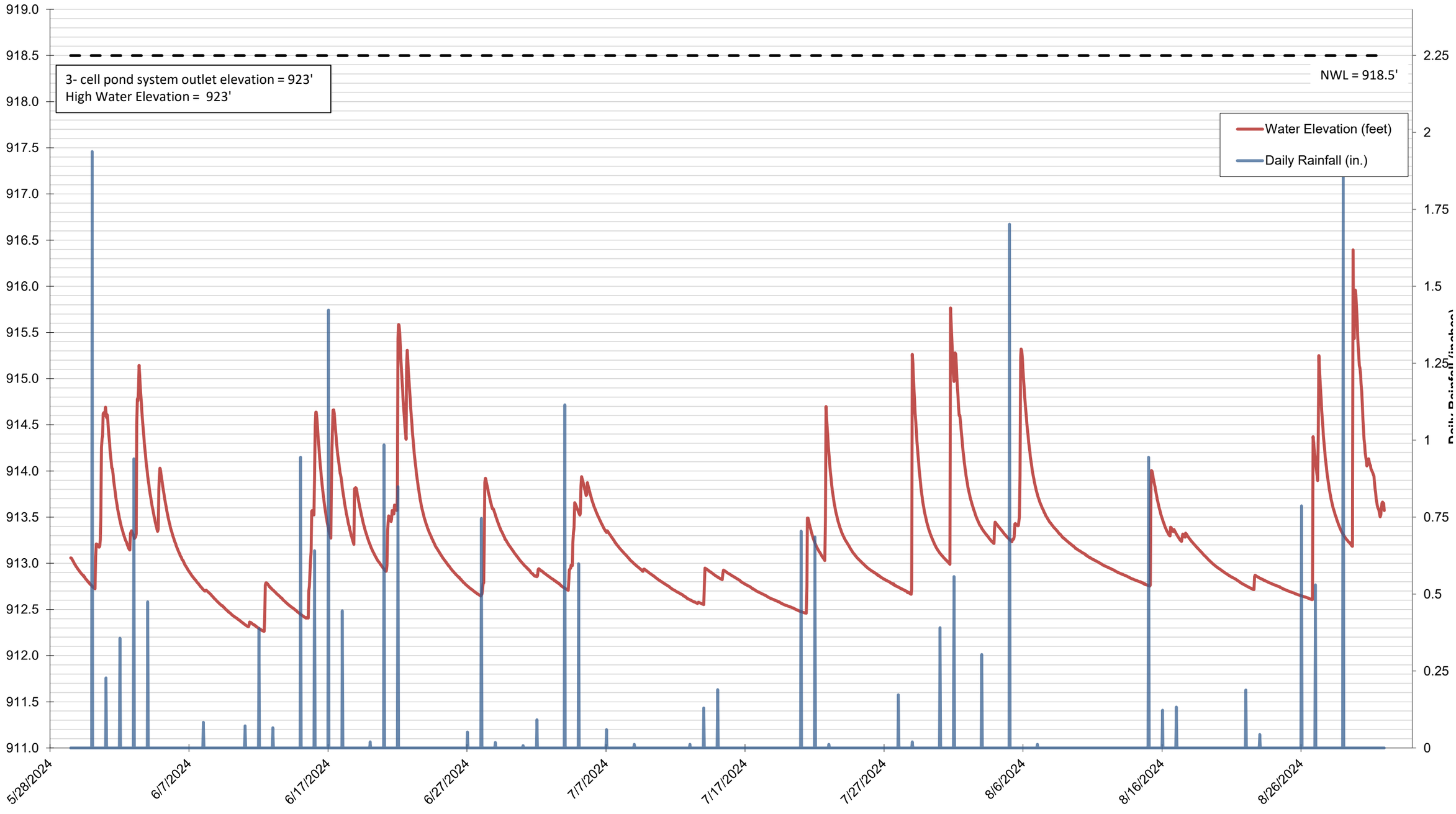
Rainfall to Runoff Ratio Data for:
Monitoring Location # 11 (#0232)
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN
WSB Project No. 025921

Rain Event	Rainfall Event (in)	Start Elevation (ft)	End Elevation (ft)	Duration of Period (hr)	Hourly Average E/I (ft/hr)*	Pond Area (ac)	Runoff Inflow Volume* (ac-ft)	Watershed Area (ac)	Runoff (in)	Rainfall / Runoff Ratio
31-May	0.268	912.73	913.21	2	0.0166	0.58	0.30	49.9	0.073	0.27
31-May	1.572	913.18	914.69	11	0.0166	0.58	0.99	49.9	0.237	0.15
2-Jun	0.351	913.15	913.35	3	0.0166	0.58	0.15	49.9	0.036	0.10
3-Jun	0.94	913.28	915.15	7	0.0166	0.58	1.15	49.9	0.277	0.29
4-Jun	0.429	913.35	914.03	4	0.0166	0.58	0.44	49.9	0.105	0.24
11-Jun	0.072	912.31	912.36	2	0.0166	0.58	0.05	49.9	0.012	0.16
12-Jun	0.388	912.26	912.79	4	0.0166	0.58	0.34	49.9	0.083	0.21
15-Jun	1.442	912.41	914.64	13	0.0166	0.58	1.42	49.9	0.342	0.24
17-Jun	1.185	913.27	914.66	5	0.0166	0.58	0.85	49.9	0.205	0.17
18-Jun	0.406	913.21	913.82	3	0.0166	0.58	0.39	49.9	0.093	0.23
21-Jun	1.83	912.91	915.31	37	0.0166	0.58	1.75	49.9	0.420	0.23
27-Jun	0.664	912.65	913.92	8	0.0166	0.58	0.82	49.9	0.197	0.30
1-Jul	0.1	912.86	912.94	6	0.0166	0.58	0.11	49.9	0.026	0.26
4-Jul	1.081	912.71	913.66	11	0.0166	0.58	0.66	49.9	0.158	0.15
5-Jul	0.591	913.52	913.88	13	0.0166	0.58	0.33	49.9	0.079	0.13
7-Jul	0.016	913.33	913.35	1	0.0166	0.58	0.02	49.9	0.005	0.32
9-Jul	0.006	912.91	912.94	2	0.0166	0.58	0.03	49.9	0.008	1.38
13-Jul	0.142	912.57	912.95	13	0.0166	0.58	0.35	49.9	0.084	0.59
15-Jul	0.19	912.83	912.93	3	0.0166	0.58	0.09	49.9	0.021	0.11
21-Jul	0.334	912.46	913.49	2	0.0166	0.58	0.62	49.9	0.149	0.45
22-Jul	0.62	913.03	914.70	2	0.0166	0.58	0.99	49.9	0.238	0.38
31-Jul	0.667	912.99	915.28	9	0.0166	0.58	1.41	49.9	0.340	0.51
3-Aug	0.227	913.22	913.45	2	0.0166	0.58	0.15	49.9	0.037	0.16
5-Aug	1.553	913.24	915.32	17	0.0166	0.58	1.37	49.9	0.330	0.21
15-Aug	0.887	912.75	914.01	3	0.0166	0.58	0.76	49.9	0.182	0.20
16-Aug	0.212	913.30	913.33	27	0.0166	0.58	0.28	49.9	0.067	0.32
22-Aug	0.189	912.72	912.87	2	0.0166	0.58	0.11	49.9	0.026	0.14
26-Aug	1.297	912.61	915.25	11	0.0166	0.58	1.64	49.9	0.395	0.30
29-Aug	1.792	913.19	915.96	5	0.0166	0.58	1.66	49.9	0.399	0.22

Range of Rainfall to Runoff Ratios	0.10	1.38
Rainfall to Runoff Ratio Based on Linear Regression	**0.23**	

* E/I = Evaporation and infiltration rate included in volume calculation

Monitoring Location #11 (#0230)
Surface Water Elevations & Rainfall Amounts



Attachment C – Water Quality Data
C.1 Long-Term Water Quality Tables
C.2 Long-Term Water Quality Box and Whisker Charts
C.3 Chloride Charts

Water Quality Sampling Results
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN

WSB Project No. 025921-000

Location 1					
Sampling Date[1]	**Total Phosphorus (mg/L)**	**Ortho Phosphorus (mg/L)**	**Total Suspended Solids (mg/L)**	**Chloride (mg/L)**	**Nitrate (mg/L)**
6/10/2014	0.19	0.080	6		
7/16/2014	0.28	0.020	9		
8/11/2014	0.09	0.040	6		
9/17/2014	0.17	0.020	7		
10/28/2014	0.18	0.010	16		
5/20/2015	0.20	0.130	3.0		
7/14/2015	0.13	0.070	4.0		
8/6/2015	0.13	0.020	6.0		
8/25/2015	0.16	0.080	7.0		
9/22/2015	0.15	0.100	6.0		
10/29/2015	0.15	0.044	5.00		
2/16/2016	0.12	0.070	2	19.5	
3/16/2016	0.07	0.010	3	15.8	
4/28/2016	0.08	0.070	2	34.7	
5/26/2016	0.10	0.080	2	33.5	
6/23/2016	0.30	0.190	27	20.7	
7/16/2016	0.09	0.020	3	18.1	
8/31/2016	0.11	0.020	3	11.1	
9/27/2016	0.15	0.090	1	8.15	
10/25/2016	0.20	0.100	1	8.4	
4/28/2017	0.13	0.080	2	91.8	
5/25/2017	0.08	0.010	1	56	
6/21/2017	0.11	0.059	6	61.5	
7/31/2017	0.22	0.020	24	20.4	
8/30/2017	0.12	0.046	36	14.9	
9/27/2017	0.10	0.026	4	15.9	
10/31/2017	0.11	0.023	3	14.9	
2/14/2018	1.03	0.329	41	66.1	
3/14/2018	0.80	0.603	30	106	
5/30/2018	0.19	0.020	15	62.3	
6/27/2018	0.12	0.046	11	60	
7/25/2018	0.06	0.020	6	49.6	
8/29/2018	0.06	0.000	3	39.2	
9/27/2018	0.01	0.039	4	25.3	
10/29/2018	0.10	0.033	5	24	
1/7/2019	0.16	0.072	7	37.1	
3/11/2019	0.38	0.339	13	95.3	
6/25/2019	0.09	0.029	4	61	
7/17/2019	0.13	0.010	16	37.4	
8/12/2019	0.12	0.029	8	33.3	
9/17/2019	0.14	0.052	7	27.4	
10/8/2019	0.07	0.075	1	24.1	
2/12/2020	0.18	0.091	9	39.2	
3/11/2020	0.18	0.072	27	277.0	
7/7/2020	0.13	0.010	12	24.3	
8/3/2020	0.06	0.000	5	21.9	
9/9/2020	0.08	0.013	6	21.9	
11/2/2020	0.10	0.000	10	23.9	
2/22/2021	0.45	0.221	101	5780.0	
3/16/2021	0.00	0.007	7	33.7	
5/12/2021	0.09	0.000	0	53.5	
6/24/2021	0.06	0.000	4	50.8	
7/28/2021	0.03	0.010	0	53.8	
8/31/2021	0.04	0.010	5	39.0	
9/23/2021	0.05	0.007	10	38.2	
10/25/2021	0.10	0.023	22	36.8	
3/1/2022	0.93	0.635	57	58.0	
3/23/2022	0.39	0.166	10	44.5	
6/28/2022	0.18	0.000	12	45.9	
7/28/2022	0.20	0.000	6	48.7	0.025
8/24/2022	0.17	0.000	10	42.9	0.025
9/21/2022	0.26	0.003	10	40.7	0.025
11/3/2022	0.18	0.039	5	44.9	0.025
2/8/2023	1.09	0.095	21	44.2	0.025
3/21/2023	0.18	0.049	8	151.0	0.439
5/4/2023	0.07	0.003	24	146.0	0.025
6/7/2023	0.09	0.000	5	15.1	0.025
7/10/2023	0.15	0.000	26	110.0	0.025
8/3/2023	0.13	0.000	31		0.025
9/21/2023	0.33	0.065	35	92.7	0.025
10/11/2023	0.26	0.049	31		0.025
2/20/2024	0.10	0.003	2	29.4	0.025
5/21/2024	0.14	0.225	16	8.7	0.025
7/2/2024	0.08	0.000	6	13.7	0.025
7/30/2024	0.00	0.000	5	13.5	0.025
8/20/2024	0.08	0.000	14	12.4	0.025
9/30/2024	0.19	0.026	2	11.3	0.025
10/24/2024	0.00	0.000	3	11.1	0.025
2024 Average	0.08	0.04	6.87	14.29	0.03
AVERAGE	0.18	0.06	11.81	133.42	0.05
MEDIAN	0.13	0.03	6.00	37.10	0.03
MAX	1.09	0.64	101.00	5780.00	0.44
MIN	0.00	0.00	0.00	8.15	0.03
STDEV	0.20	0.11	14.97	712.57	0.09
75TH PERCENTILE	0.18	0.07	14.55	54.90	0.03
25TH PERCENTILE	0.09	0.01	3.60	19.95	0.03

1 - Water quality analysis was performed by William Lloyd / Tri-City Laboratory

Indicates sample result below lab detection limits, 1/2 MDL value reported

Water Quality Sampling Results
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN

WSB Project No. 025921-000

Location 2					
Sampling Date[1]	Total Phosphorus (mg/L)	Ortho Phosphorus (mg/L)	Total Suspended Solids (mg/L)	Chloride (mg/L)	Nitrate (mg/L)
6/10/2014	0.18	0.0900	0		
7/16/2014	0.40	0.0100	11		
8/11/2014	0.04	0.0500	100		
9/17/2014	0.23	0.0300	10		
10/28/2014	0.07	0.0100	4		
5/20/2015	0.06	0.0300	16.0		
7/14/2015	0.13	0.0700	11.0		
8/6/2015	0.07	0.0600	2.0		
8/25/2015	0.14	0.0600	13.0		
9/22/2015	0.24	0.0300	17.0		
10/29/2015	0.05	0.0050	5.0		
4/28/2016	0.10	0.0300	6	29.0	
5/26/2016	0.18	0.0400	12	38.2	
6/23/2016	0.24	0.0100	30	16.0	
7/16/2016	0.17	0.0200	17	11.4	
8/31/2016	0.19	0.0100	17	5.6	
9/27/2016	0.16	0.0400	8	13.1	
10/24/2016	0.10	0.0100	6	10.2	
4/28/2017	0.13	0.0800	8	91.8	
5/25/2017	0.02	0.0293	8	52.0	
6/21/2017	0.22	0.0000	15	48.6	
7/31/2017	0.15	0.0033	13	10.8	
8/30/2017	0.01	0.0000	13	6.8	
9/27/2017	0.09	0.0261	17	20.1	
10/31/2017	0.13	0.0098	13	15.0	
5/30/2018	0.13	0.0000	6	73.3	
6/27/2018	0.09	0.0033	2	36.2	
7/25/2018	0.04	0.0098	6	28.3	
8/29/2018	0.08	0.0228	8	13.6	
9/27/2018	0.04	0.0130	5	17.3	
10/29/2018	0.09	0.0130	9	13.2	
6/25/2019	0.05	0.0098	4	48.0	
7/17/2019	0.09	0.0000	12	18.4	
8/12/2019	0.13	0.0065	11	15.9	
9/17/2019	0.09	0.0326	13	18.0	
10/8/2019	0.07	0.0358	9	22.6	
7/6/2020	0.00	0.0000	5	16.2	
8/3/2020	0.05	0.0000	6	10.7	
9/9/2020	0.11	0.0163	11	9.3	
11/2/2020	0.10	0.0000	10	8.1	
5/12/2021	0.19	0.1240	3	541.0	
6/24/2021	0.14	0.0521	42	121.0	
7/28/2021	0.81	0.1430	5450	84.6	
8/31/2021	0.11	0.0000	19	42.8	
9/23/2021	0.04	0.0000	7	41.1	
10/25/2021	0.00	0.0000	21	50.3	
6/28/2022	0.19	0.0000	19	55.4	
7/28/2022	0.21	0.0000	27	49.2	0.025
8/24/2022	0.25	0.0000	39	34.0	0.025
9/21/2022	0.28	0.0065	21	39.3	0.025
11/3/2022	0.23	0.0228	89	40.8	0.025
5/4/2023	0.08	0.003	14	161.0	0.025
6/7/2023	0.12	0.007	5	144.0	0.025
7/10/2023	0.02	0.013	1	110.0	0.025
8/3/2023	0.12	0.000	4		0.025
9/21/2023	0.10	0.007	3	77.0	0.025
10/11/2023	0.08	0.003	9		0.025
4/2/2024	0.09	0.003	13	29.4	0.025
5/21/2024	0.12	0.020	13	9.1	0.025
7/2/2024	0.03	0.000	3	10.8	0.025
7/30/2024	0.00	0.000	13	7.9	0.025
8/20/2024	0.13	0.000	15	5.8	0.025
9/30/2024	0.27	0.000	21	24.1	0.025
10/24/2024	0.09	0.000	21	24.9	0.025
2024 Average	0.11	0.00	14.03	16.00	0.03
AVERAGE	0.13	0.02	99.36	47.47	0.03
MEDIAN	0.11	0.01	11.00	24.90	0.03
MAX	0.81	0.14	5450.00	541.00	0.03
MIN	0.00	0.00	0.00	5.62	0.03
STDEV	0.12	0.03	679.65	79.01	0.00
75TH PERCENTILE	0.18	0.03	17.00	49.20	0.03
25TH PERCENTILE	0.07	0.00	6.00	13.10	0.03

1 - Water quality analysis was performed by William Lloyd / Tri-City Laboratory

Indicates sample result below lab detection limits, 1/2 MDL value reported

Location 3					
Sampling Date[1]	**Total Phosphorus (mg/L)**	**Ortho Phosphorus (mg/L)**	**Total Suspended Solids (mg/L)**	**Chloride (mg/L)**	**Nitrate (mg/L)**
6/10/2014	0.10	0.100	1		
7/16/2014	0.18	0.050	2		
8/11/2014	0.33	0.110	14		
9/17/2014	0.21	0.030	10		
10/28/2014	0.15	0.010	1		
5/20/2015	0.20	0.090	6.0		
7/14/2015	0.20	0.160	2.0		
8/6/2015	0.35	0.100	30.0		
8/25/2015	0.15	0.110	7.0		
9/22/2015	0.24	0.090	13.0		
10/29/2015	0.26	0.160	10.0		
4/28/2016	0.19	0.050	13	53.9	
5/26/2016	0.47	0.050	26	19.3	
6/23/2016	0.41	0.170	3	6.5	
7/16/2016	0.19	0.100	6	4.1	
8/31/2016	0.14	0.100	10	6.9	
9/27/2016	0.25	0.010	8	9.3	
10/24/2016	0.36	0.030	14	7.2	
4/28/2017	0.06	0.020	8	109.6	
5/25/2017	0.05	0.003	3	13.2	
6/21/2017	0.22	0.036	9	16.0	
7/31/2017	0.13	0.016	8	7.4	
8/30/2017	0.07	0.000	4	7.7	
9/27/2017	0.14	0.020	1	8.0	
10/30/2017	0.24	0.055	6	21.5	
5/30/2018	0.39	0.052	55	32.0	
6/27/2018	0.13	0.078	2	14.8	
7/25/2018	0.03	0.020	5	13.6	
8/29/2018	0.14	0.068	17	6.6	
9/27/2018	0.98	0.065	3	14.0	
10/29/2018	0.21	0.065	10	15.0	
6/25/2019	0.19	0.104	3	24.0	
7/17/2019	0.09	0.085	3	4.6	
8/12/2019	0.18	0.055	7	12.7	
9/17/2019	0.09	0.085	2	4.1	
10/8/2019	0.09	0.081	1	11.4	
7/6/2020	0.06	0.016	4	11.1	
8/3/2020	0.08	0.000	4	6.8	
9/9/2020	0.16	0.052	9	8.8	
11/2/2020	0.32	0.215	7	27.1	
5/12/2021	0.13	0.033	7	204.0	
6/24/2021	0.20	0.046	7	56.8	
7/28/2021	0.16	0.016	10	25.9	
8/31/2021	0.12	0.013	7	4.5	
9/23/2021	0.14	0.049	7	16.2	
10/25/2021	0.05	0.000	5	8.7	
6/28/2022	0.30	0.065	5	57.0	
7/28/2022	0.18	0.000	10	22.2	0.025
8/24/2022	0.10	0.000	11	6.5	0.025
9/21/2022	0.21	0.000	1	49.6	0.025
11/3/2022	0.34	0.065	22	65.0	0.025
5/4/2023	0.03	0.007	6	425.0	0.401
6/7/2023	0.16	0.000	4	321.0	0.025
7/10/2023	0.23	0.134	6	80.1	0.025
8/3/2023	0.15	0.039	4		0.025
9/21/2023	0.23	0.059	3	52.4	0.025
10/11/2023	0.16	0.062	2		0.025
5/21/2024	0.17	0.072	30	4.9	0.08
7/2/2024	0.05	0.013	9	14.1	0.025
7/30/2024	0.10	0.013	7	10.8	0.025
8/20/2024	0.26	0.023	54	9.0	0.025
9/30/2024	0.19	0.124	21	45.7	0.025
10/24/2024	0.09	0.046	5	35.9	0.025
2024 Average	0.14	0.05	20.80	20.07	0.03
AVERAGE	0.19	0.06	9.31	40.24	0.05
MEDIAN	0.17	0.05	6.70	14.05	0.03
MAX	0.98	0.22	55.00	425.00	0.40
MIN	0.03	0.00	0.50	4.06	0.03
STDEV	0.14	0.05	10.48	77.24	0.09
75TH PERCENTILE	0.23	0.08	10.00	38.35	0.03
25TH PERCENTILE	0.10	0.02	3.00	7.64	0.03

1 - Water quality analysis was performed by William Lloyd / Tri-City Laboratory

Indicates sample result below lab detection limits, 1/2 MDL value reported

Location 4					
Sampling Date[1]	**Total Phosphorus (mg/L)**	**Ortho Phosphorus (mg/L)**	**Total Suspended Solids (mg/L)**	**Chloride (mg/L)**	**Nitrate (mg/L)**
6/10/2014	0.10	0.020	8		
7/16/2014	0.07	0.000	8		
8/11/2014	0.15	0.010	22		
9/19/2014	0.16	0.000	16		
10/28/2014	0.07	0.000	13		
5/20/2015	0.07	0.020	15.0		
7/14/2015	0.08	0.020	9.0		
8/6/2015	0.13	0.040	18.0		
8/25/2015	0.13	0.060	10.0		
9/22/2015	0.11	0.010	17.0		
10/29/2015	0.07	0.005	14.0		
4/28/2016	0.07	0.010	10	59.6	
5/26/2016	0.12	0.010	15	40.5	
6/23/2016	0.08	0.010	2	37.4	
7/16/2016	0.06	0.010	13	18.4	
8/31/2016	0.02	0.010	15	16.0	
9/27/2016	0.15	0.150	3	33.3	
10/24/2016	0.07	0.010	3	33.6	
4/28/2017	0.02	0.020	4	78.4	
5/25/2017	0.06	0.000	3	59.2	
6/21/2017	0.08	0.003	3	43.4	
7/31/2017	0.08	0.007	6	38.1	
8/30/2017	0.08	0.000	4	36.4	
9/27/2017	0.04	0.013	5	85.5	
10/31/2017	0.05	0.020	2	37.3	
5/30/2018	0.11	0.000	129	64.9	
6/27/2018	0.19	0.003	5	45.7	
7/25/2018	0.07	0.020	17	35.8	
8/29/2018	0.07	0.013	11	18.7	
9/27/2018	0.07	0.016	11	19.8	
10/29/2018	0.07	0.003	10	22.1	
6/25/2019	0.02	0.003	3	49.0	
7/17/2019	0.03	0.016	4	31.7	
8/12/2019	0.05	0.020	5	38.7	
9/17/2019	0.05	0.016	4	31.9	
10/8/2019	0.01	0.010	3	28.0	
7/6/2020	0.00	0.000	4	40.2	
8/3/2020	0.00	0.000	5	40.1	
9/9/2020	0.07	0.000	7	22.1	
11/2/2020	0.07	0.000	4	30.7	
5/12/2021	0.07	0.000	8	154.0	
6/24/2021	0.10	0.026	24	90.2	
7/28/2021	0.03	0.003	4	56.6	
8/31/2021	0.00	0.003	3	16.7	
9/23/2021	0.01	0.000	1	9.4	
10/25/2021	0.00	0.000	1	6.9	
6/28/2022	0.32	0.016	69	53.8	
7/28/2022	0.18	0.000	25	36.6	0.025
8/24/2022	0.16	0.000	37	13.8	0.025
9/21/2022	0.15	0.000	23	11.0	0.025
11/3/2022	0.17	0.033	21	13.1	0.025
5/4/2023	0.00	0.000	6	169.0	0.025
6/7/2023	0.06	0.000	4	218.0	0.025
7/10/2023	0.05	0.010	4	184.0	0.025
8/3/2023	0.14	0.000	20		0.025
9/21/2023	0.20	0.036	27	43.8	0.025
10/11/2023	0.14	0.039	16		0.025
5/21/2024	0.18	0.010	23	10.3	0.025
7/2/2024	0.04	0.000	3	16.7	0.025
7/30/2024	0.00	0.000	3	12.9	0.025
8/20/2024	0.11	0.020	12	8.8	0.0512
9/30/2024	0.07	0.000	8	10.2	0.025
10/24/2024	0.04	0.000	5	9.9	0.025
2024 Average	0.07	0.00	8.93	11.47	0.03
AVERAGE	0.08	0.01	12.77	45.64	0.03
MEDIAN	0.07	0.01	8.00	36.10	0.03
MAX	0.32	0.15	129.00	218.00	0.05
MIN	0.00	0.00	0.80	6.94	0.03
STDEV	0.06	0.02	18.30	45.47	0.01
75TH PERCENTILE	0.12	0.02	15.80	50.20	0.03
25TH PERCENTILE	0.04	0.00	4.00	16.70	0.03

1 - Water quality analysis was performed by William Lloyd / Tri-City Laboratory

Indicates sample result below lab detection limits, 1/2 MDL value reported

Water Quality Sampling Results
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN

WSB Project No. 025921-000

Location 5					
Sampling Date[1]	Total Phosphorus (mg/L)	Ortho Phosphorus (mg/L)	Total Suspended Solids (mg/L)	Chloride (mg/L)	Nitrate (mg/L)
6/10/2014	0.10	0.020	10		
7/16/2014	0.16	0.000	11		
8/11/2014	0.08	0.010	19		
9/17/2014	0.20	0.000	24		
10/28/2014	0.14	0.040	15		
5/20/2015	0.26	0.070	27.0		
7/14/2015	0.23	0.050	12.0		
8/6/2015	0.14	0.030	16.0		
8/25/2015	0.20	0.070	19.0		
9/22/2015	0.14	0.010	18.0		
10/29/2015	0.12	0.005	12.0		
2/16/2016	0.08	0.010	15	48.4	
3/16/2016	0.07	0.010	9	64.6	
4/28/2016	0.07	0.010	10	45.2	
5/26/2016	0.07	0.010	20	33.6	
6/23/2016	0.13	0.010	6	20.6	
7/16/2016	0.14	0.010	18	10.7	
8/31/2016	0.20	0.010	19	5.5	
9/27/2016	0.15	0.040	6	2.5	
10/24/2016	0.07	0.010	4	38.0	
4/28/2017	0.02	0.020	8	98.4	
5/25/2017	0.07	0.000	2	40.4	
6/21/2017	0.07	0.020	2	41.8	
7/31/2017	0.05	0.010	2	34.8	
8/30/2017	0.05	0.000	1	27.9	
9/27/2017	0.08	0.075	4	27.3	
10/30/2017	0.07	0.023	2	26.4	
2/14/2018	0.73	0.401	29	109.0	
3/14/2018	0.71	0.570	10	176.0	
5/30/2018	0.13	0.000	7	98.6	
6/27/2018	0.13	0.020	1	55.8	
7/25/2018	0.07	0.020	11	44.3	
8/29/2018	0.02	0.013	12	28.4	
9/27/2018	0.07	0.013	5	25.1	
10/29/2018	0.07	0.010	7	33.5	
1/7/2019	0.07	0.033	3	49.3	
3/11/2019	0.32	0.283	17	336.0	
6/25/2019	0.03	0.016	2	48.0	
7/17/2019	0.04	0.020	4	27.6	
8/12/2019	0.09	0.020	12	31.6	
9/17/2019	0.07	0.016	3	23.6	
10/8/2019	0.02	0.007	2	25.8	
2/12/2020	0.12	0.013	6	131.0	
3/11/2020	0.32	0.241	5	52.0	
7/6/2020	0.00	0.000	3	59.0	
8/3/2020	0.03	0.000	8	26.9	
9/9/2020	0.19	0.020	14	18.0	
11/2/2020	0.13	0.000	11	16.1	
2/22/2021	0.56	0.095	164	5080.0	
3/16/2021	0.34	0.163	24	106.0	
5/12/2021	0.14	0.000	2	145.0	
6/24/2021	0.11	0.000	4.8	98.7	
7/28/2021	0.05	0.000	5.7	76.6	
8/31/2021	0.11	0.000	24	30.3	
9/23/2021	0.14	0.000	14	20.5	
10/25/2021	0.02	0.000	10.6	17.7	
3/1/2022	0.35	0.205	10	72.5	
3/23/2022	0.40	0.277	5.6	48.1	
6/28/2022	0.11	0.010	3.5	37.7	
7/28/2022	0.12	0.000	17.3	30.7	0.025
8/24/2022	0.16	0.000	16.7	13.8	0.025
9/21/2022	0.18	0.000	13.3	13.9	0.025
11/3/2022	0.11	0.016	10.7	16.0	0.158
2/8/2023	0.28	0.137	14	132.0	0.059
3/21/2023	0.18	0.029	8	268.0	0.159
5/4/2023	0.09	0.000	14	232.0	0.025
6/7/2023	0.07	0.000	7	105.0	0.025
7/10/2023	0.10	0.000	8	127.0	0.025
8/3/2023	0.15	0.000	17		0.025
9/21/2023	0.17	0.013	22	48.6	0.025
10/11/2023	0.15	0.023	8		0.025
2/20/2024	0.07	0.026	4	33.9	0.085
4/2/2024	0.12	0.000	53	61.7	0.025
5/21/2024	0.16	0.003	16	5.3	0.025
7/2/2024	0.00	0.000	8	14.5	0.025
7/30/2024	0.05	0.000	17	9.2	0.025
8/26/2024	0.17	0.033	25	7.6	0.025
9/30/2024	0.16	0.010	26	11.3	0.025
10/24/2024	0.27	0.000	30	11.8	0.025
2024 Average	0.13	0.01	22.21	19.41	0.03
AVERAGE	0.15	0.04	13.73	134.20	0.04
MEDIAN	0.12	0.01	10.60	36.25	0.03
MAX	0.73	0.57	164.00	5080.00	0.16
MIN	0.00	0.00	1.00	2.47	0.03
STDEV	0.13	0.09	19.22	621.29	0.04
75TH PERCENTILE	0.17	0.03	16.90	73.53	0.03
25TH PERCENTILE	0.07	0.00	5.00	20.58	0.03

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Indicates sample result below lab detection limits, 1/2 MDL value reported

Location 6					
Sampling Date[1]	**Total Phosphorus (mg/L)**	**Ortho Phosphorus (mg/L)**	**Total Suspended Solids (mg/L)**	**Chloride (mg/L)**	**Nitrate (mg/L)**
6/10/2014	0.12	0.020	8	7.2	
7/16/2014	0.10	0.000	11		
8/11/2014	0.29	0.180	19	20.0	
9/17/2014	0.26	0.070	12		
10/28/2014	0.11	0.070	15	9.3	
5/20/2015	0.24	0.170	4		
7/14/2015	0.21	0.150	5		
8/6/2015	0.41	0.270	13		
8/25/2015	0.23	0.190	7		
9/22/2015	0.33	0.210	5		
10/29/2015	0.23	0.091	12		
2/16/2016	0.34	0.170	23	1080.0	
3/16/2016	0.06	0.030	13	216.4	
4/28/2016	0.23	0.010	14	150.8	
5/26/2016	0.23	0.090	13	205.2	
6/23/2016	0.19	0.080	1	13.6	
7/16/2016	0.23	0.160	7	13.5	
8/31/2016	0.17	0.050	8	16.8	
9/27/2016	0.08	0.030	6	2.5	
10/24/2016	0.01	0.040	9	3.4	
4/28/2017	0.07	0.030	16	89.4	
5/25/2017	0.10	0.042	20	28.9	
6/21/2017	0.17	0.055	8	19.1	
7/31/2017	0.19	0.117	7	11.4	
8/30/2017	0.13	0.078	14	7.4	
9/27/2017	0.50	0.277	17	11.8	
10/31/2017	0.22	0.095	7	4.9	
2/14/2018	0.95	0.603	25	618.0	
3/14/2018	0.85	0.417	38	1830.0	
5/30/2018	0.23	0.085	7	67.7	
6/27/2018	0.30	0.195	15	37.1	
7/25/2018	0.14	0.095	8	27.4	
8/29/2018	0.16	0.124	5	9.1	
9/27/2018	0.13	0.065	5	4.5	
10/29/2018	0.44	0.055	30	4.8	
1/7/2019	0.23	0.052	19	242.0	
3/11/2019	0.30	0.241	209	2280.0	
6/25/2019	0.15	0.085	4	24.0	
7/17/2019	0.14	0.068	9	7.7	
8/12/2019	0.45	0.290	16	16.0	
9/17/2019	0.20	0.127	5	4.3	
10/8/2019	0.15	0.081	12	3.9	
2/12/2020	0.85	0.808	9	1580.0	
3/11/2020	0.95	0.463	88	310.0	
7/6/2020	0.06	0.078	3	59.8	
8/3/2020	0.11	0.091	3	14.1	
9/9/2020	0.31	0.166	17	9.9	
11/2/2020	0.29	0.189	13	73.7	
2/22/2021	0.94	0.257	252	7840.0	
3/16/2021	0.14	0.081	10	2800.0	
5/12/2021	0.16	0.068	2	257.0	
6/24/2021	0.26	0.215	9	59.8	
7/28/2021	0.19	0.029	20	78.4	
8/31/2021	0.09	0.016	6	7.2	
9/23/2021	0.13	0.046	16	6.9	
10/25/2021	0.00	0.000	11	7.0	
3/1/2022	0.64	0.404	11	996.0	
3/23/2022	0.15	0.078	9	106.0	
6/28/2022	0.42	0.202	10	42.4	
7/28/2022	0.44	0.287	5	47.0	0.025
8/24/2022	0.24	0.176	2	30.7	0.025
9/21/2022	0.44	0.316	18	34.3	0.025
11/3/2022	0.54	0.420	19	41.2	0.025
2/8/2023	0.62	0.420	18	2620.0	0.025
3/21/2023	0.53	0.381	11	0.5	0.0675
5/4/2023	0.06	0.013	50	25.1	0.113
6/7/2023	0.33	0.143	6	94.0	0.025
7/10/2023	0.34	0.290	2	39.7	0.025
8/3/2023	0.59	0.186	3		0.025
9/21/2023	0.46	0.316	4	23.1	0.025
10/11/2023	0.23	0.085	12		0.0762
2/20/2024	0.01	0.000	2	236.0	0.025
4/2/2024	0.00	0.010	28	368.0	0.064
5/21/2024	0.43	0.257	114	11.3	0.025
7/2/2024	0.18	0.049	16	11.0	0.025
7/30/2024	0.36	0.244	45	19.9	0.025
8/26/2024	0.31	0.137	16	21.5	0.025
9/30/2024	0.21	0.098	32	25.6	0.025
10/24/2024	0.19	0.016	29	25.5	0.025
2024 Average	0.21	0.10	35.21	89.85	0.03
AVERAGE	0.28	0.16	20.53	362.47	0.04
MEDIAN	0.23	0.09	11.40	25.60	0.03
MAX	0.95	0.81	252.00	7840.00	0.11
MIN	0.00	0.00	1.00	0.50	0.03
STDEV	0.22	0.15	38.18	1093.31	0.02
75TH PERCENTILE	0.36	0.22	17.70	128.40	0.03
25TH PERCENTILE	0.14	0.06	6.40	10.47	0.03

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Water Quality Sampling Results
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN

WSB Project No. 025921-000

Location 7					
Sampling Date[1]	Total Phosphorus (mg/L)	Ortho Phosphorus (mg/L)	Total Suspended Solids (mg/L)	Chloride (mg/L)	Nitrate (mg/L)
6/10/2014	0.45	0.310	2		
7/16/2014	0.49	0.050	174		
8/11/2014	0.26	0.020	51		
9/17/2014	0.15	0.000	9		
10/28/2014	0.56	0.010	260		
5/20/2015	0.19	0.120	2.0		
7/14/2015	1.03	0.070	397.0		
8/6/2015	0.19	0.030	22.0		
8/25/2015	0.17	0.050	312.0		
9/22/2015	0.07	0.010	9.0		
10/29/2015	0.07	0.005	13.0		
4/28/2016	0.06	0.010	7	46.3	
5/26/2016	0.10	0.010	10	37.0	
6/23/2016	1.03	0.040	29	7.0	
7/16/2016	0.11	0.010	5	3.9	
8/31/2016	0.12	0.010	8	4.7	
9/27/2016	0.18	0.020	6	4.4	
10/24/2016	0.46	0.010	2	5.8	
4/28/2017	0.10	0.030	15	99.8	
5/25/2017	0.09	0.029	4	15.3	
6/21/2017	0.59	0.078	34	15.7	
7/31/2017	0.15	0.026	17	5.6	
8/30/2017	0.13	0.013	60	5.5	
9/27/2017	0.02	0.020	51	8.4	
10/31/2017	0.04	0.003	3	8.2	
2/14/2018	1.59	0.762	353	350.0	
3/14/2018	1.28	0.612	94	198.0	
5/30/2018	0.20	0.000	4	80.4	
6/27/2018	0.23	0.062	14	26.4	
7/25/2018	0.57	0.160	157	28.8	
8/29/2018	0.38	0.189	34	18.2	
9/27/2018	0.28	0.052	20	7.6	
10/29/2018	0.26	0.521	9	10.7	
1/7/2019	0.29	0.111	18	54.5	
3/11/2019	0.59	0.515	112	745.0	
6/25/2019	0.15	0.101	8	33.0	
7/17/2019	0.08	0.055	10	2.5	
8/12/2019	0.12	0.016	17	7.6	
9/17/2019	0.17	0.016	19	4.2	
10/8/2019	0.07	0.003	7	6.1	
2/12/2020	0.74	0.596	27	383.0	
3/11/2020	0.42	0.182	38	57.0	
7/6/2020	0.08	0.046	16	38.9	
8/3/2020	0.15	0.000	19	9.2	
9/9/2020	0.18	0.010	15	9.8	
11/2/2020	0.07	0.000	4	16.0	
2/22/2021	0.50	0.137	115	5880.0	
3/16/2021	0.18	0.062	10	41.3	
5/12/2021	0.21	0.095	2	103.0	
6/24/2021	0.93	0.212	428	42.6	
7/28/2021	0.60	0.088	4920	39.7	
8/31/2021	0.17	0.010	32	14.7	
9/23/2021	0.30	0.062	19	9.9	
10/25/2021	0.03	ND	3	12.1	
3/1/2022	1.35	0.951	76	148.0	
3/23/2022	0.29	0.039	10	22.4	
6/28/2022	0.31	0.091	12	45.3	
7/28/2022	0.50	0.163	161	29.8	0.025
8/24/2022	0.20	0.055	6	8.9	0.025
9/21/2022	0.22	0.020	2	14.5	0.025
11/3/2022	0.32	0.068	18	24.9	0.025
2/8/2023	0.79	0.508	25	102.0	0.025
3/21/2023	0.52	0.358	11	756.0	0.0625
5/4/2023	0.04	0.007	13	142.0	0.025
6/7/2023	0.15	0.000	8	133.0	0.025
7/10/2023	0.22	0.104	2	58.4	0.025
8/3/2023	0.63	0.046	45		0.025
9/21/2023	0.17	0.036	2	26.4	0.025
10/11/2023	0.22	0.062	8		0.025
2/20/2024	0.06	0.013	14	36.6	0.025
4/2/2024	0.00	0.013	9	86.1	0.148
5/21/2024	0.20	0.036	8	17.2	0.025
7/2/2024	0.13	0.000	12	4.9	0.025
7/30/2024	0.18	0.023	17	4.3	0.025
8/26/2024	0.11	0.007	8	3.9	0.025
9/30/2024	0.25	0.026	74	4.7	0.025
10/24/2024	0.12	0.000	14	6.9	0.025
2024 Average	0.13	0.01	19.38	20.56	0.04
AVERAGE	0.32	0.11	111.41	158.97	0.03
MEDIAN	0.20	0.04	14.00	20.30	0.03
MAX	1.59	0.95	4920.00	5880.00	0.15
MIN	0.00	0.00	1.60	2.54	0.03
STDEV	0.32	0.19	562.33	740.31	0.03
75TH PERCENTILE	0.46	0.10	36.00	56.38	0.03
25TH PERCENTILE	0.12	0.01	7.95	7.59	0.03

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Water Quality Sampling Results
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN

WSB Project No. 025921-000

Location 8					
Sampling Date[1]	**Total Phosphorus (mg/L)**	**Ortho Phosphorus (mg/L)**	**Total Suspended Solids (mg/L)**	**Chloride (mg/L)**	**Nitrate (mg/L)**
6/10/2014	0.17	0.030	2		
7/16/2014	0.27	0.020	45		
8/11/2014	0.22	0.020	39		
9/17/2014	0.23	0.000	46		
10/28/2014	0.08	0.030	19		
5/20/2015	0.10	0.020	14.0		
7/14/2015	0.19	0.010	32.0		
8/6/2015	0.25	0.030	44.0		
8/25/2015	0.23	0.090	36.0		
9/22/2015	0.17	0.010	24.0		
10/29/2015	0.14	0.005	14.0		
2/16/2016	0.03	0.010	10	292.0	
3/16/2016	0.12	0.010	27	286.0	
4/28/2016	0.09	0.010	15	193.6	
5/26/2016	0.13	0.040	3	174.4	
6/23/2016	0.23	0.050	6	73.6	
7/16/2016	0.25	0.070	10	47.3	
8/31/2016	0.03	0.010	5	19.5	
9/27/2016	0.21	0.010	18	9.6	
10/24/2016	0.08	0.010	7	8.3	
4/28/2017	0.10	0.040	7	250.0	
5/25/2017	0.05	0.010	9	122.0	
6/21/2017	0.14	0.036	6	110.0	
7/31/2017	0.19	0.078	9	28.9	
8/30/2017	0.20	0.016	12	16.4	
9/27/2017	0.15	0.020	16	18.3	
10/31/2017	0.11	0.010	8	13.1	
5/30/2018	0.20	0.036	2	351.0	
6/27/2018	0.20	0.020	8	159.0	
7/25/2018	0.61	0.007	98	82.4	
8/29/2018	0.31	0.003	42	48.7	
9/27/2018	0.13	0.000	17	20.7	
10/29/2018	0.09	0.010	11	15.9	
6/25/2019	0.22	0.010	29	75.0	
7/17/2019	0.27	0.000	52	39.1	
8/12/2019	0.28	0.010	58	37.3	
9/17/2019	0.08	0.020	14	14.7	
10/8/2019	0.08	0.016	16	13.3	
7/6/2020	0.07	0.007	17	13.1	
8/3/2020	0.22	0.003	50	34.3	
9/9/2020	0.22	0.026	56	20.8	
11/2/2020	0.14	0.013	15	32.9	
5/12/2021	0.12	0.000	8	326.0	
6/24/2021	0.24	0.033	47	230.0	
7/28/2021	0.14	0.020	110	158.0	
8/31/2021	0.06	0.003	24	63.8	
9/23/2021	0.09	0.003	10	47.1	
10/25/2021	0.03	0.000	9	49.8	
6/28/2022	0.17	0.062	3	125.0	
7/28/2022	0.21	0.072	4	60.6	0.025
8/24/2022	0.11	0.023	2	59.2	0.025
9/21/2022	0.11	0.046	4	58.7	0.025
11/3/2022	0.15	0.075	14	84.7	0.089
5/4/2023	0.04	0.000	9	380.0	0.025
6/7/2023	0.12	0.000	78	293.0	0.025
7/10/2023	0.13	0.016	6	192.0	0.025
8/3/2023	0.31	0.000	45		0.025
9/21/2023	0.23	0.033	20	118.0	0.025
10/11/2023	0.14	0.010	7		0.025
5/21/2024	0.10	0.010	6	68.2	0.025
7/2/2024	0.26	0.000	34	11.7	0.025
7/30/2024	0.23	0.003	48	9.4	0.025
8/26/2024	0.12	0.039	24	8.1	0.025
9/30/2024	0.20	0.016	55	9.0	0.025
10/24/2024	0.22	0.000	52	10.6	0.025
2024 Average	0.19	0.01	36.48	19.51	0.03
AVERAGE	0.17	0.02	24.38	95.85	0.03
MEDIAN	0.15	0.01	15.00	54.25	0.03
MAX	0.61	0.09	110.00	380.00	0.09
MIN	0.03	0.00	1.80	8.11	0.03
STDEV	0.09	0.02	23.07	102.82	0.02
75TH PERCENTILE	0.22	0.03	40.50	149.75	0.03
25TH PERCENTILE	0.10	0.01	8.00	16.88	0.03

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Water Quality Sampling Results **WSB Project No. 025921-000**
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN

Location 9					
Sampling Date[1]	**Total Phosphorus (mg/L)**	**Ortho Phosphorus (mg/L)**	**Total Suspended Solids (mg/L)**	**Chloride (mg/L)**	**Nitrate (mg/L)**
6/10/2014	0.19	0.050	2		
7/16/2014	0.13	0.000	50		
8/11/2014	0.19	0.030	14		
9/17/2014	0.15	0.000	13		
10/28/2014	0.27	0.020	19		
5/20/2015	0.16	0.020	19.0		
7/14/2015	0.10	0.010	17.0		
8/6/2015	0.12	0.020	18.0		
8/25/2015	0.15	0.040	16.0		
9/22/2015	0.09	0.010	11.0		
10/29/2015	0.19	0.026	18.0		
2/16/2016	0.32	0.060	15	3440.0	
3/16/2016	0.12	0.010	27	96.9	
4/28/2016	0.28	0.010	22	152.8	
5/26/2016	0.13	0.030	6	126.0	
6/23/2016	0.14	0.010	18	58.4	
7/16/2016	0.11	0.010	8	38.7	
8/31/2016	0.03	0.010	5	19.5	
9/27/2016	0.21	0.030	7	22.9	
10/24/2016	0.28	0.100	16	19.5	
4/28/2017	0.11	0.050	13	173.4	
5/25/2017	0.05	0.013	5	108.0	
6/21/2017	0.15	0.007	22	96.8	
7/31/2017	0.06	0.010	7	51.0	
8/30/2017	0.06	0.000	9	35.6	
9/27/2017	0.05	0.016	5	41.9	
10/31/2017	0.42	0.205	6	74.6	
2/14/2018	0.59	0.329	16	361.0	
3/14/2018	0.68	0.384	44	179.0	
5/30/2018	0.22	0.026	10	155.0	
6/27/2018	0.13	0.007	5	109.0	
7/25/2018	0.19	0.020	89	92.0	
8/29/2018	0.65	0.010	11	75.4	
9/27/2018	0.09	0.003	9	73.6	
10/29/2018	0.19	0.036	10	106.0	
1/7/2019	0.15	0.095	4	63.8	
3/11/2019	0.21	0.192	3	177.0	
6/25/2019	0.08	0.007	6	90.0	
7/17/2019	0.12	0.007	40	42.7	
8/12/2019	0.07	0.007	15	44.9	
9/17/2019	0.09	0.023	12	52.2	
10/8/2019	0.07	0.010	10	52.7	
2/12/2020	0.10	0.026	9	193.0	
3/11/2020	0.18	0.039	4	43.0	
7/7/2020	0.00	0.000	10	49.0	
8/3/2020	0.05	0.000	16	39.2	
9/16/2020	0.04	0.000	8	52.6	
11/2/2020	0.24	0.104	20	119.0	
2/22/2021	0.62	0.137	176	5890.0	
3/16/2021	0.19	0.033	10	94.2	
5/12/2021	0.07	0.000	3	150.0	
6/24/2021	0.10	0.016	38	130.0	
7/28/2021	0.08	0.003	8	122.0	
8/31/2021	0.03	0.003	8	78.9	
9/23/2021	0.07	0.000	8	84.6	
10/25/2021	0.06	0.000	6	137.0	
3/1/2022	0.24	0.192	1	139.0	
3/23/2022	0.27	0.127	10	75.2	
6/28/2022	0.11	0.000	13	109.0	
7/28/2022	0.11	0.000	21	93.8	0.025
8/24/2022	0.06	0.000	17	68.3	0.025
9/21/2022	0.07	0.000	13	60.2	0.025
11/3/2022	0.20	0.010	28	135.0	0.205
2/8/2023	0.17	0.020	5	113.0	0.025
3/21/2023	0.28	0.062	15	139.0	0.131
5/4/2023	0.05	0.000	7	203.0	0.025
6/7/2023	0.03	0.000	19	33.6	0.025
7/10/2023	0.04	0.000	5	122.0	0.025
8/3/2023	0.13	0.000	7		0.025
9/21/2023	0.12	0.007	8	145.0	0.025
10/11/2023	0.10	0.000	6		0.025
2/20/2024	0.19	0.036	3	81.3	0.244
4/2/2024	0.04	0.003	8	124.0	0.2225
5/21/2024	0.19	0.085	4	57.3	0.0743
7/2/2024	0.05	0.000	13	16.6	0.025
7/30/2024	0.00	0.000	9	11.6	0.025
8/26/2024	0.08	0.010	10	11.1	0.025
9/30/2024	0.03	0.003	9	13.4	0.025
10/24/2024	0.06	0.000	16	25.7	0.025
2024 Average	0.11	0.02	10.60	84.62	0.06
AVERAGE	0.15	0.04	15.70	230.15	0.06
MEDIAN	0.12	0.01	10.00	87.30	0.03
MAX	0.68	0.38	176.00	5890.00	0.24
MIN	0.00	0.00	0.80	11.10	0.03
STDEV	0.14	0.07	22.15	820.82	0.07
75TH PERCENTILE	0.19	0.03	16.70	131.25	0.06
25TH PERCENTILE	0.07	0.00	7.00	47.98	0.03

1 - Water quality analysis was performed by William Lloyd / Tri-City Laboratory
Indicates sample result below lab detection limits, 1/2 MDL value reported

Water Quality Sampling Results
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN

WSB Project No. 025921-000

Location 10					
Sampling Date[1]	**Total Phosphorus (mg/L)**	**Ortho Phosphorus (mg/L)**	**Total Suspended Solids (mg/L)**	**Chloride (mg/L)**	**Nitrate (mg/L)**
6/10/2014	0.14	0.050	3		
7/16/2014	0.26	0.010	19		
8/11/2014	0.86	0.070	340		
9/17/2014	0.41	0.010	66		
10/28/2014	0.68	0.060	22		
5/20/2015	0.26	0.040	59		
7/14/2015	0.24	0.010	32		
8/6/2016	0.23	0.020	26		
8/25/2015	0.25	0.020	38		
9/22/2015	0.21	0.010	19		
10/29/2015	0.13	0.005	17		
4/28/2016	0.12	0.010	37	12.9	
5/26/2016	0.43	0.060	53	25.4	
6/23/2016	1.06	0.740	35	40.8	
7/16/2016	0.33	0.040	48	21.8	
8/31/2016	0.24	0.010	35	21.6	
9/27/2016	0.25	0.020	20	21.4	
10/24/2016	0.26	0.010	33	15.3	
4/28/2017	0.05	0.020	13	96.4	
5/25/2017	0.05	0.010	10	58.0	
6/21/2017	0.30	0.029	50	53.1	
7/31/2017	0.22	0.000	35	35.1	
8/30/2017	0.25	0.000	65	27.9	
9/27/2017	0.28	0.036	59	24.2	
10/31/2017	0.21	0.016	32	16.9	
5/30/2018	0.32	0.000	32	86.7	
6/27/2018	0.24	0.003	31	69.6	
7/25/2018	0.33	0.020	97	51.6	
8/29/2018	0.29	0.020	50	38.2	
9/27/2018	0.21	0.003	32	39.6	
10/29/2018	0.07	0.010	11	30.7	
6/25/2019	0.13	0.000	20	72.0	
7/17/2019	0.16	0.007	40	49.4	
8/12/2019	0.24	0.010	51	46.3	
9/17/2019	0.22	0.078	41	31.8	
10/8/2019	0.15	0.029	27	27.9	
7/7/2020	0.13	0.000	43	39.6	
8/3/2020	0.17	0.000	31	35.7	
9/16/2020	0.20	0.000	36	29.2	
11/2/2020	0.22	0.000	21	38.5	
5/12/2021	0.08	0.000	10	107.0	
6/28/2021	0.13	0.042	21	90.1	
7/28/2021	0.13	0.004	9	103.0	
8/31/2021	0.16	0.007	51	59.7	
9/23/2021	0.15	0.000	50	54.1	
10/25/2021	0.06	0.000	35	56.8	
6/28/2022	0.28	0.000	26	66.5	
7/28/2022	0.38	0.000	109	80.0	0.025
8/24/2022	0.27	0.000	36	59.9	0.025
9/21/2022	0.32	0.000	52	51.0	0.025
11/3/2022	0.20	0.020	41	60.0	0.025
5/4/2023	0.07	0.003	24	146.0	0.025
6/7/2023	0.09	0.000	5	15.1	0.025
7/10/2023	0.15	0.000	26	110.0	0.025
8/3/2023	0.13	0.000	31		0.025
9/21/2023	0.33	0.065	35	92.7	0.025
10/11/2023	0.26	0.049	31		0.025
5/21/2024	0.19	0.010	25	59.8	0.025
7/2/2024	0.13	0.000	36	20.2	0.025
7/30/2024	0.03	0.003	13	18.7	0.025
8/20/2024	0.24	0.000	56	15.6	0.025
9/30/2024	0.20	0.033	42	21.2	0.025
10/24/2024	0.12	0.000	34	23.8	0.025
2024 Average	0.15	0.01	34.38	26.55	0.03
AVERAGE	0.24	0.03	40.11	49.37	0.03
MEDIAN	0.22	0.01	34.20	40.20	0.03
MAX	1.06	0.74	340.00	146.00	0.03
MIN	0.03	0.00	3.00	12.88	0.03
STDEV	0.17	0.09	42.92	30.18	0.00
75TH PERCENTILE	0.27	0.02	48.00	61.63	0.03
25TH PERCENTILE	0.13	0.00	22.00	24.10	0.03

1 - Water quality analysis was performed by William Lloyd / Tri-City Laboratory

Indicates sample result below lab detection limits, 1/2 MDL value reported

Water Quality Sampling Results **WSB Project No. 025921**
2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN

Birger				
Sampling Date[1]	**Total Phosphorus (mg/L)**	**Ortho Phosphorus (mg/L)**	**Total Suspended Solids (mg/L)**	**Chloride (mg/L)**
6/10/2014	0.04	0.0300	34	60.4
7/16/2014	0.36	0.0400	24	
8/11/2014	0.04	0.0200	8	39.8
9/17/2014	0.19	0.0700	11	
10/28/2014	0.10	0.0700	2	40.4
2/16/2016	0.07	0.0100	2	44.6
3/16/2016	0.03	0.0100	4	53.5
2/14/2018	0.17	0.0456	4	44.4
3/14/2018	0.22	0.0195	10	58.1
1/7/2019	0.06	0.0195	5	49.7
3/11/2019	0.05	0.0456	5	50.1
2/12/2020	0.08	0.0000	9	65.8
3/11/2020	0.14	0.0000	6	27.7
2/22/2021	0.21	0.0586	12	47.5
3/16/2021	0.12	0.0065	12	20.9
3/1/2022	0.23	0.0000	15	56.5
3/23/2022	0.24	0.0521	20	45.3
4/21/2022	0.07			
4/26/2022	0.11			
5/10/2022	0.10			
5/23/2022	0.13			
6/6/2022	0.10			
6/28/2022	0.09			
7/4/2022	0.57			
7/18/2022	0.58			
8/6/2022	0.51			
8/15/2022	0.15			
9/1/2022	0.07			
9/16/2022	0.06			
9/27/2022	0.12			
10/14/2022	0.13			
2/8/2023	0.24	0.0100	21.4	51.0
3/21/2023	0.24	0.0130	14.2	54.4
2/21/2024	0.10	0.0065	4.2	49.0
4/3/2024	0.02	0.0100	18.8	53.4
2024 Average	0.06	0.0083	11.5	51.20
AVERAGE	0.17	0.0293	10.7	46.98
MEDIAN	0.12	0.0200	9.0	47.50
MAX	0.58	0.0700	34.0	65.80
MIN	0.03	0.0000	2.0	20.90
STDEV	0.15	0.0243	8.5	11.86
75TH PERCENTILE	0.21	0.0489	13.3	56.50
25TH PERCENTILE	0.07	0.0083	4.5	40.40

1 - Water quality analysis was performed by William Lloyd / Tri-City Laboratory

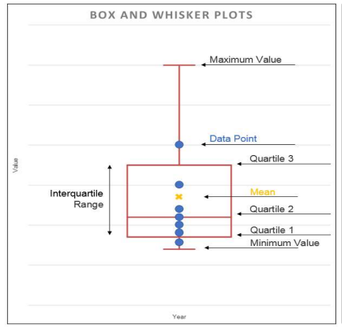
Indicates sample result below lab detection limits, 1/2 MDL value reported

Location 1 - Marcotte 1408
Water Quality Sampling Results

Annual summary concentrations of Total Phosphorus, Ortho-Phosphate, Total Suspended Solids, and Chloride

2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN

WSB Project No. 025921



Median – the value separating higher and lower half of data, also known as the "middle" value

Mean – the sum of the values divided by the number of values

Interquartile Range (IQR) – represents the distance taken up by the middle 50% of the data set. This is helpful because the outlier data points are cut out of the data set

IQR = Q3 – Q1 (75^{th} Percentile – 25^{th} Percentile)

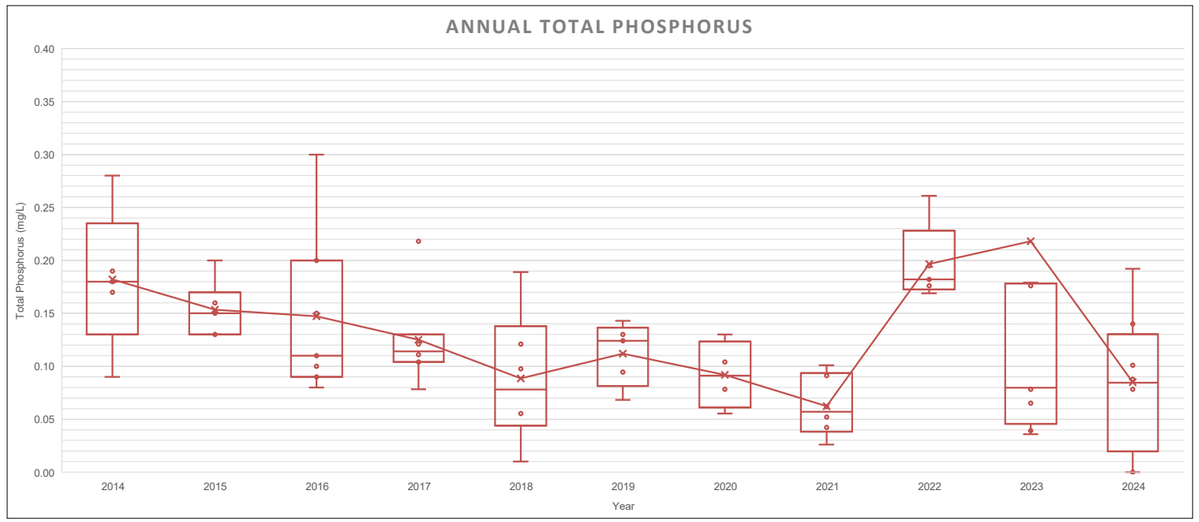
If IQR small, data are mostly close to the median

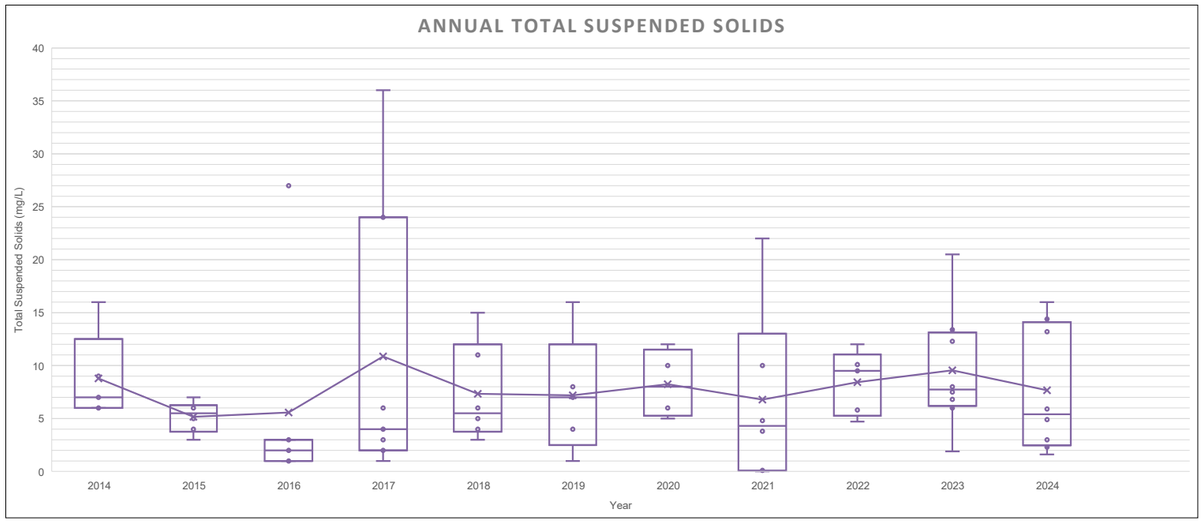
If IQR large, data is more spread out from median

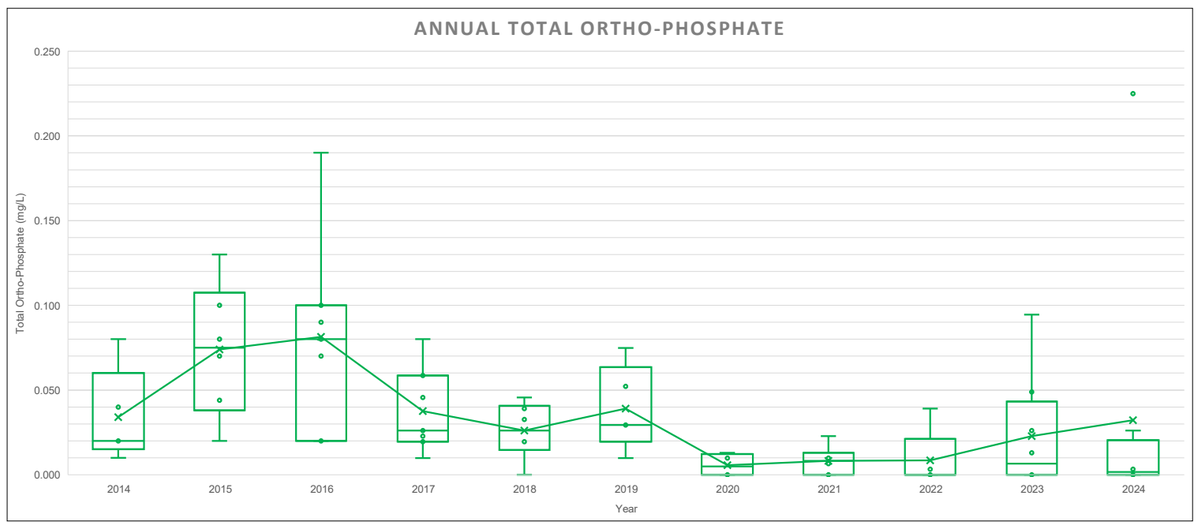
Quartile 1 (Q1) or 25^{th} Percentile - the middle value in the first half of the data ordered data set

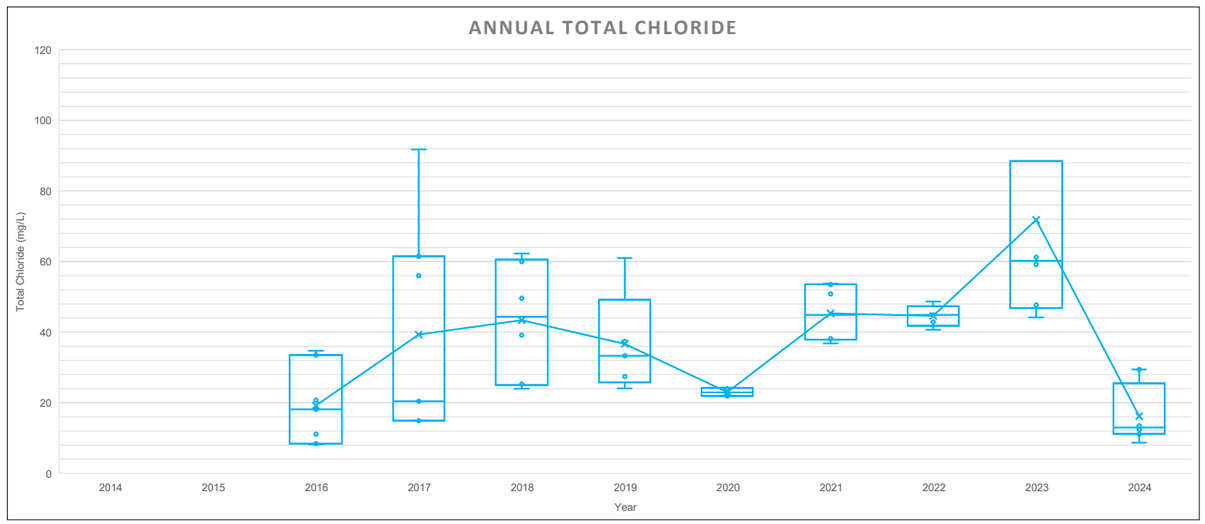
Quartile 2 (Q2) – the median value

Quartile 3 (Q3) or 75^{th} Percentile – the middle value in the second half the ranked order data set







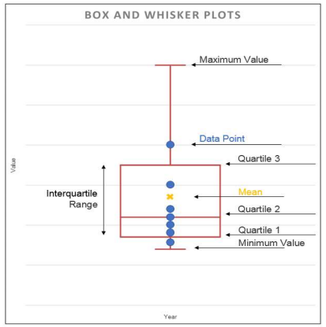


Location 2 – Glendalough 1486
Water Quality Sampling Results

Annual summary concentrations of Total Phosphorus, Ortho-Phosphate, Total Suspended Solids, and Chloride

2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN

WSB Project No. 025921



Median – the value separating higher and lower half of data, also known as the "middle" value

Mean – the sum of the values divided by the number of values

Interquartile Range (IQR) – represents the distance taken up by the middle 50% of the data set. This is helpful because the outlier data points are cut out of the data set

IQR = Q3 – Q1 (75th Percentile – 25th Percentile)

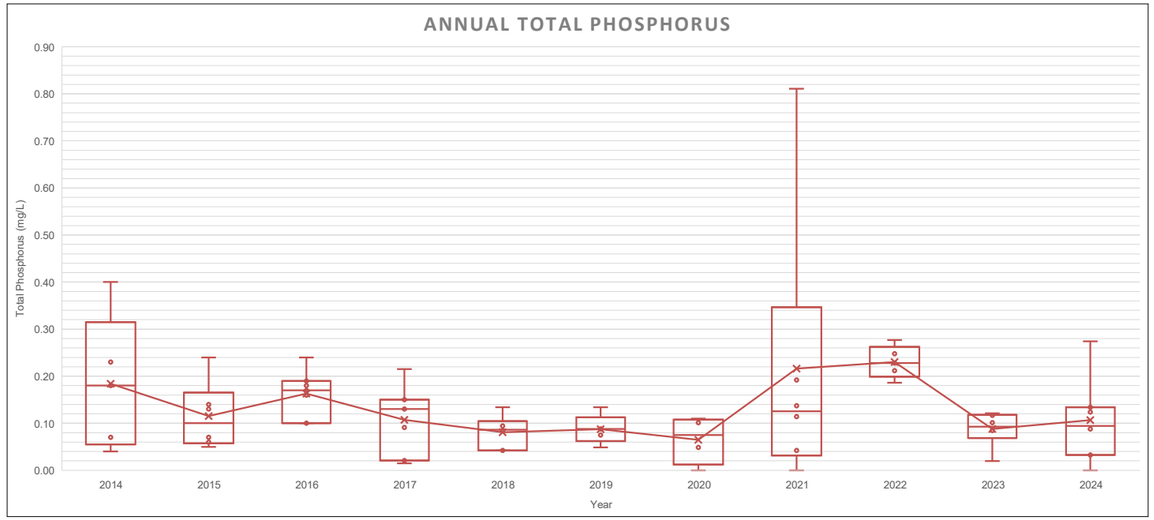
If IQR small, data are mostly close to the median

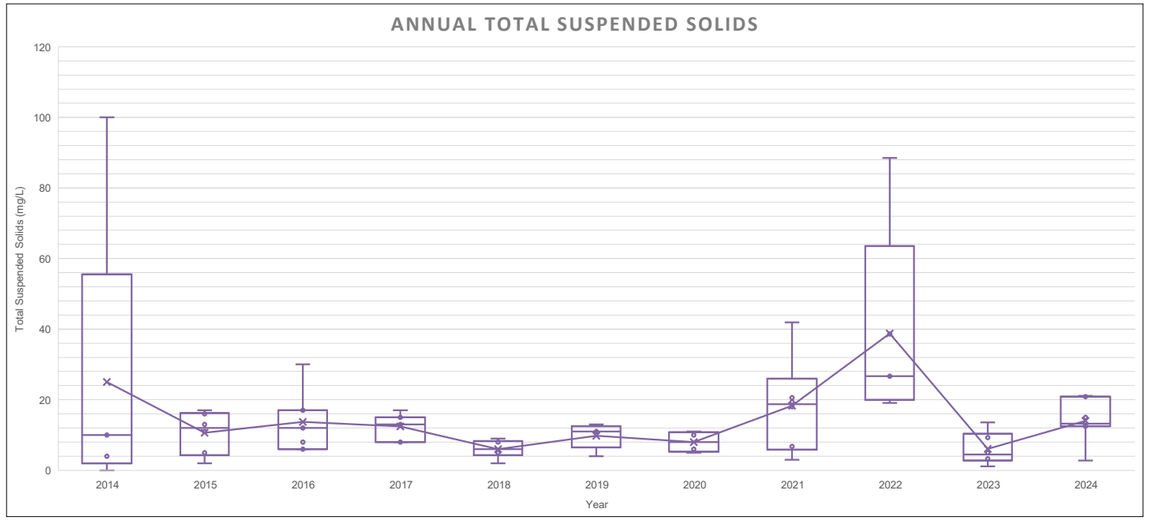
If IQR large, data is more spread out from median

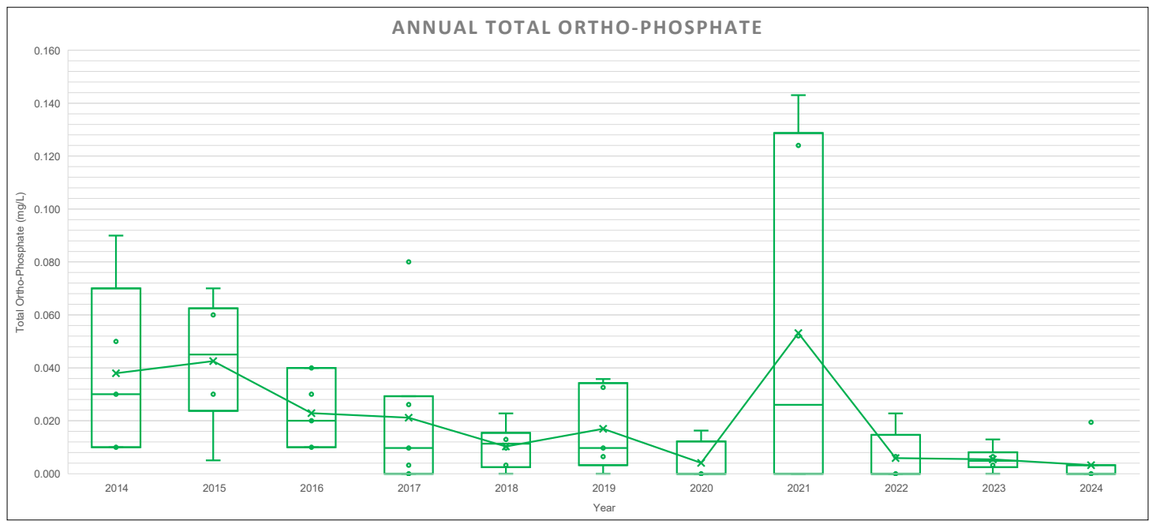
Quartile 1 (Q1) or 25th Percentile - the middle value in the first half of the data ordered data set

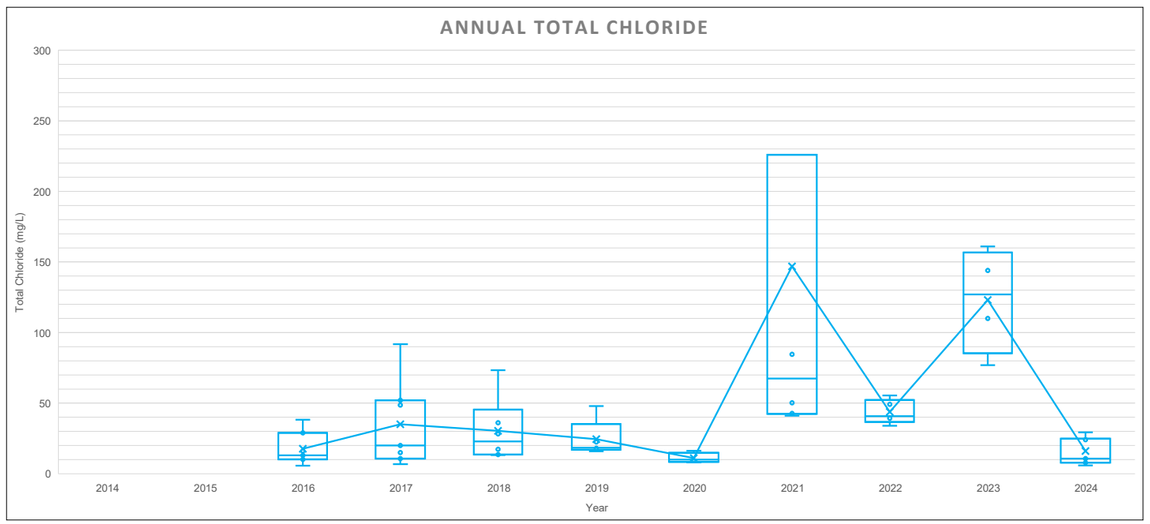
Quartile 2 (Q2) – the median value

Quartile 3 (Q3) or 75th Percentile – the middle value in the second half the ranked order data set







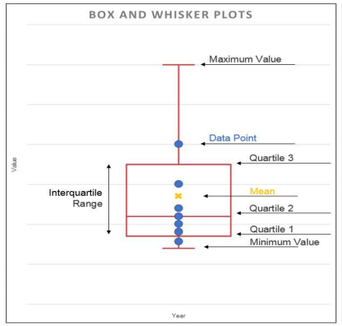


Location 3 – Trailer Park 1589
Water Quality Sampling Results

Annual summary concentrations of Total Phosphorus, Ortho-Phosphate, Total Suspended Solids, and Chloride

2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN

WSB Project No. 025921



Median – the value separating higher and lower half of data, also known as the "middle" value

Mean – the sum of the values divided by the number of values

Interquartile Range (IQR) – represents the distance taken up by the middle 50% of the data set. This is helpful because the outlier data points are cut out of the data set

IQR = Q3 – Q1 (75^{th} Percentile – 25^{th} Percentile)

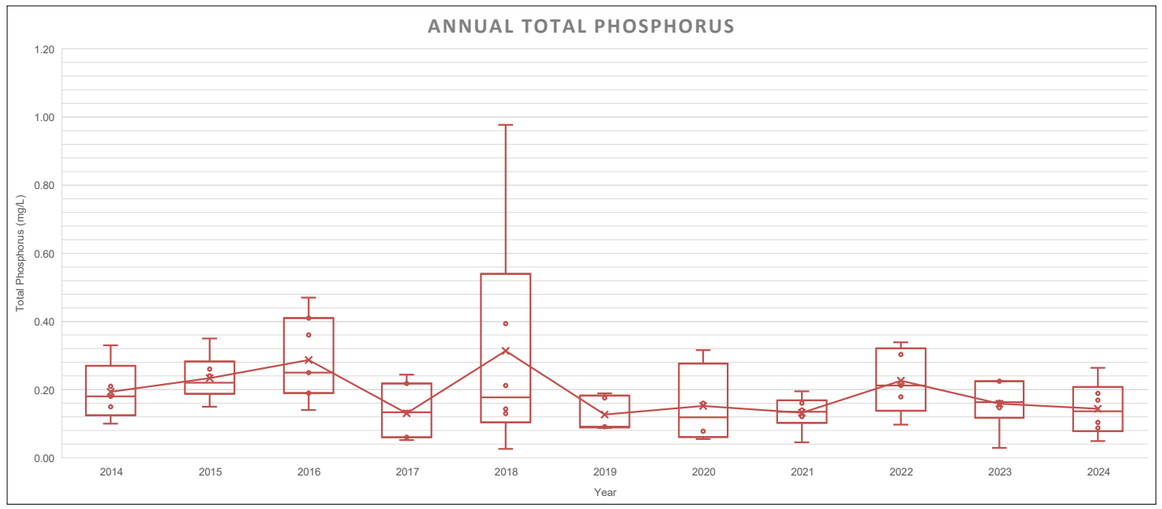
If IQR small, data are mostly close to the median

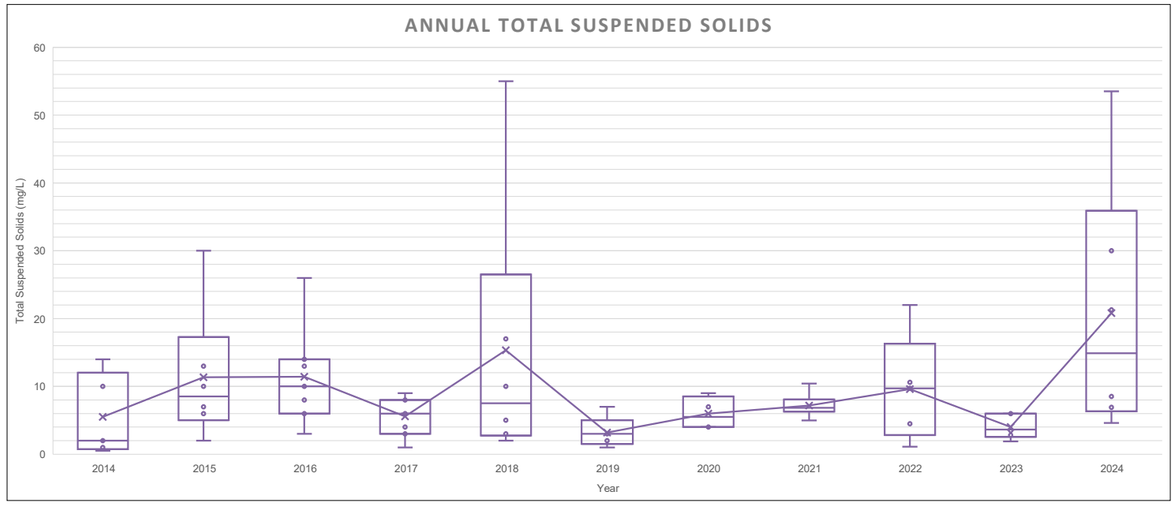
If IQR large, data is more spread out from median

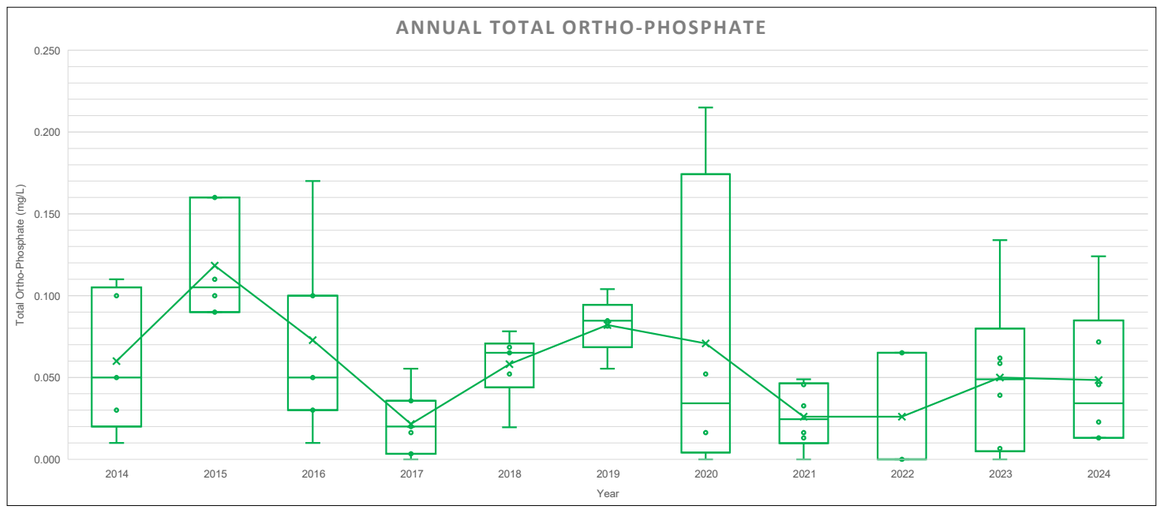
Quartile 1 (Q1) or 25^{th} Percentile - the middle value in the first half of the data ordered data set

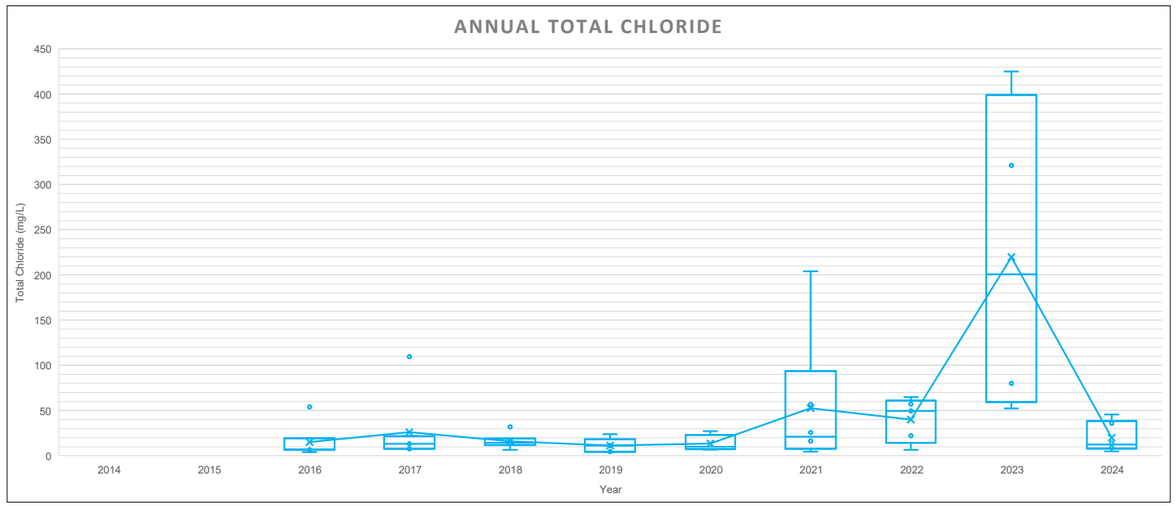
Quartile 2 (Q2) – the median value

Quartile 3 (Q3) or 75^{th} Percentile – the middle value in the second half the ranked order data set







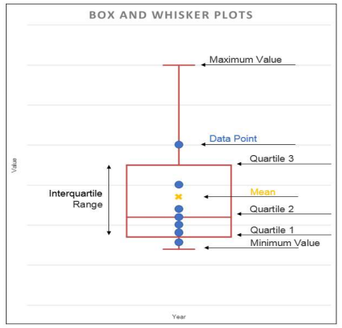


Location 4 – Unnamed 1687
Water Quality Sampling Results

Annual summary concentrations of Total Phosphorus, Ortho-Phosphate, Total Suspended Solids, and Chloride

2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN

WSB Project No. 025921



Median – the value separating higher and lower half of data, also known as the "middle" value

Mean – the sum of the values divided by the number of values

Interquartile Range (IQR) – represents the distance taken up by the middle 50% of the data set. This is helpful because the outlier data points are cut out of the data set

IQR = Q3 – Q1 (75th Percentile – 25th Percentile)

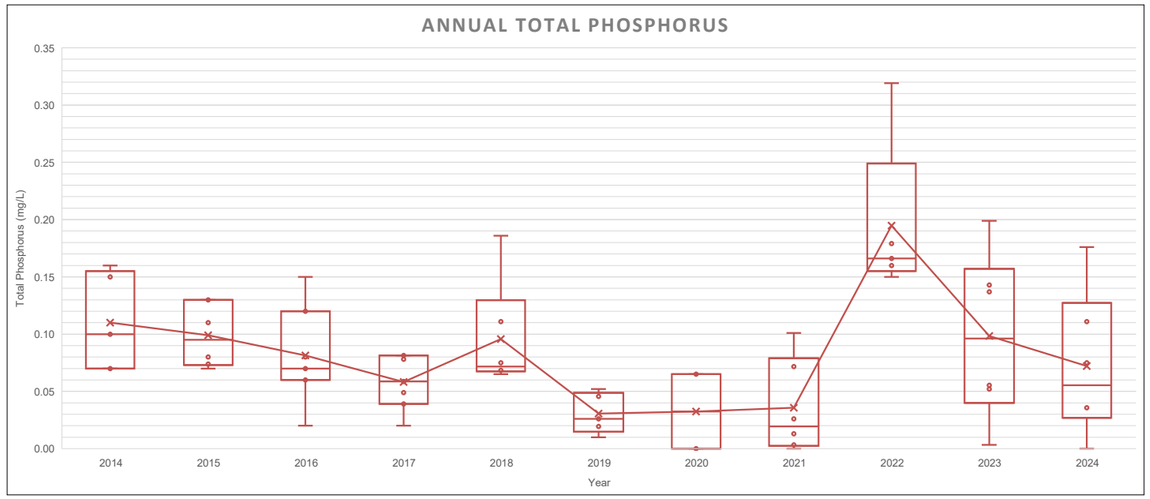
If IQR small, data are mostly close to the median

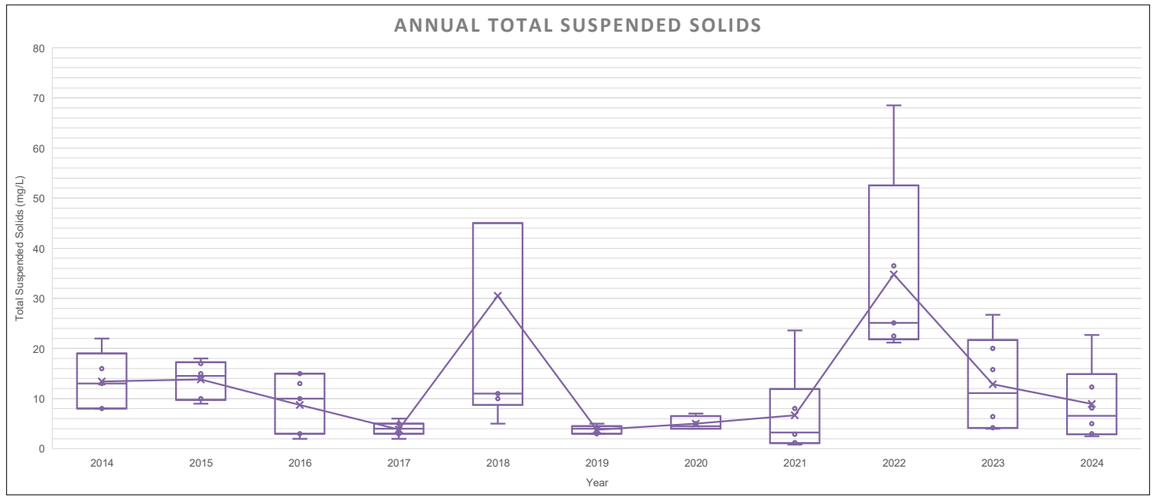
If IQR large, data is more spread out from median

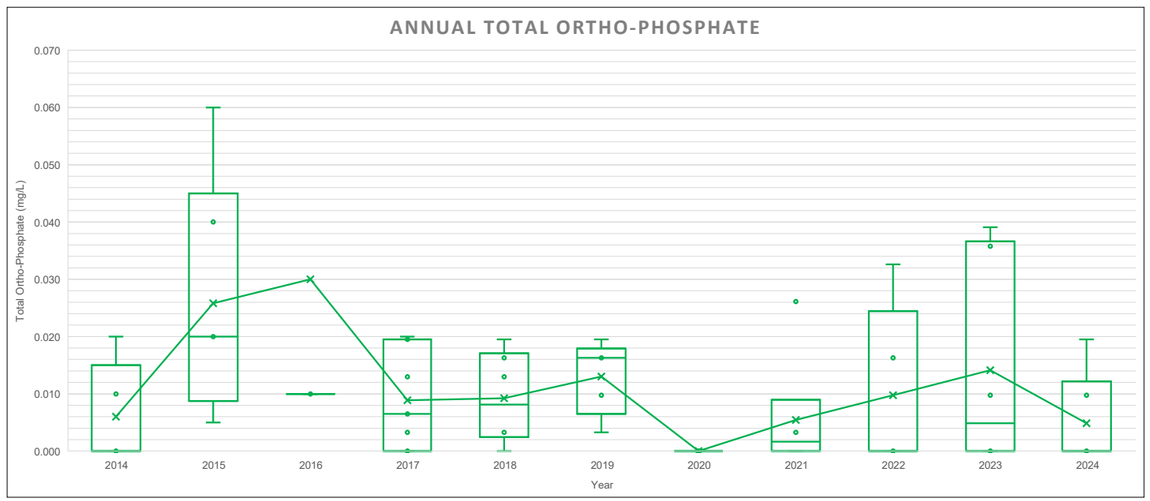
Quartile 1 (Q1) or 25th Percentile - the middle value in the first half of the data ordered data set

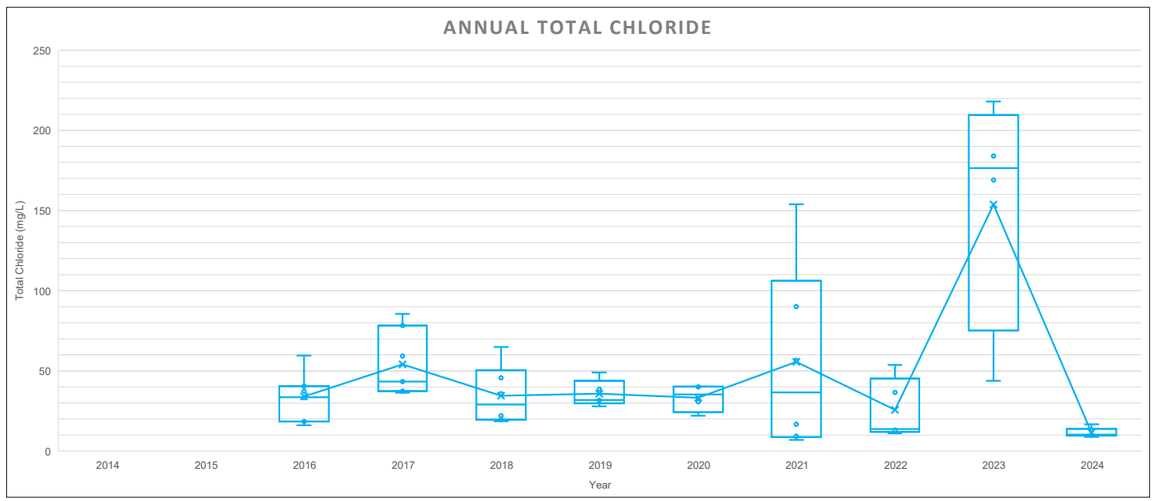
Quartile 2 (Q2) – the median value

Quartile 3 (Q3) or 75th Percentile – the middle value in the second half the ranked order data set







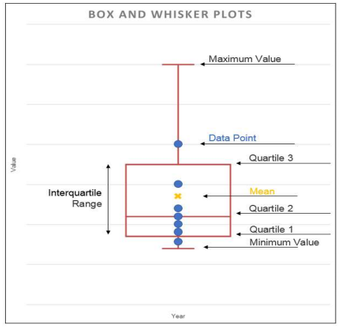


Location 5 – Regional 1716
Water Quality Sampling Results

Annual summary concentrations of Total Phosphorus, Ortho-Phosphate, Total Suspended Solids, and Chloride

2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN

WSB Project No. 025921



Median – the value separating higher and lower half of data, also known as the "middle" value

Mean – the sum of the values divided by the number of values

Interquartile Range (IQR) – represents the distance taken up by the middle 50% of the data set. This is helpful because the outlier data points are cut out of the data set

IQR = Q3 – Q1 (75th Percentile – 25th Percentile)

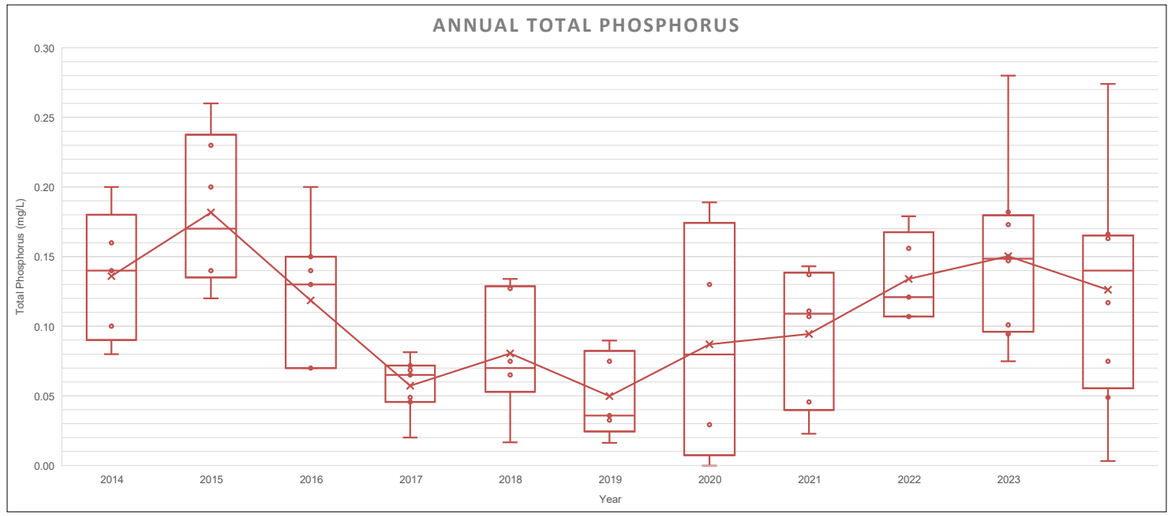
If IQR small, data are mostly close to the median

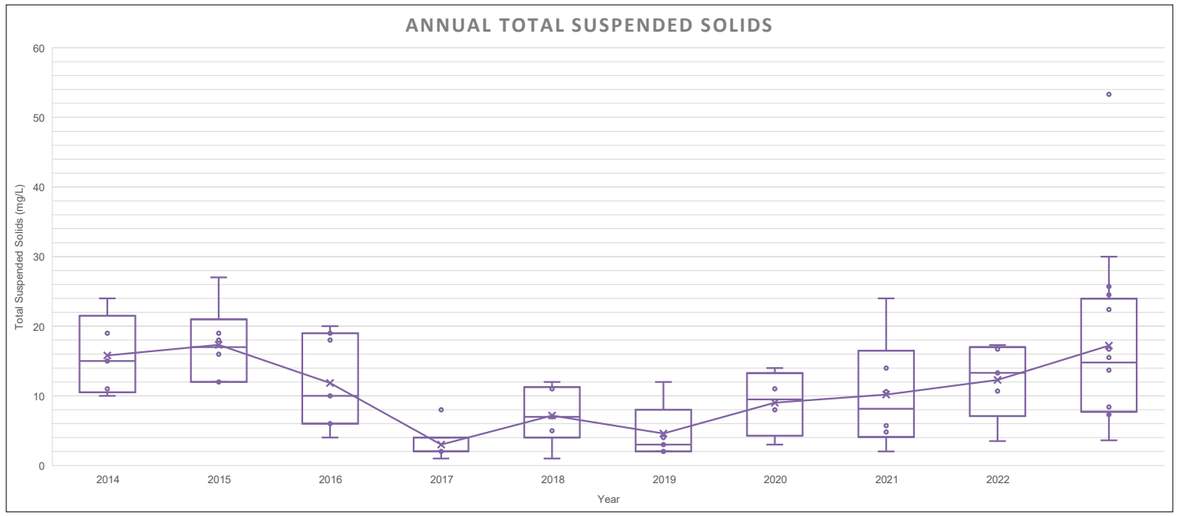
If IQR large, data is more spread out from median

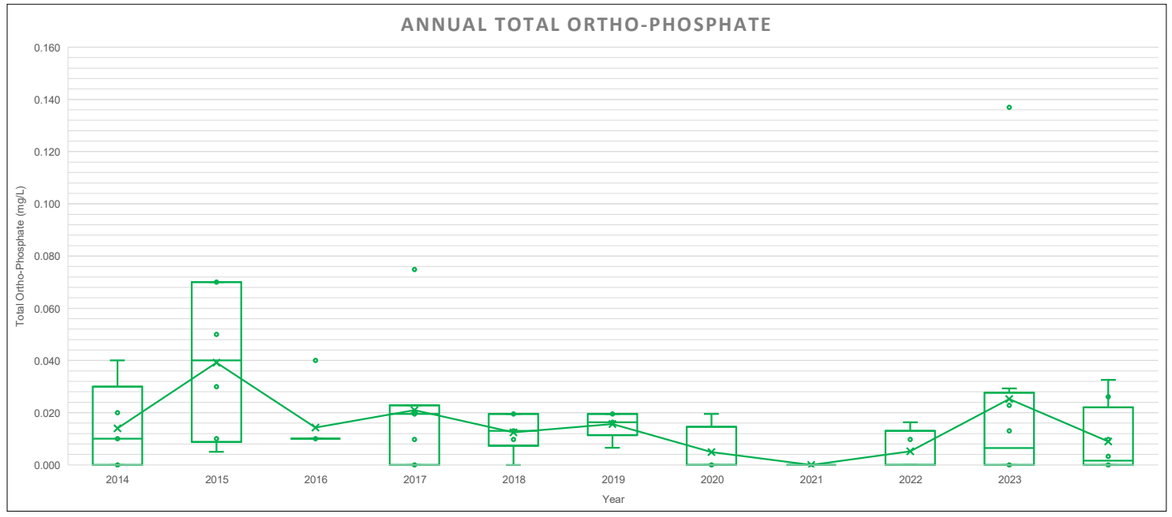
Quartile 1 (Q1) or 25th Percentile - the middle value in the first half of the data ordered data set

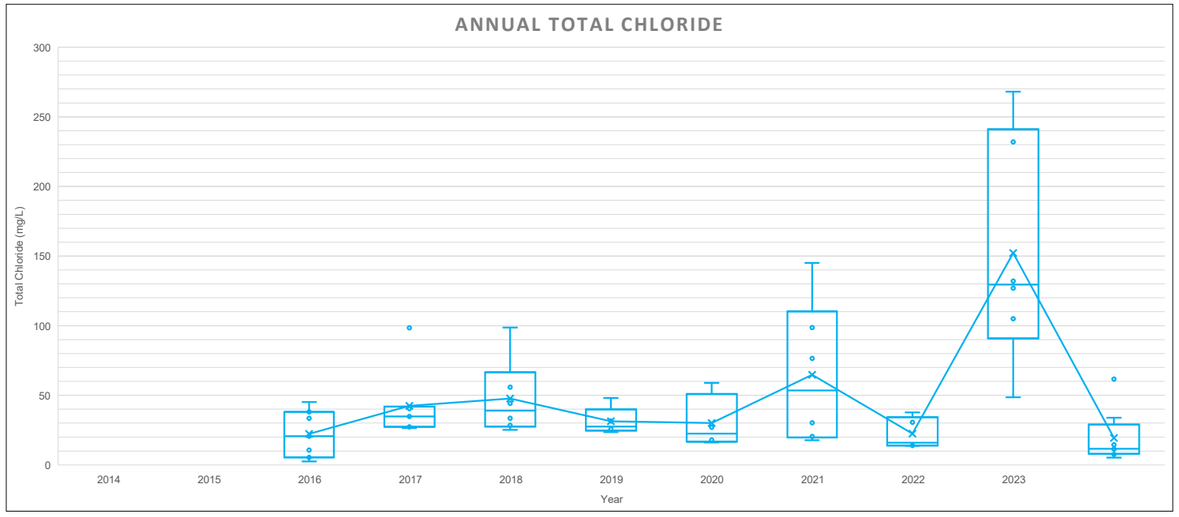
Quartile 2 (Q2) – the median value

Quartile 3 (Q3) or 75th Percentile – the middle value in the second half the ranked order data set







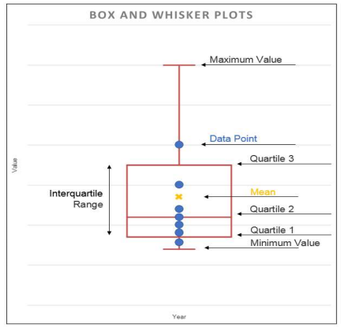


Location 6 – Erickson 578
Water Quality Sampling Results

Annual summary concentrations of Total Phosphorus, Ortho-Phosphate, Total Suspended Solids, and Chloride

2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN

WSB Project No. 025921



Median – the value separating higher and lower half of data, also known as the "middle" value

Mean – the sum of the values divided by the number of values

Interquartile Range (IQR) – represents the distance taken up by the middle 50% of the data set. This is helpful because the outlier data points are cut out of the data set

IQR = Q3 – Q1 (75th Percentile – 25th Percentile)

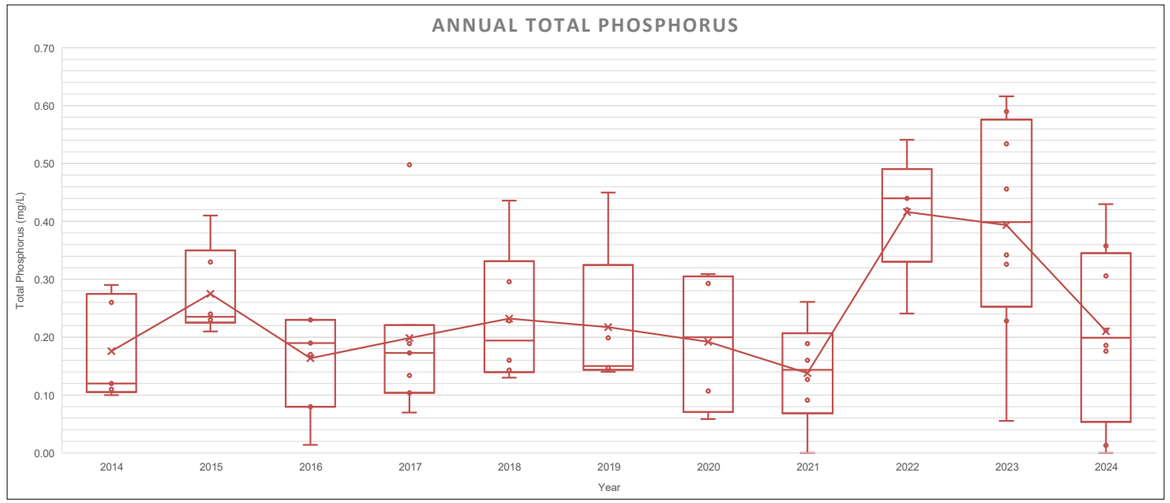
If IQR small, data are mostly close to the median

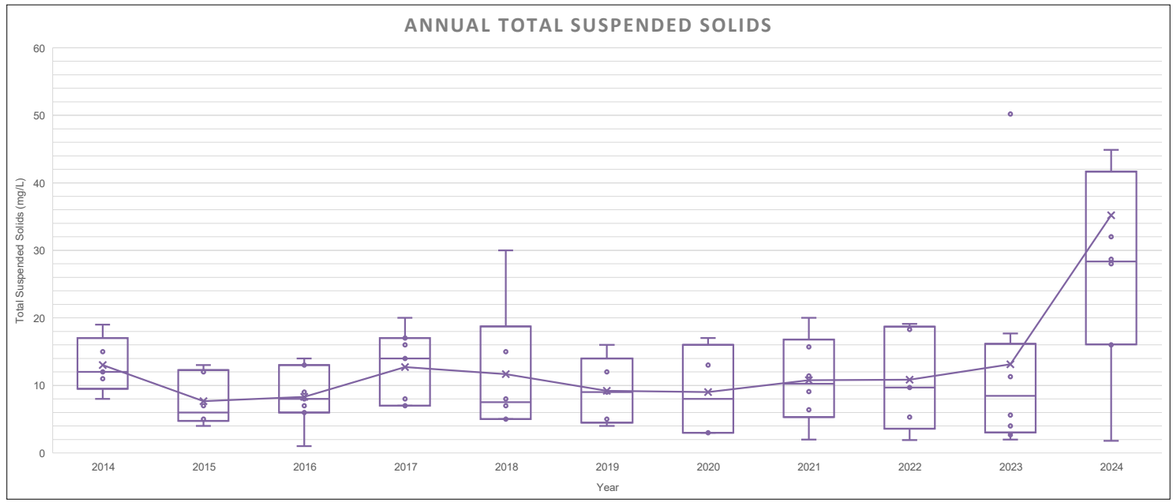
If IQR large, data is more spread out from median

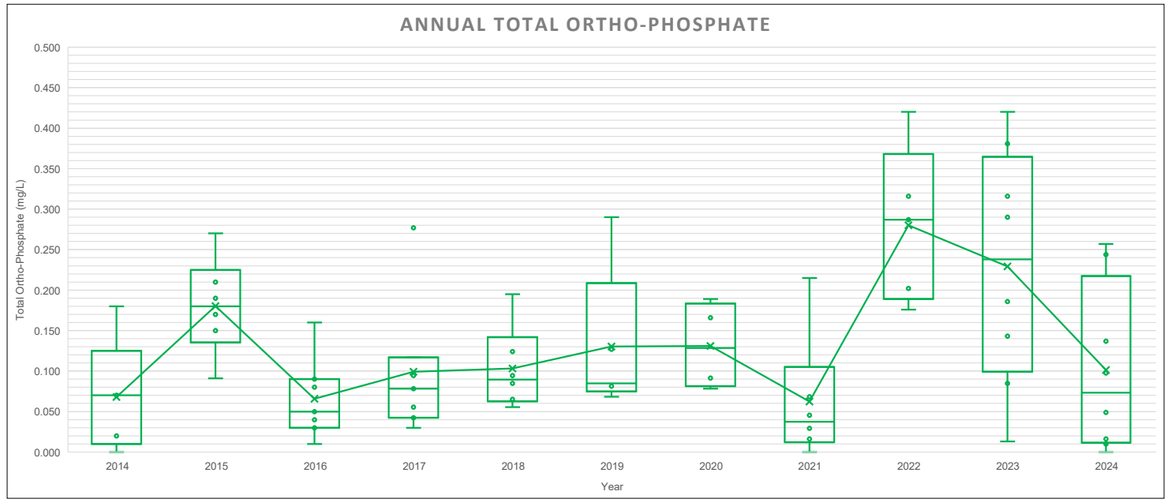
Quartile 1 (Q1) or 25th Percentile - the middle value in the first half of the data ordered data set

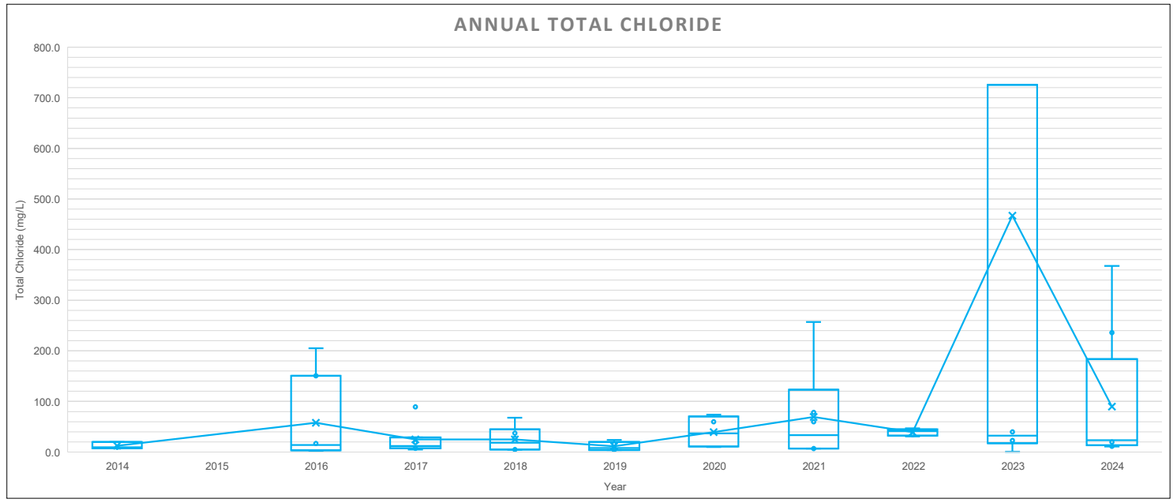
Quartile 2 (Q2) – the median value

Quartile 3 (Q3) or 75th Percentile – the middle value in the second half the ranked order data set





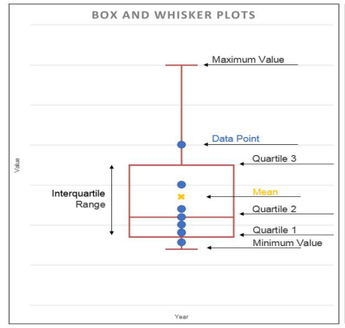




Location 7 – Bloomfield 1864
Water Quality Sampling Results

Annual summary concentrations of Total Phosphorus, Ortho-Phosphate, Total Suspended Solids, and Chloride

2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN



Median – the value separating higher and lower half of data, also known as the "middle" value

Mean – the sum of the values divided by the number of values

Interquartile Range (IQR) – represents the distance taken up by the middle 50% of the data set. This is helpful because the outlier data points are cut out of the data set

IQR = Q3 – Q1 (75^{th} Percentile – 25^{th} Percentile)

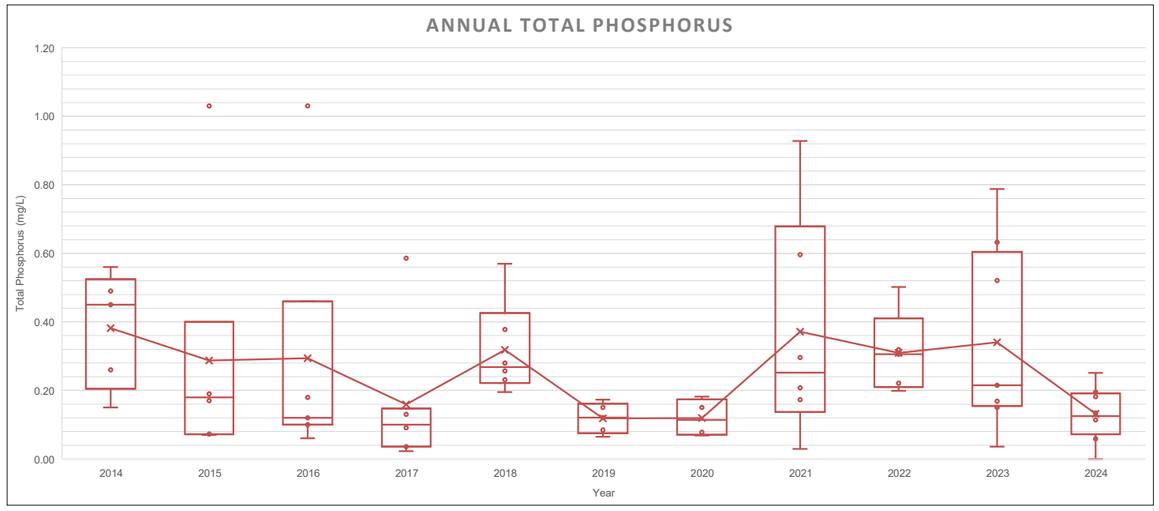
If IQR small, data are mostly close to the median

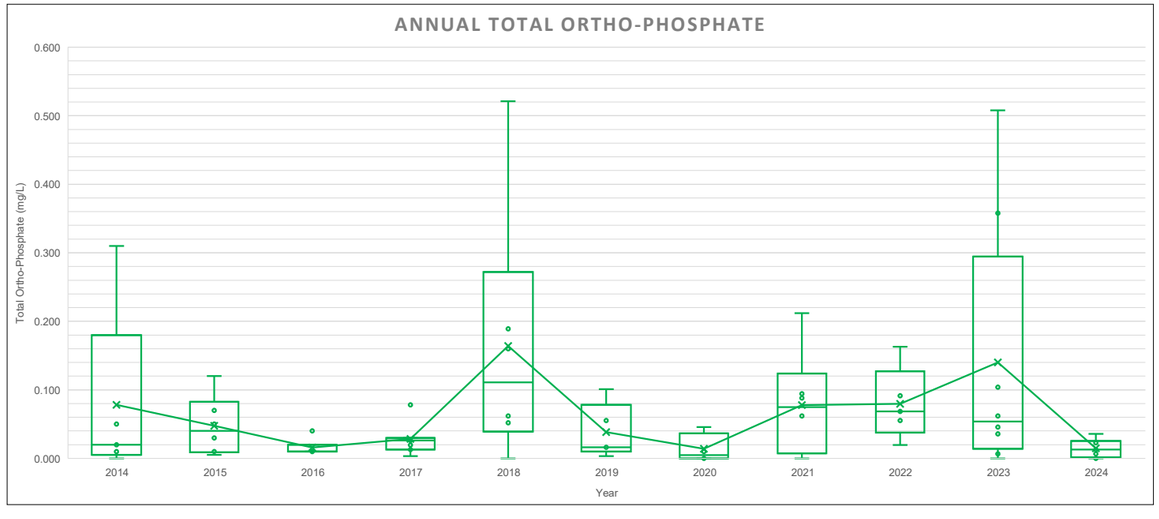
If IQR large, data is more spread out from median

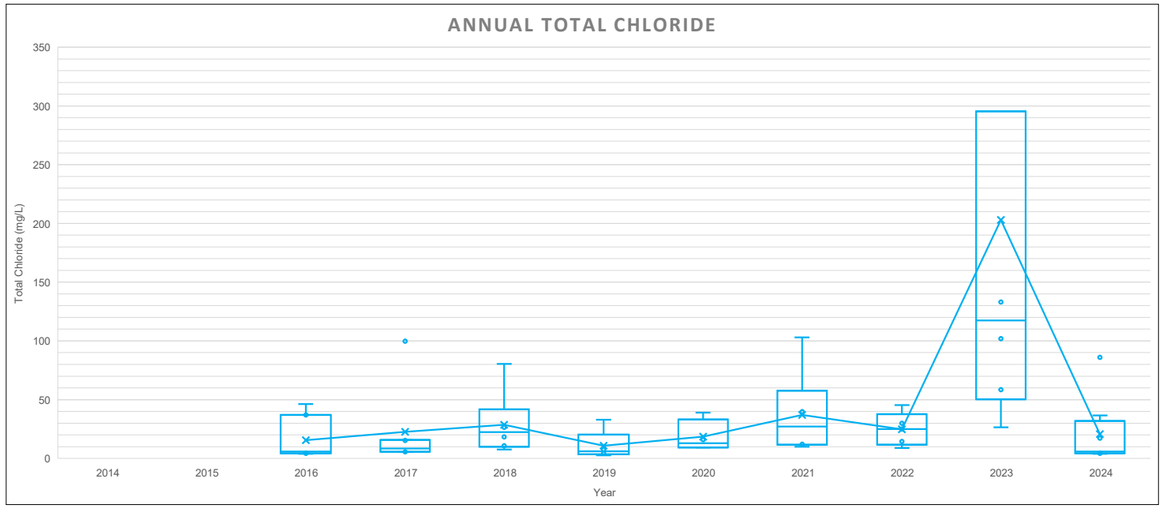
Quartile 1 (Q1) or 25^{th} Percentile - the middle value in the first half of the data ordered data set

Quartile 2 (Q2) – the median value

Quartile 3 (Q3) or 75^{th} Percentile – the middle value in the second half the ranked order data set





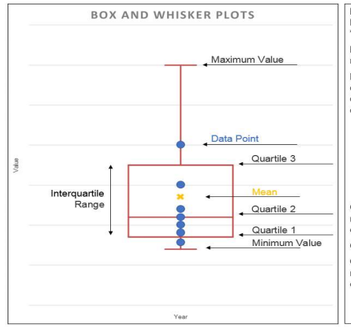


Location 8 – O'Leary's 600
Water Quality Sampling Results

Annual summary concentrations of Total Phosphorus, Ortho-Phosphate, Total Suspended Solids, and Chloride

2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN

WSB Project No. 025921



Median – the value separating higher and lower half of data, also known as the "middle" value

Mean – the sum of the values divided by the number of values

Interquartile Range (IQR) – represents the distance taken up by the middle 50% of the data set. This is helpful because the outlier data points are cut out of the data set

IQR = Q3 – Q1 (75th Percentile – 25th Percentile)

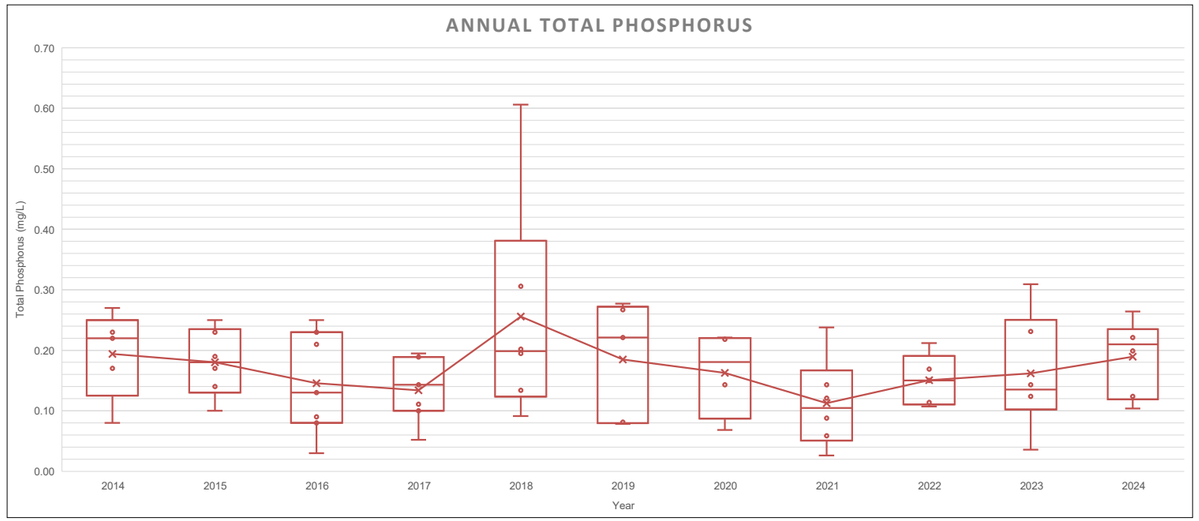
If IQR small, data are mostly close to the median

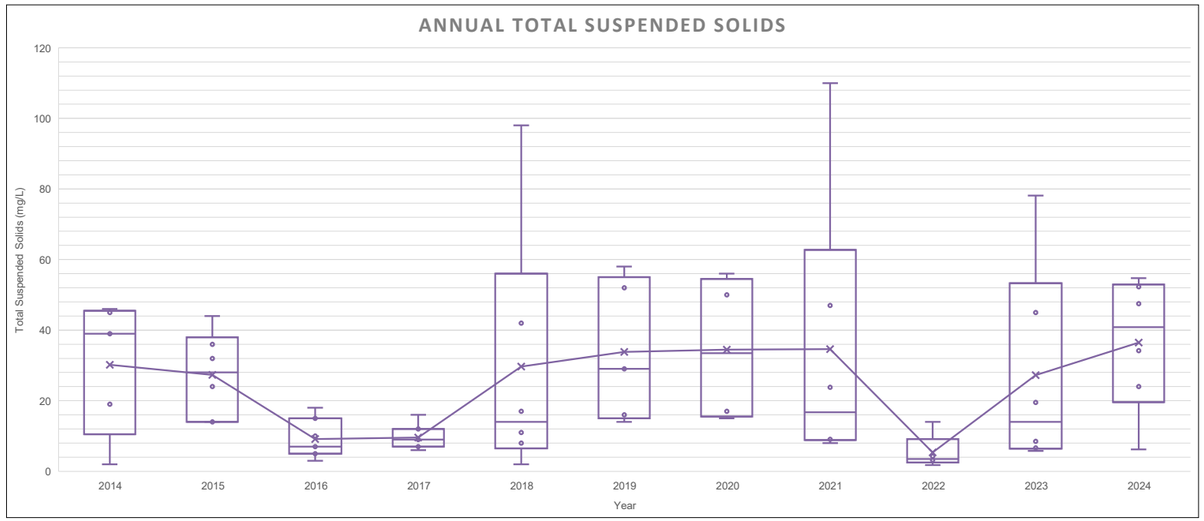
If IQR large, data is more spread out from median

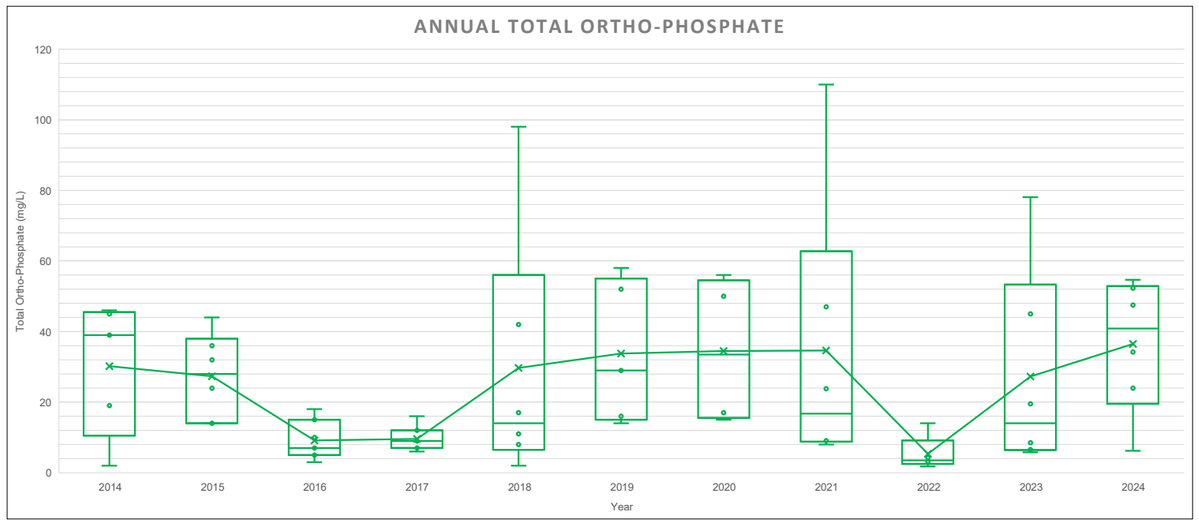
Quartile 1 (Q1) or 25th Percentile - the middle value in the first half of the data ordered data set

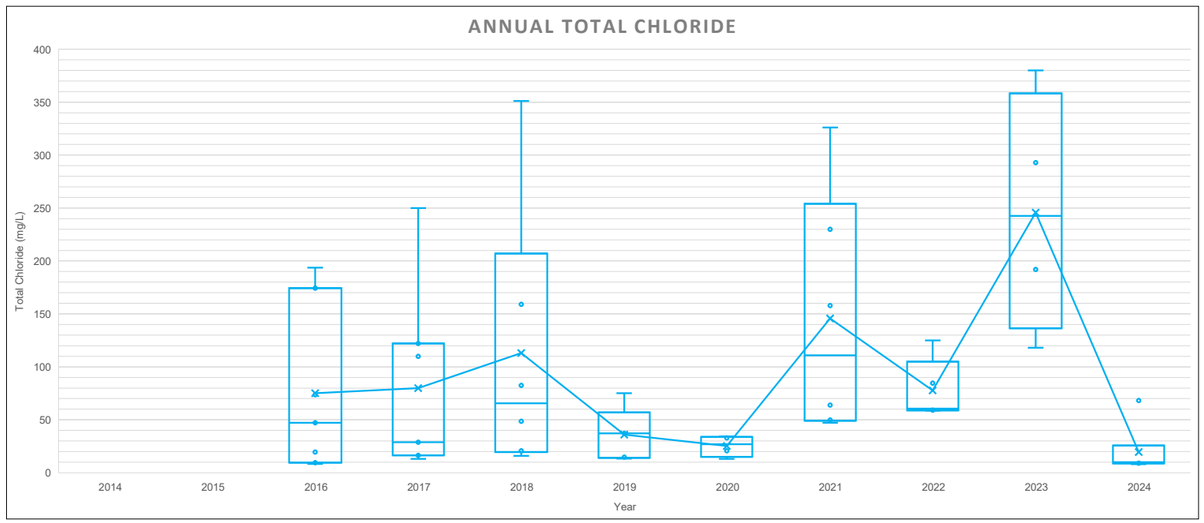
Quartile 2 (Q2) – the median value

Quartile 3 (Q3) or 75th Percentile – the middle value in the second half the ranked order data set







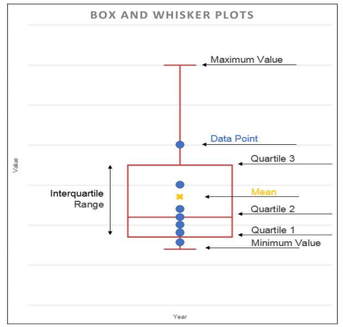


Location 9 – Wachter 2443
Water Quality Sampling Results

Annual summary concentrations of Total Phosphorus, Ortho-Phosphate, Total Suspended Solids, and Chloride

2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN

WSB Project No. 025921



Median – the value separating higher and lower half of data, also known as the "middle" value

Mean – the sum of the values divided by the number of values

Interquartile Range (IQR) – represents the distance taken up by the middle 50% of the data set. This is helpful because the outlier data points are cut out of the data set

IQR = Q3 – Q1 (75^{th} Percentile – 25^{th} Percentile)

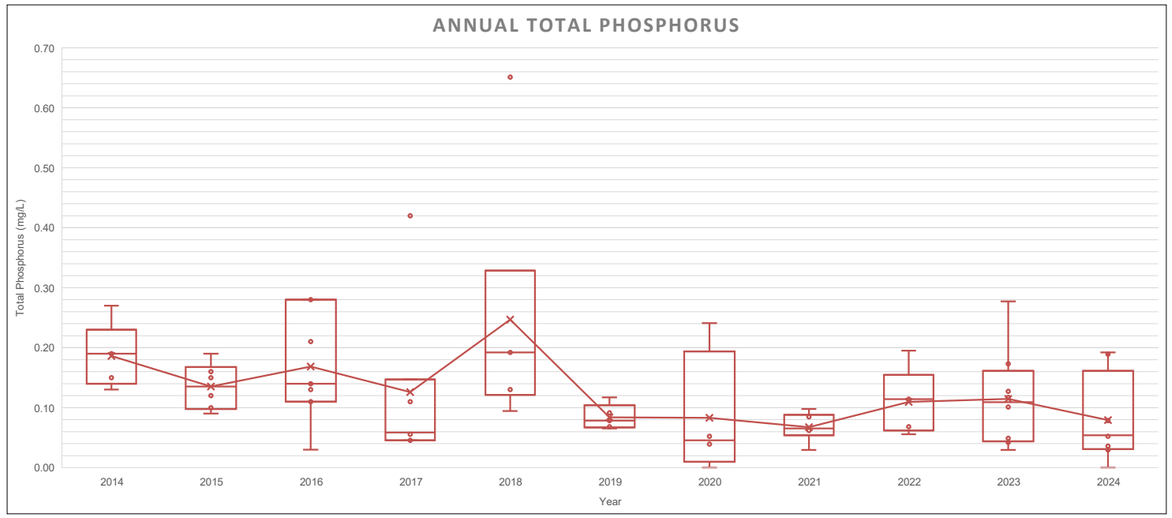
If IQR small, data are mostly close to the median

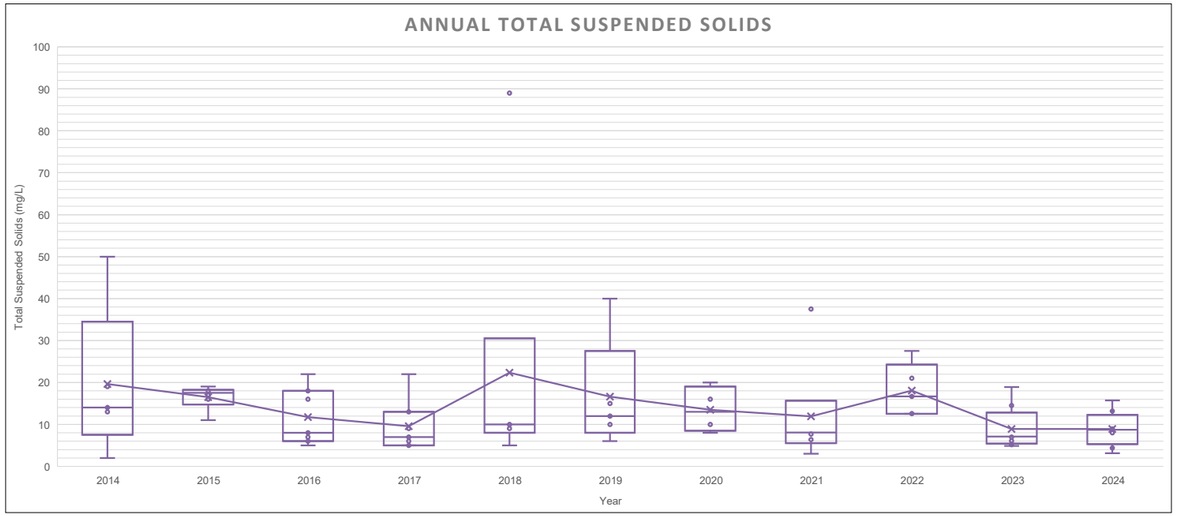
If IQR large, data is more spread out from median

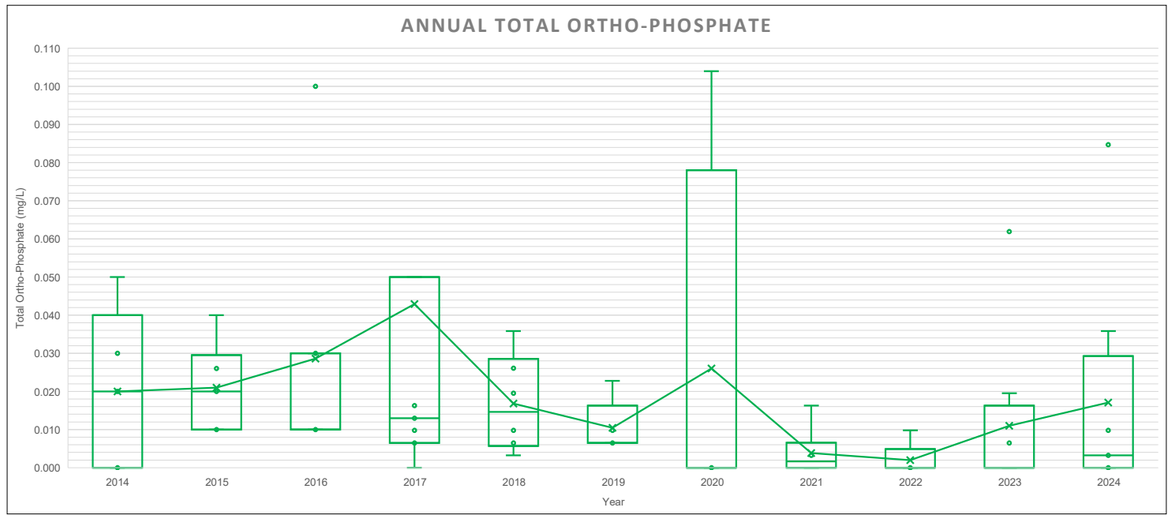
Quartile 1 (Q1) or 25^{th} Percentile - the middle value in the first half of the data ordered data set

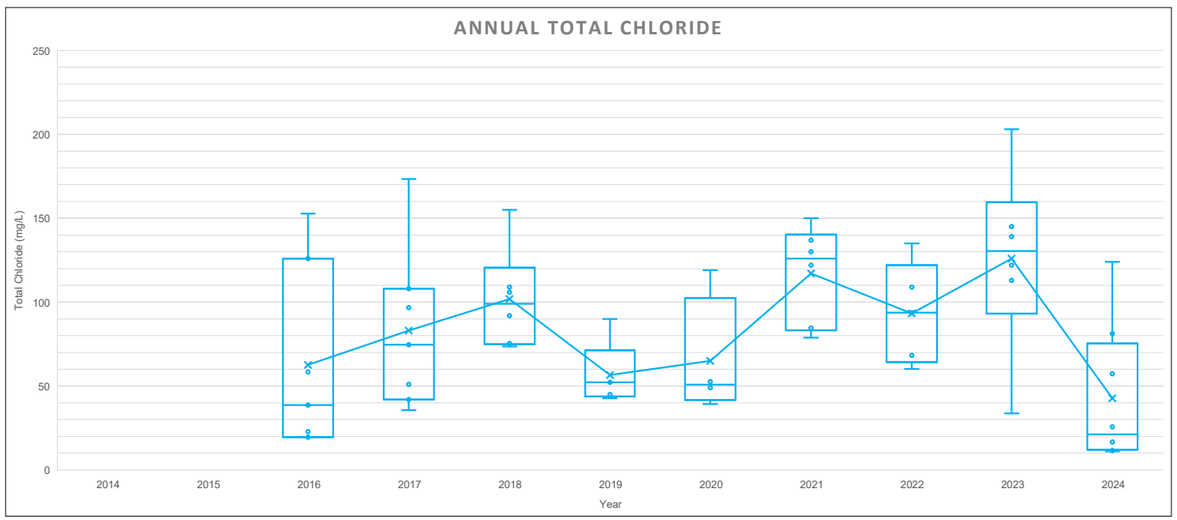
Quartile 2 (Q2) – the median value

Quartile 3 (Q3) or 75^{th} Percentile – the middle value in the second half the ranked order data set





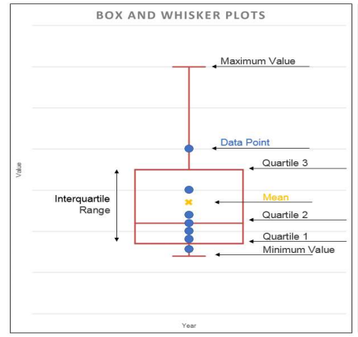




Location 10 – Shannon 614
Water Quality Sampling Results

Annual summary concentrations of Total Phosphorus, Ortho-Phosphate, Total Suspended Solids, and Chloride

2024 Water Quality and Quantity Monitoring Study
City of Rosemount, MN



Median – the value separating higher and lower half of data, also known as the "middle" value

Mean – the sum of the values divided by the number of values

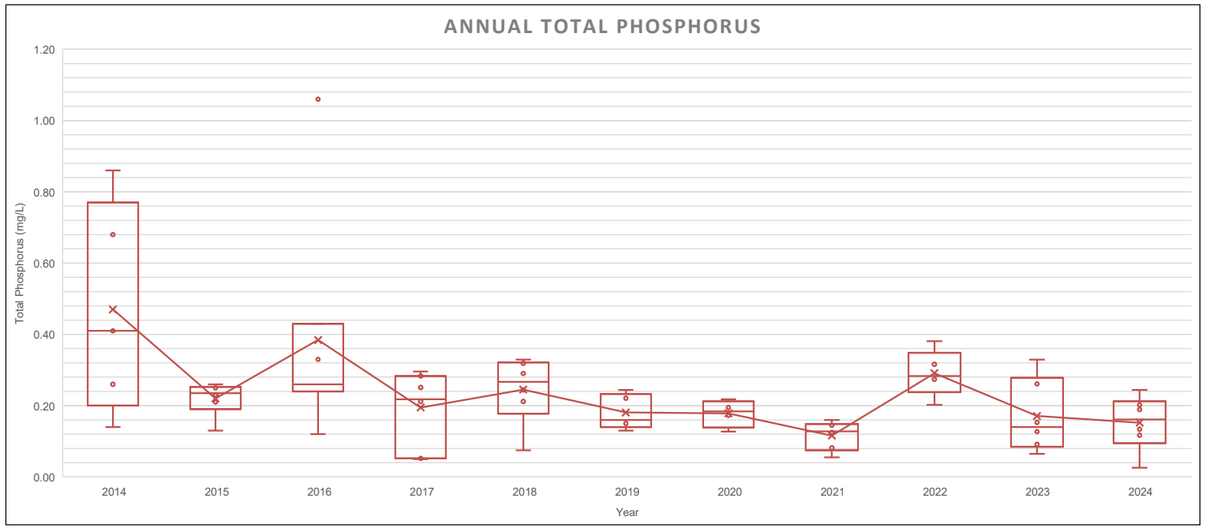
Interquartile Range (IQR) – represents the distance taken up by the middle 50% of the data set. This is helpful because the outlier data points are cut out of the data set

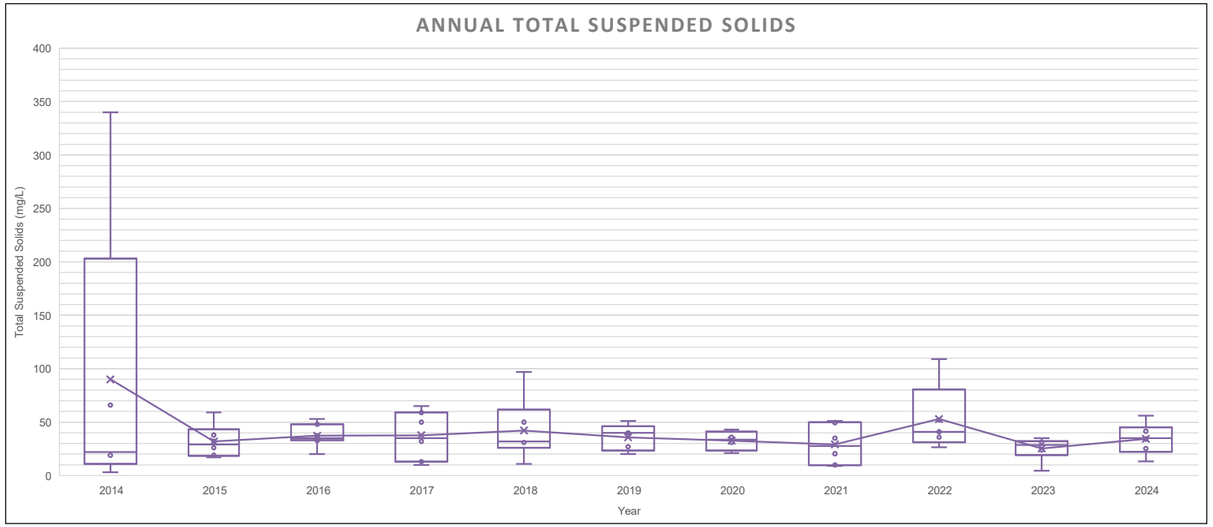
- IQR = Q3 – Q1 (75^{th} Percentile – 25^{th} Percentile)
- If IQR small, data are mostly close to the median
- If IQR large, data is more spread out from median

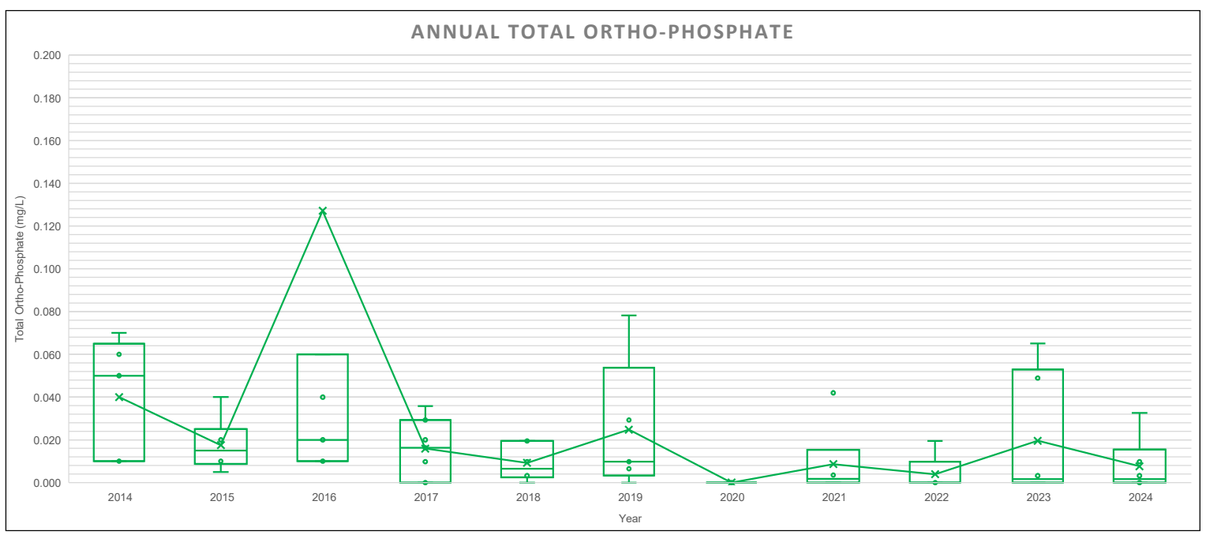
Quartile 1 (Q1) or 25^{th} Percentile - the middle value in the first half of the data ordered data set

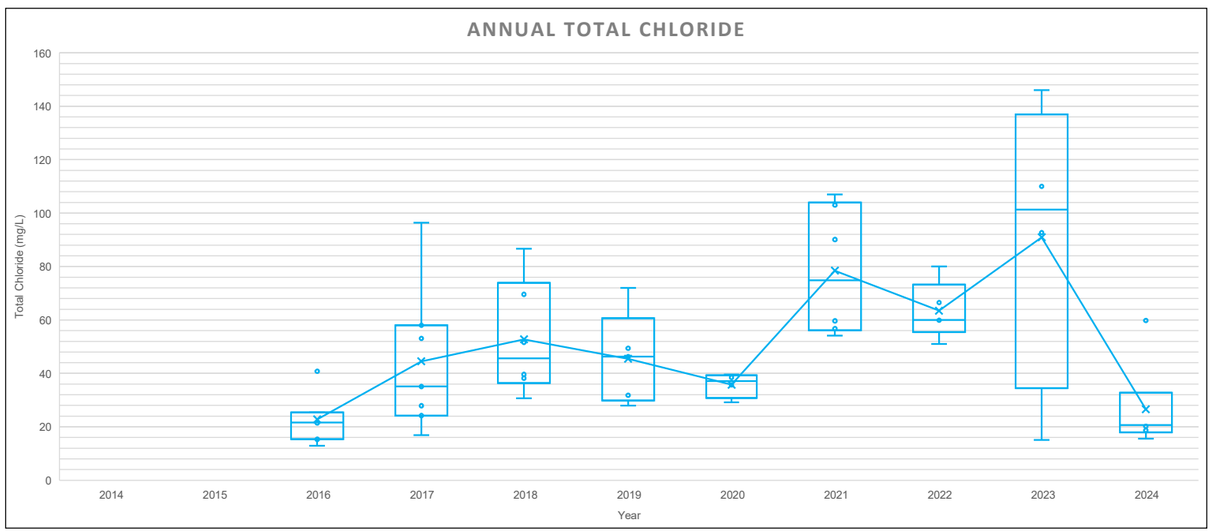
Quartile 2 (Q2) – the median value

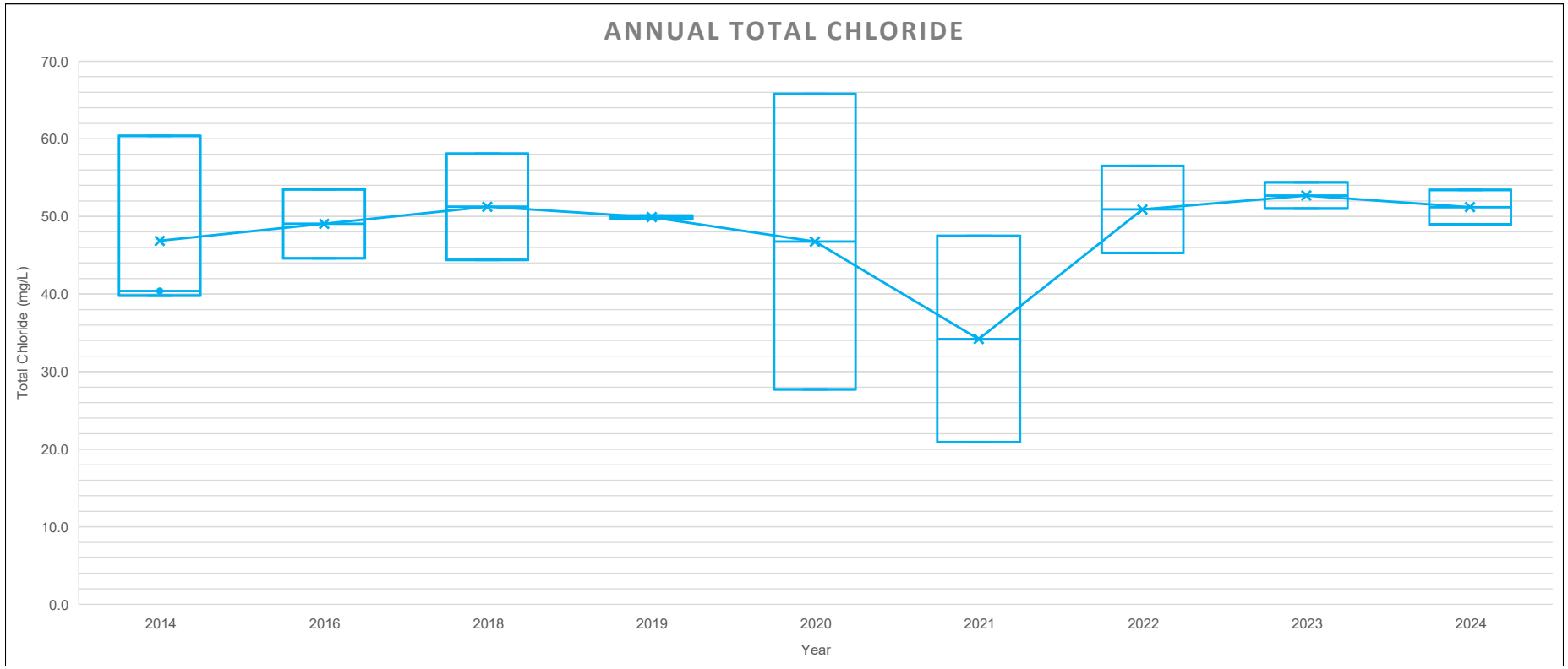
Quartile 3 (Q3) or 75^{th} Percentile – the middle value in the second half the ranked order data set

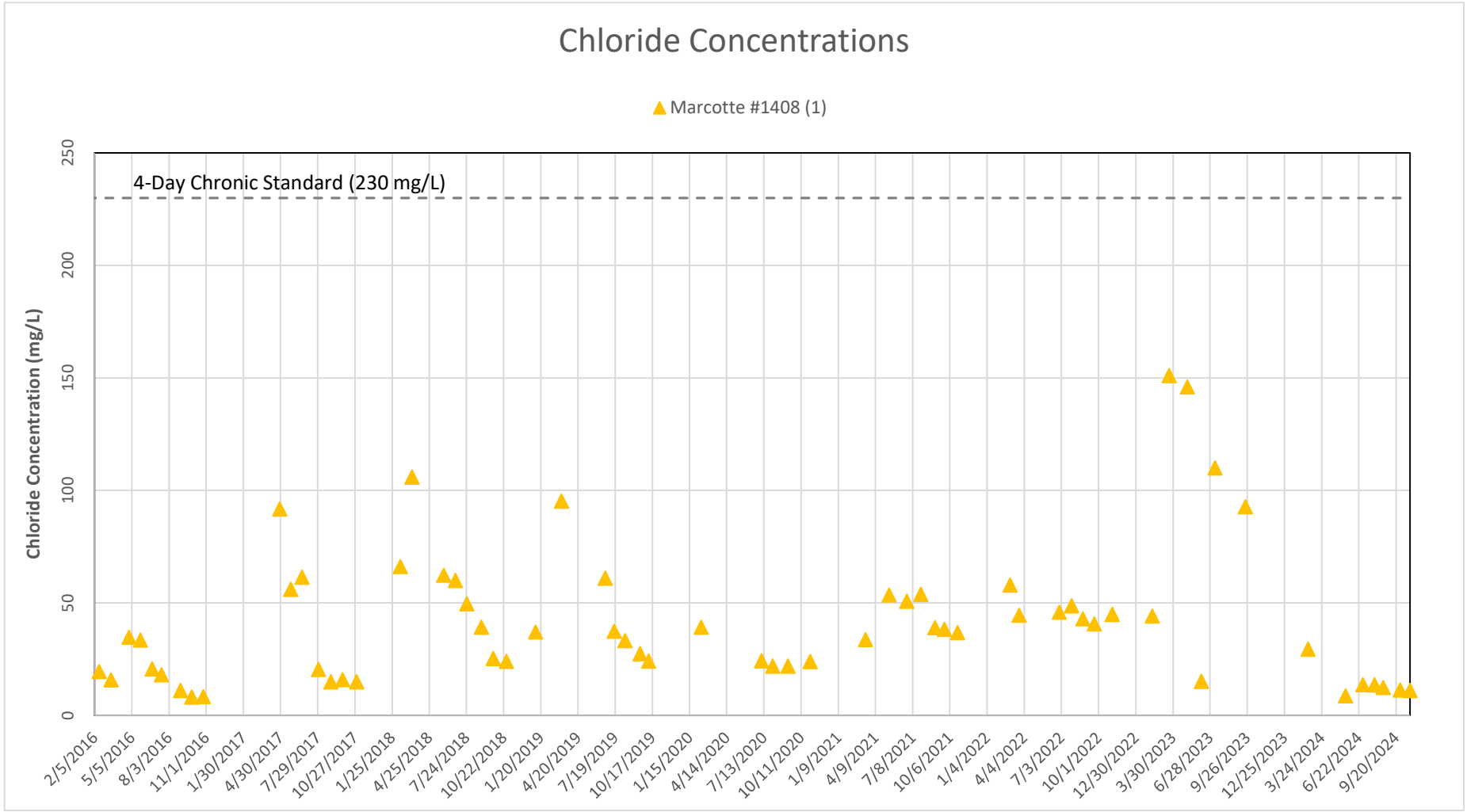









ANNUAL TOTAL CHLORIDE
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Total Chloride (mg/L)
2014
2016
2018
2019
2020
2021
2022
2023
2024
Year


Chloride Concentrations
Marcotte #1408 (1)
4-Day Chronic Standard (230 mg/L)
Chloride Concentration (mg/L)
0
50
100
150
200
250
2/5/2016
5/5/2016
8/3/2016
11/1/2016
1/30/2017
4/30/2017
7/29/2017
10/27/2017
1/25/2018
4/25/2018
7/24/2018
10/22/2018
1/20/2019
4/20/2019
7/19/2019
10/17/2019
1/15/2020
4/14/2020
7/13/2020
10/11/2020
1/9/2021
4/9/2021
7/8/2021
10/6/2021
1/4/2022
4/4/2022
7/3/2022
10/1/2022
12/30/2022
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6/28/2023
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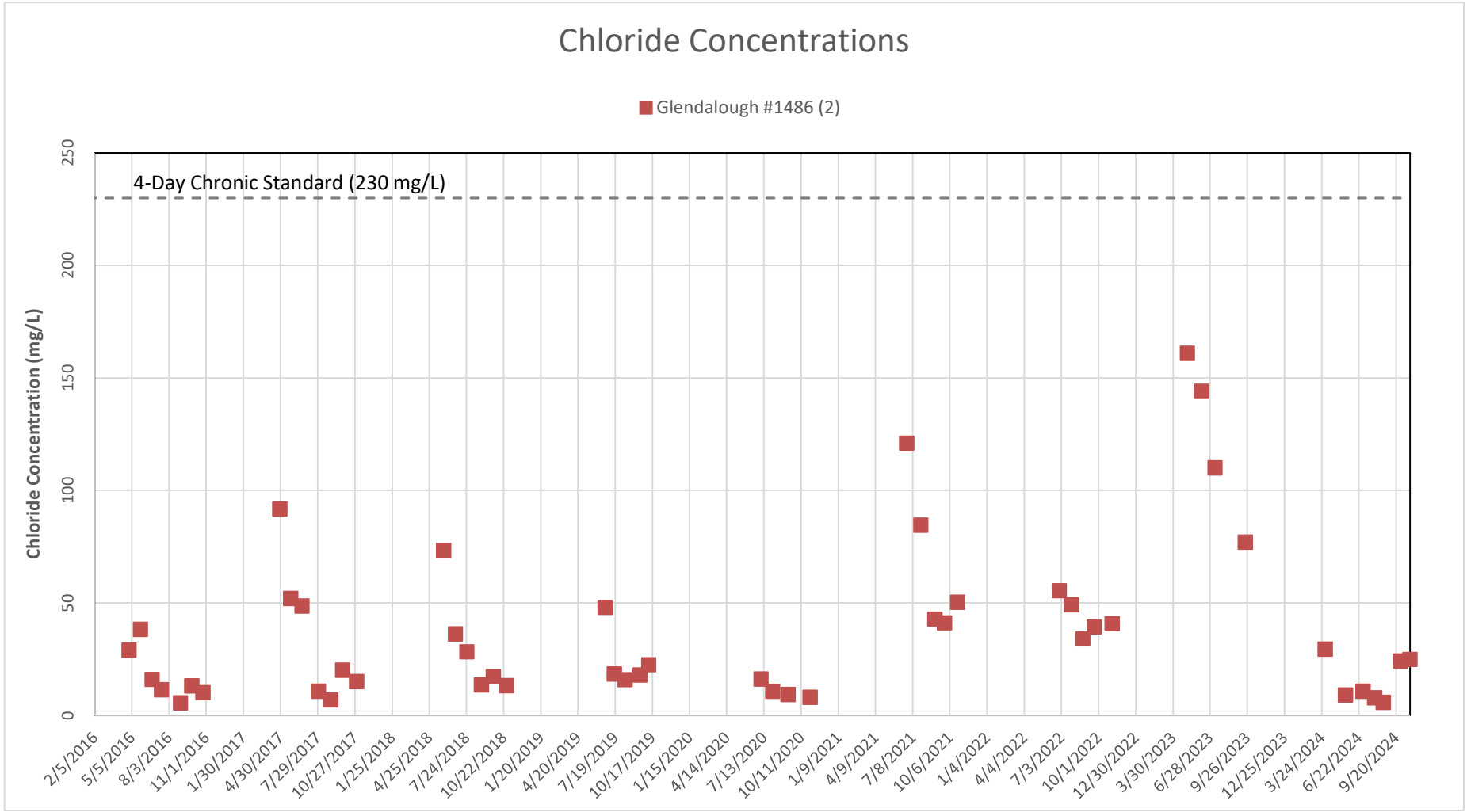
12/25/2023
3/24/2024
6/22/2024
9/20/2024


Chloride Concentrations
Glendalough #1486 (2)
4-Day Chronic Standard (230 mg/L)
Chloride Concentration (mg/L)
0
50
100
150
200
250
2/5/2016
5/5/2016
8/3/2016
11/1/2016
1/30/2017
4/30/2017
7/29/2017
10/27/2017
1/25/2018
4/25/2018
7/24/2018
10/22/2018
1/20/2019
4/20/2019
7/19/2019
10/17/2019
1/15/2020
4/14/2020
7/13/2020
10/11/2020
1/9/2021
4/9/2021
7/8/2021
10/6/2021
1/4/2022
4/4/2022
7/3/2022
10/1/2022
12/30/2022
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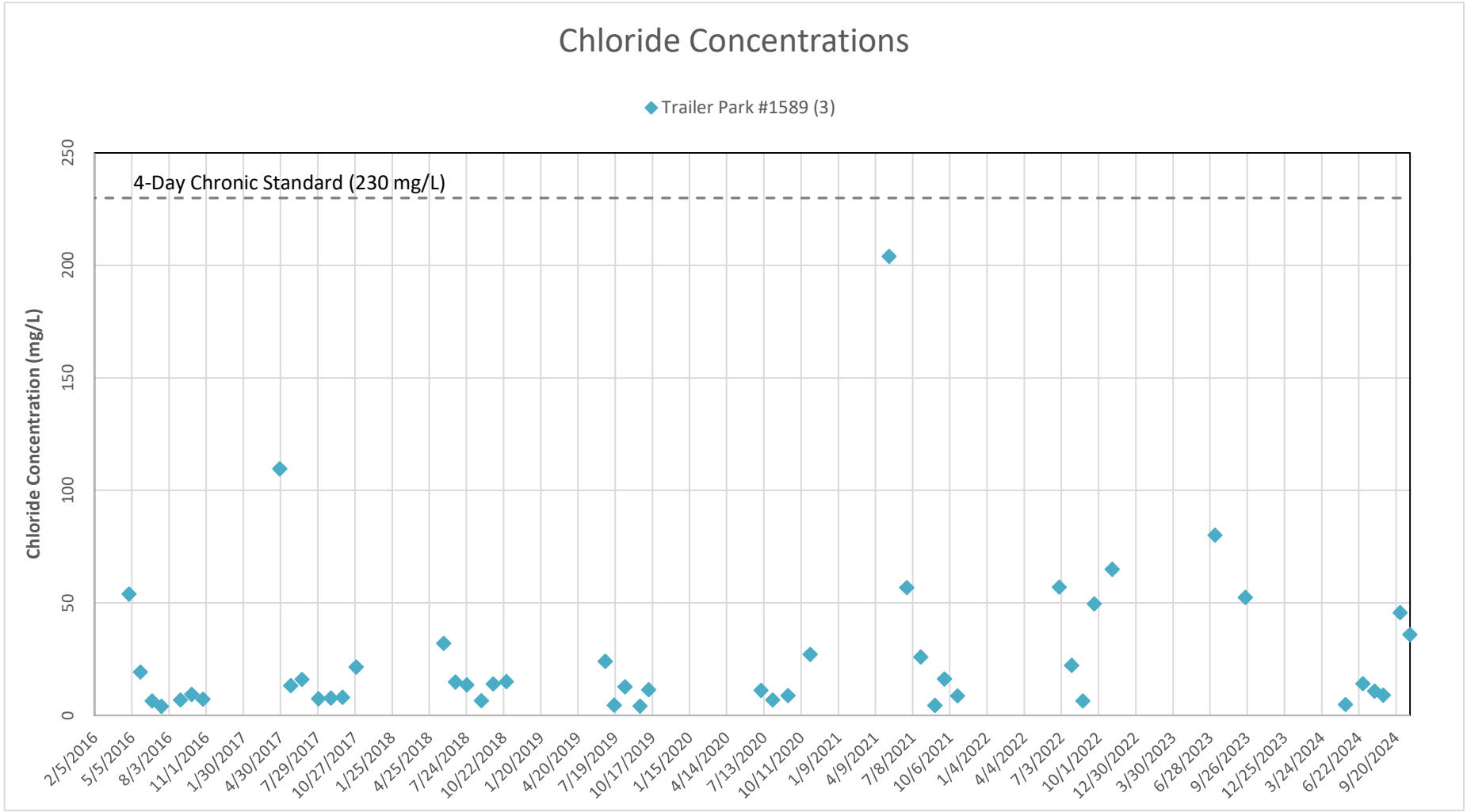
12/25/2023
3/24/2024
6/22/2024
9/20/2024


Chloride Concentrations
Trailer Park #1589 (3)
4-Day Chronic Standard (230 mg/L)
Chloride Concentration (mg/L)
0
50
100
150
200
250
2/5/2016
5/5/2016
8/3/2016
11/1/2016
1/30/2017
4/30/2017
7/29/2017
10/27/2017
1/25/2018
4/25/2018
7/24/2018
10/22/2018
1/20/2019
4/20/2019
7/19/2019
10/17/2019
1/15/2020
4/14/2020
7/13/2020
10/11/2020
1/9/2021
4/9/2021
7/8/2021
10/6/2021
1/4/2022
4/4/2022
7/3/2022
10/1/2022
12/30/2022
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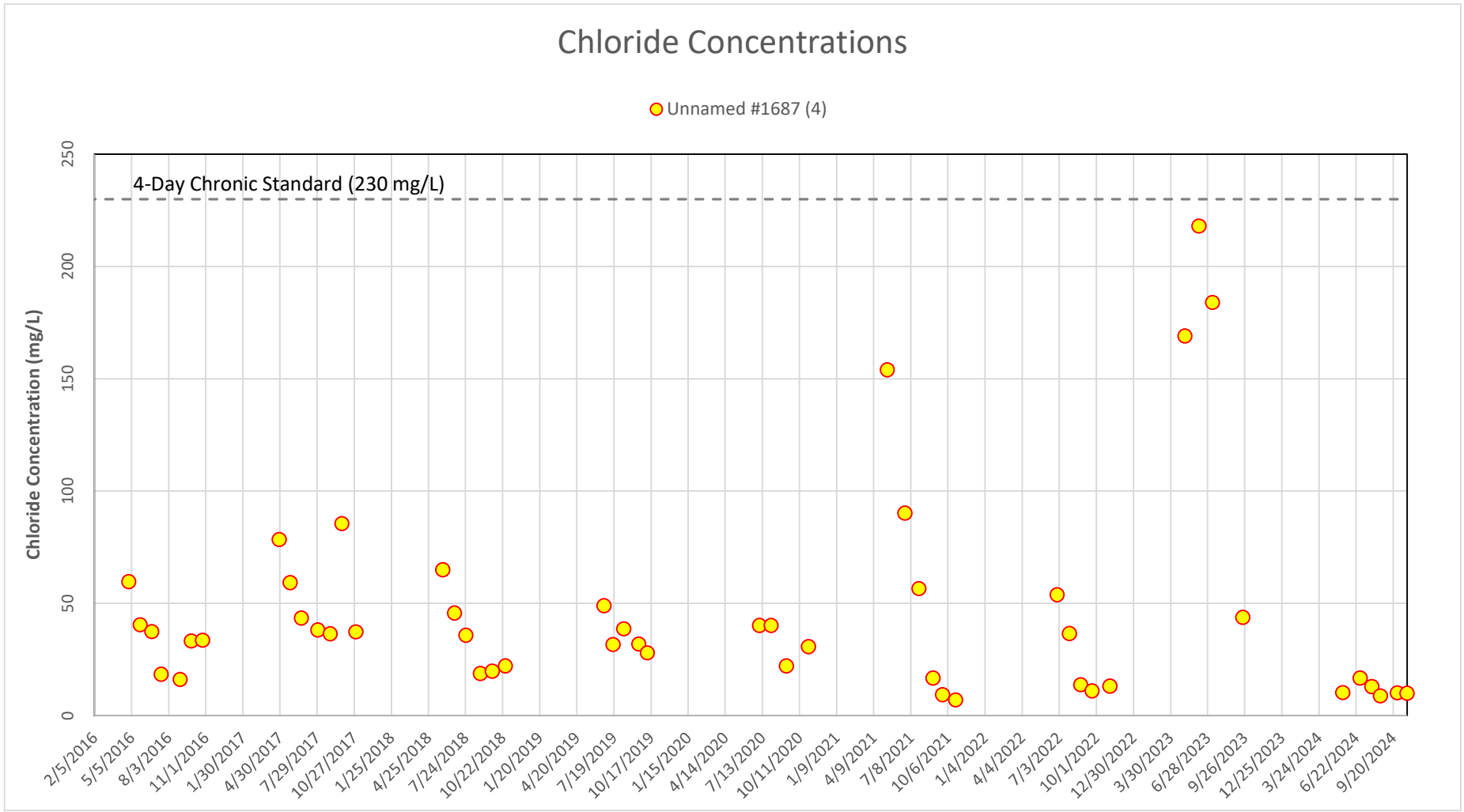
Chloride Concentrations
Unnamed #1687 (4)
4-Day Chronic Standard (230 mg/L)
Chloride Concentration (mg/L)
0
50
100
150
200
250
2/5/2016
5/5/2016
8/3/2016
11/1/2016
1/30/2017
4/30/2017
7/29/2017
10/27/2017
1/25/2018
4/25/2018
7/24/2018
10/22/2018
1/20/2019
4/20/2019
7/19/2019
10/17/2019
1/15/2020
4/14/2020
7/13/2020
10/11/2020
1/9/2021
4/9/2021
7/8/2021
10/6/2021
1/4/2022
4/4/2022
7/3/2022
10/1/2022
12/30/2022
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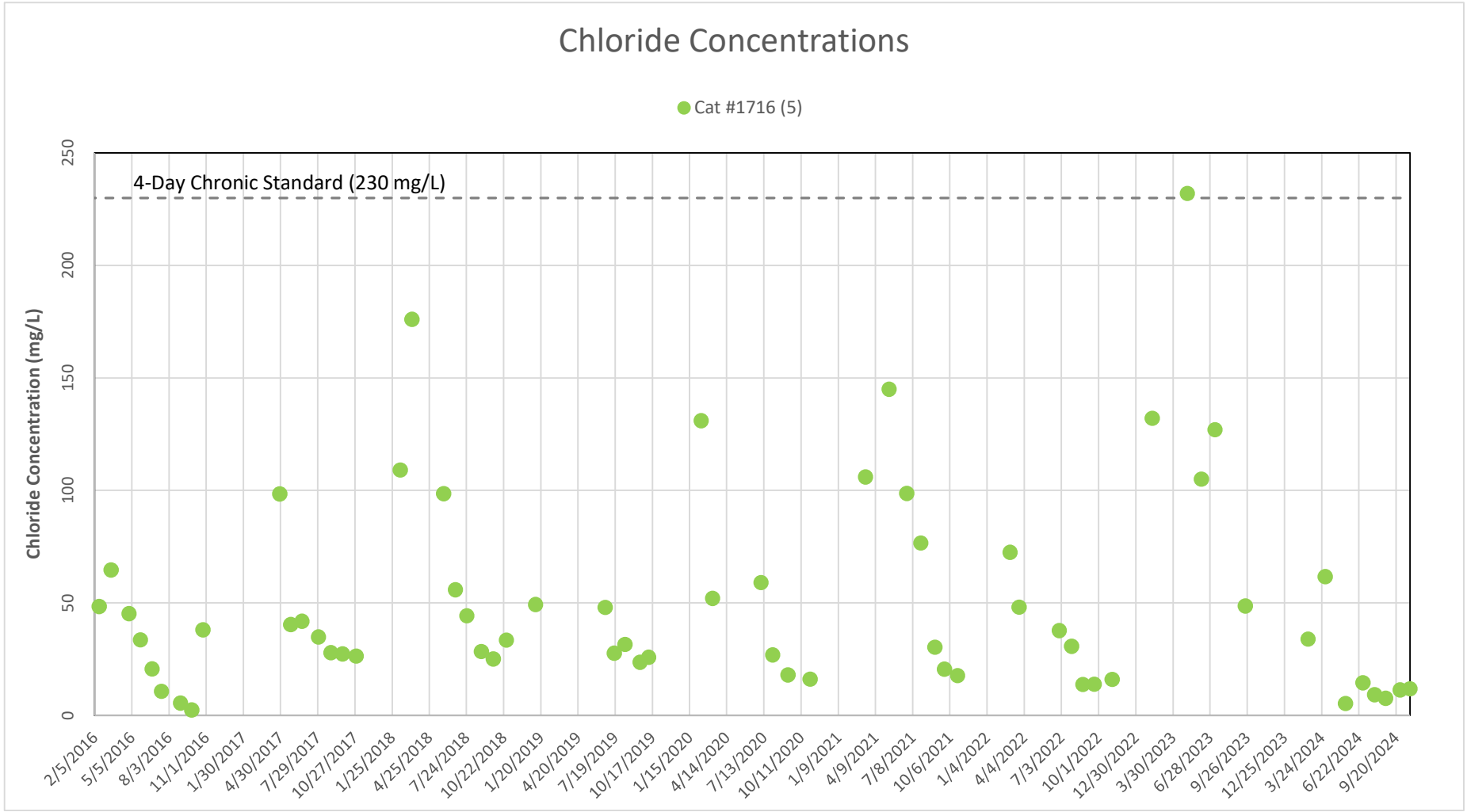
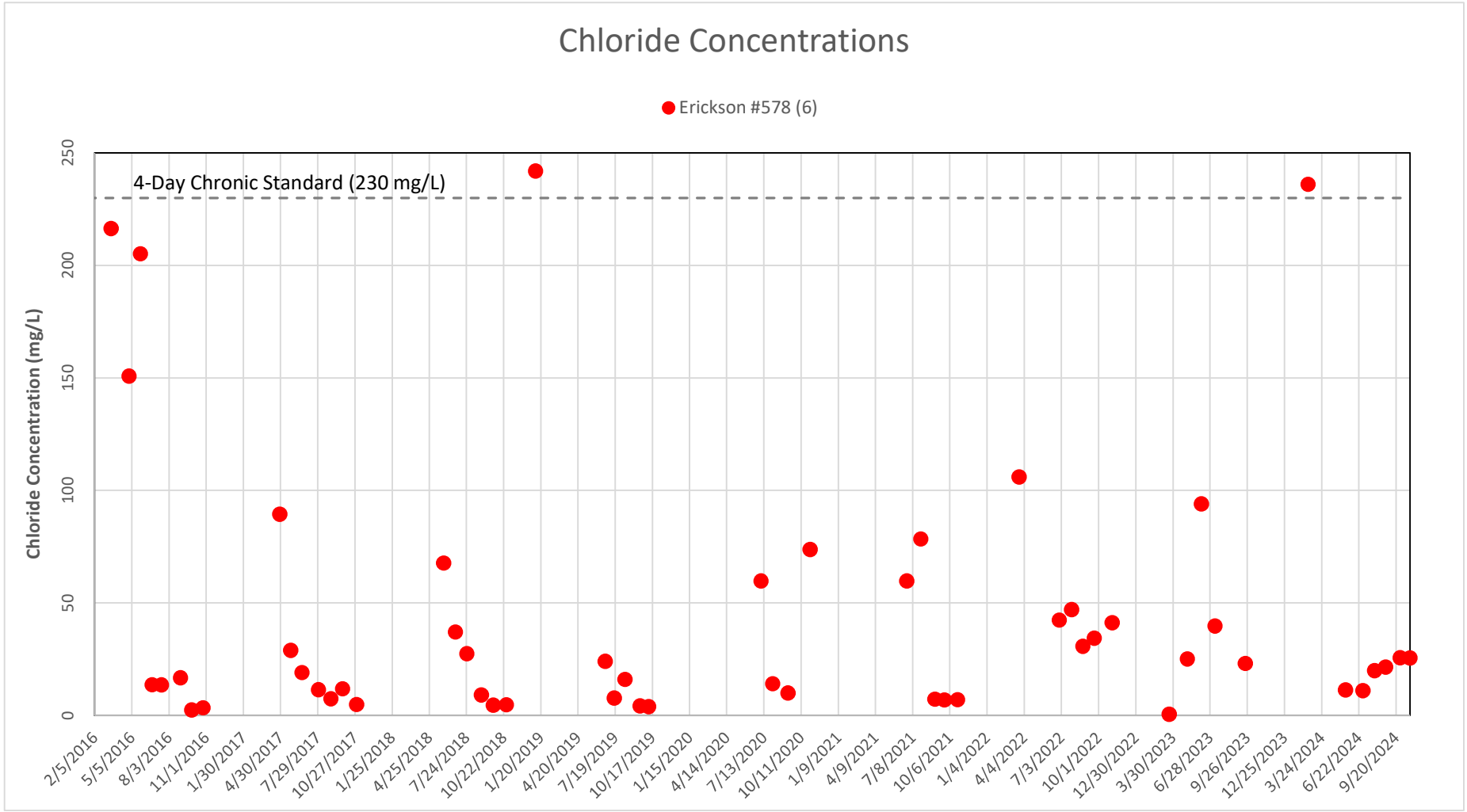
3/24/2024
6/22/2024
9/20/2024


Chloride Concentrations
Cat #1716 (5)
4-Day Chronic Standard (230 mg/L)
Chloride Concentration (mg/L)
0
50
100
150
200
250
2/5/2016
5/5/2016
8/3/2016
11/1/2016
1/30/2017
4/30/2017
7/29/2017
10/27/2017
1/25/2018
4/25/2018
7/24/2018
10/22/2018
1/20/2019
4/20/2019
7/19/2019
10/17/2019
1/15/2020
4/14/2020
7/13/2020
10/11/2020
1/9/2021
4/9/2021
7/8/2021
10/6/2021
1/4/2022
4/4/2022
7/3/2022
10/1/2022
12/30/2022
3/30/2023
6/28/2023
9/26/2023
12/25/2023
3/24/2024
6/22/2024
9/20/2024


Chloride Concentrations
Erickson #578 (6)
4-Day Chronic Standard (230 mg/L)
Chloride Concentration (mg/L)
0
50
100
150
200
250
2/5/2016
5/5/2016
8/3/2016
11/1/2016
1/30/2017
4/30/2017
7/29/2017
10/27/2017
1/25/2018
4/25/2018
7/24/2018
10/22/2018
1/20/2019
4/20/2019
7/19/2019
10/17/2019
1/15/2020
4/14/2020
7/13/2020
10/11/2020
1/9/2021
4/9/2021
7/8/2021
10/6/2021
1/4/2022
4/4/2022
7/3/2022
10/1/2022
12/30/2022
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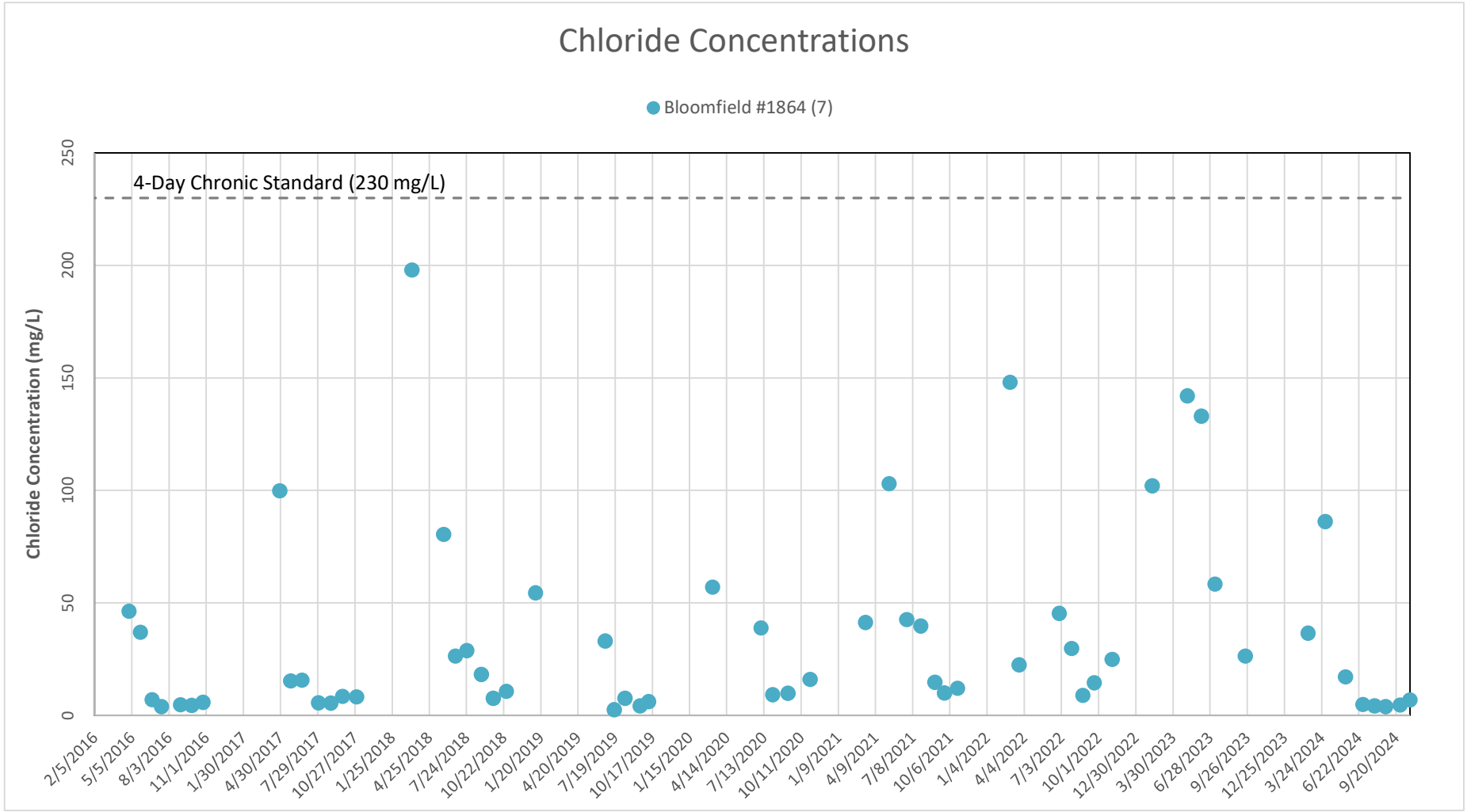
9/26/2023
12/25/2023
3/24/2024
6/22/2024
9/20/2024


Chloride Concentrations
Bloomfield #1864 (7)
4-Day Chronic Standard (230 mg/L)
Chloride Concentration (mg/L)
0
50
100
150
200
250
2/5/2016
5/5/2016
8/3/2016
11/1/2016
1/30/2017
4/30/2017
7/29/2017
10/27/2017
1/25/2018
4/25/2018
7/24/2018
10/22/2018
1/20/2019
4/20/2019
7/19/2019
10/17/2019
1/15/2020
4/14/2020
7/13/2020
10/11/2020
1/9/2021
4/9/2021
7/8/2021
10/6/2021
1/4/2022
4/4/2022
7/3/2022
10/1/2022
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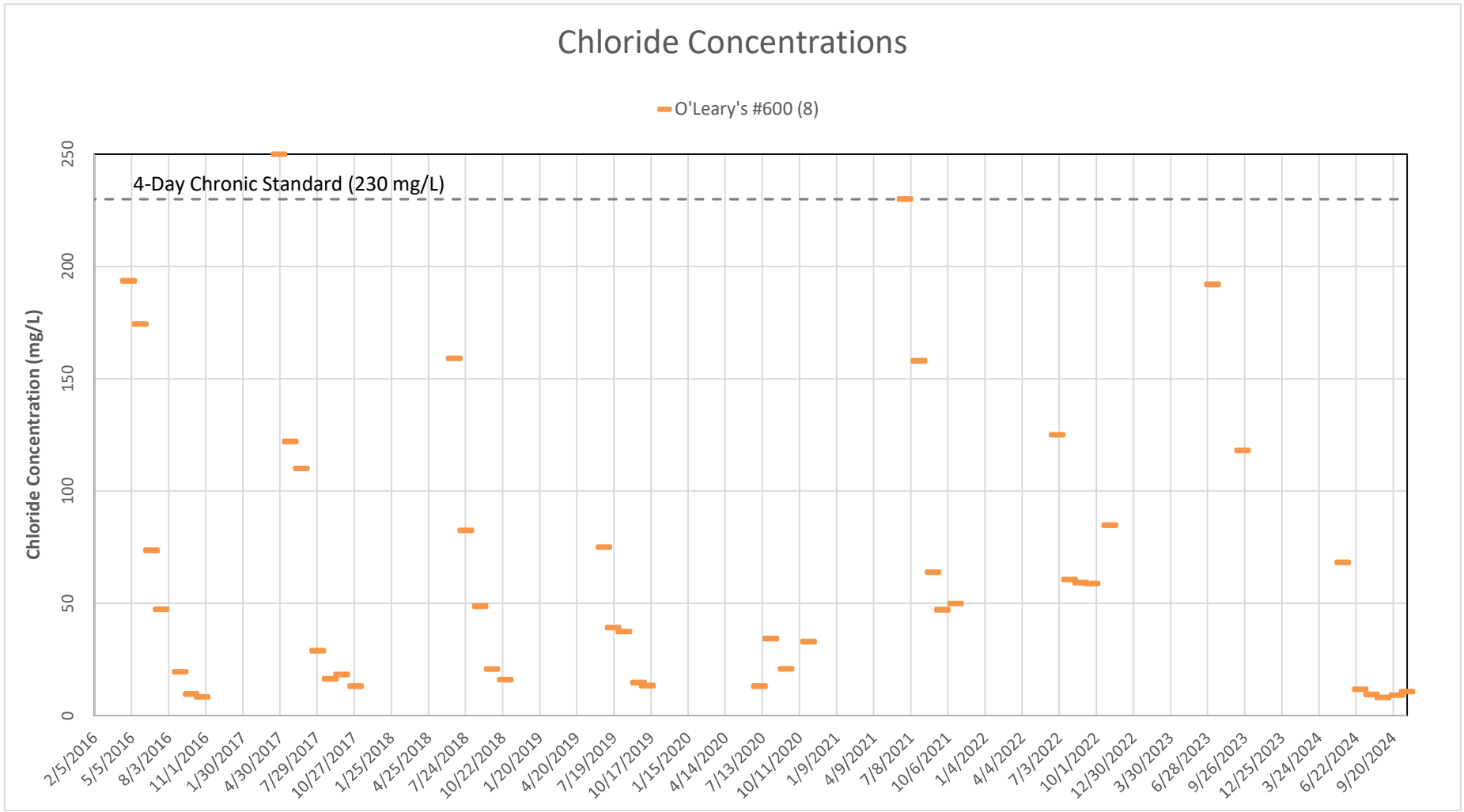
6/22/2024
9/20/2024


Chloride Concentrations
O'Leary's #600 (8)
4-Day Chronic Standard (230 mg/L)
Chloride Concentration (mg/L)
0
50
100
150
200
250
2/5/2016
5/5/2016
8/3/2016
11/1/2016
1/30/2017
4/30/2017
7/29/2017
10/27/2017
1/25/2018
4/25/2018
7/24/2018
10/22/2018
1/20/2019
4/20/2019
7/19/2019
10/17/2019
1/15/2020
4/14/2020
7/13/2020
10/11/2020
1/9/2021
4/9/2021
7/8/2021
10/6/2021
1/4/2022
4/4/2022
7/3/2022
10/1/2022
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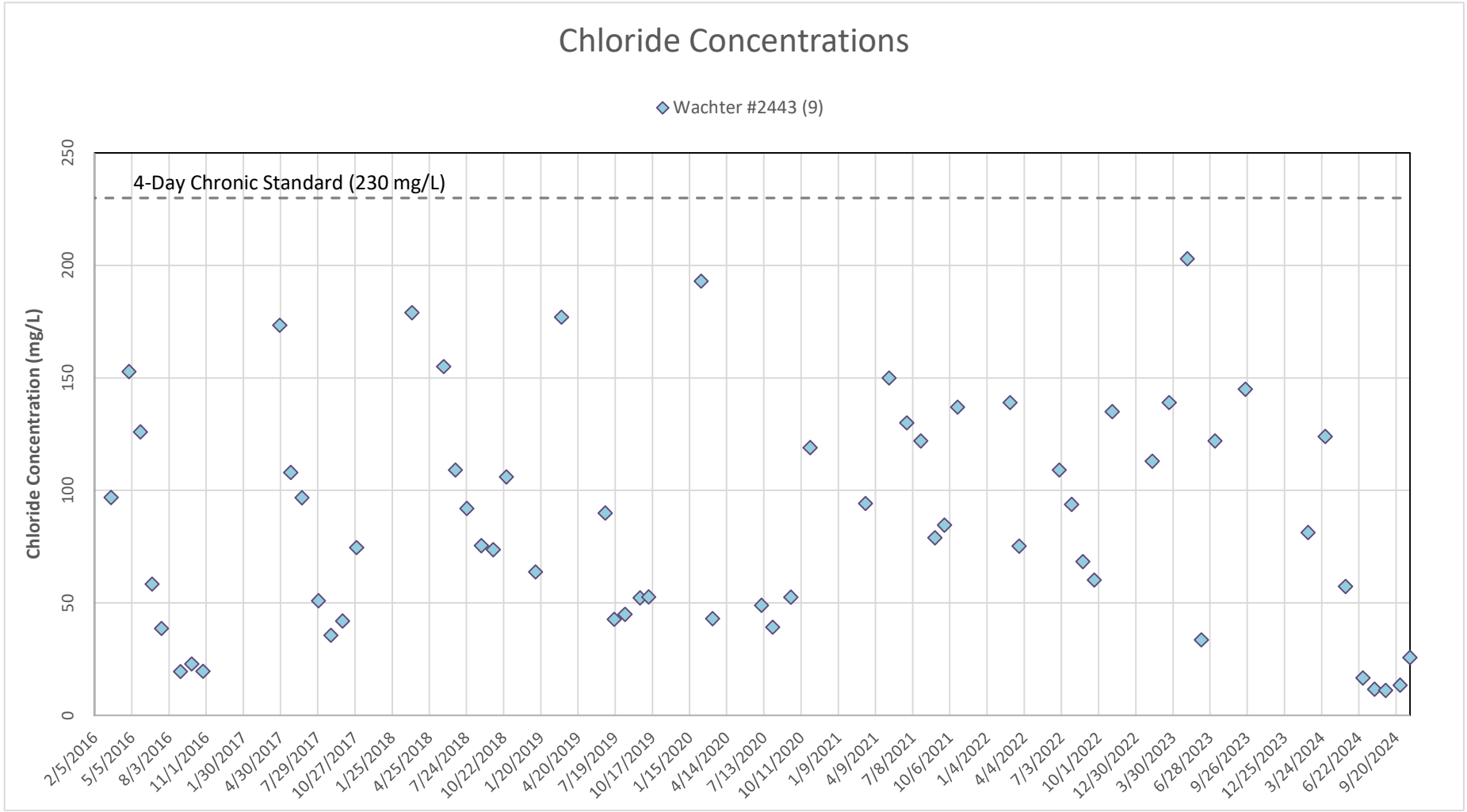
3/24/2024
6/22/2024
9/20/2024


Chloride Concentrations
Wachter #2443 (9)
4-Day Chronic Standard (230 mg/L)
Chloride Concentration (mg/L)
0
50
100
150
200
250
2/5/2016
5/5/2016
8/3/2016
11/1/2016
1/30/2017
4/30/2017
7/29/2017
10/27/2017
1/25/2018
4/25/2018
7/24/2018
10/22/2018
1/20/2019
4/20/2019
7/19/2019
10/17/2019
1/15/2020
4/14/2020
7/13/2020
10/11/2020
1/9/2021
4/9/2021
7/8/2021
10/6/2021
1/4/2022
4/4/2022
7/3/2022
10/1/2022
12/30/2022
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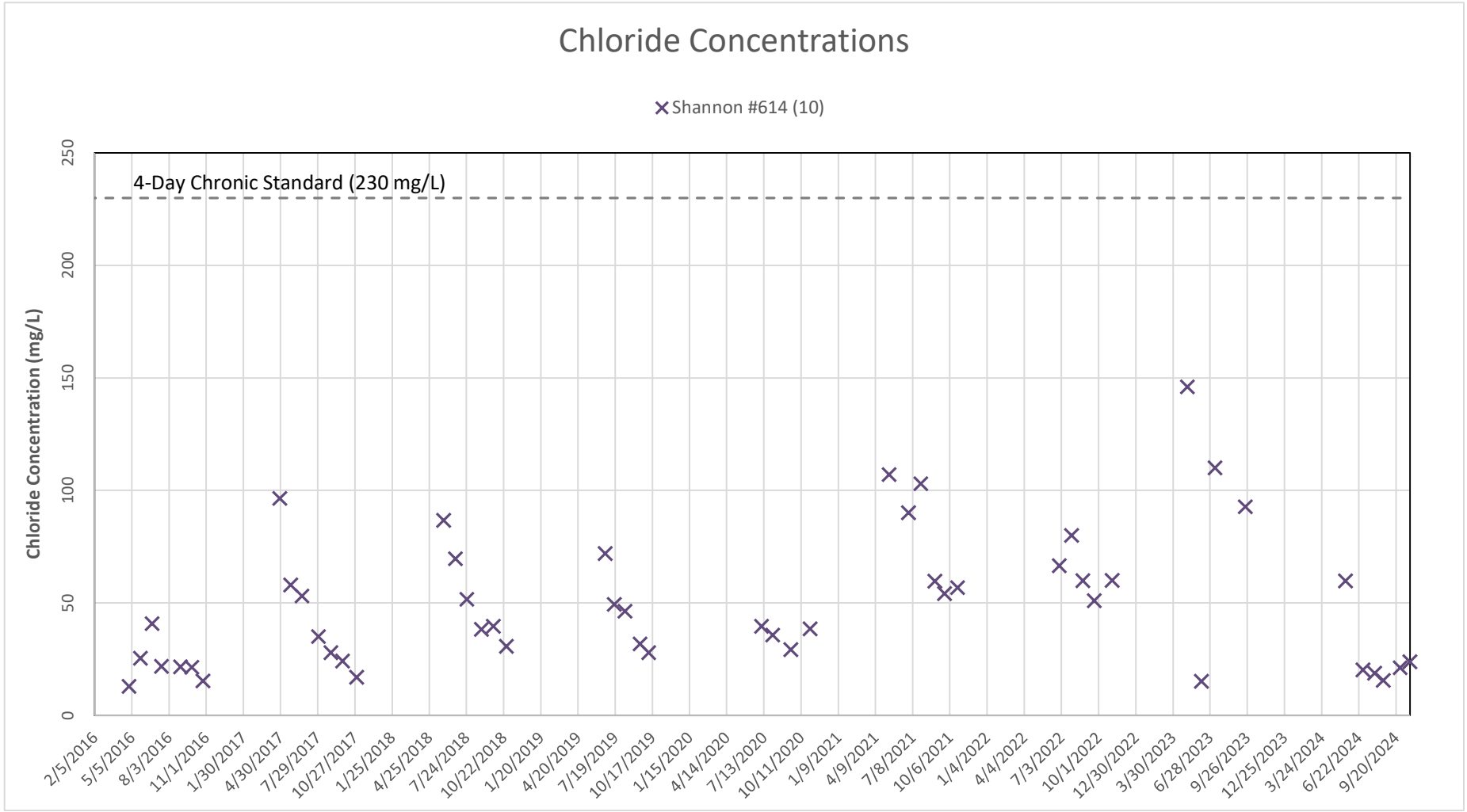
3/24/2024
6/22/2024
9/20/2024


Chloride Concentrations
Shannon #614 (10)
4-Day Chronic Standard (230 mg/L)
Chloride Concentration (mg/L)
0
50
100
150
200
250
2/5/2016
5/5/2016
8/3/2016
11/1/2016
1/30/2017
4/30/2017
7/29/2017
10/27/2017
1/25/2018
4/25/2018
7/24/2018
10/22/2018
1/20/2019
4/20/2019
7/19/2019
10/17/2019
1/15/2020
4/14/2020
7/13/2020
10/11/2020
1/9/2021
4/9/2021
7/8/2021
10/6/2021
1/4/2022
4/4/2022
7/3/2022
10/1/2022
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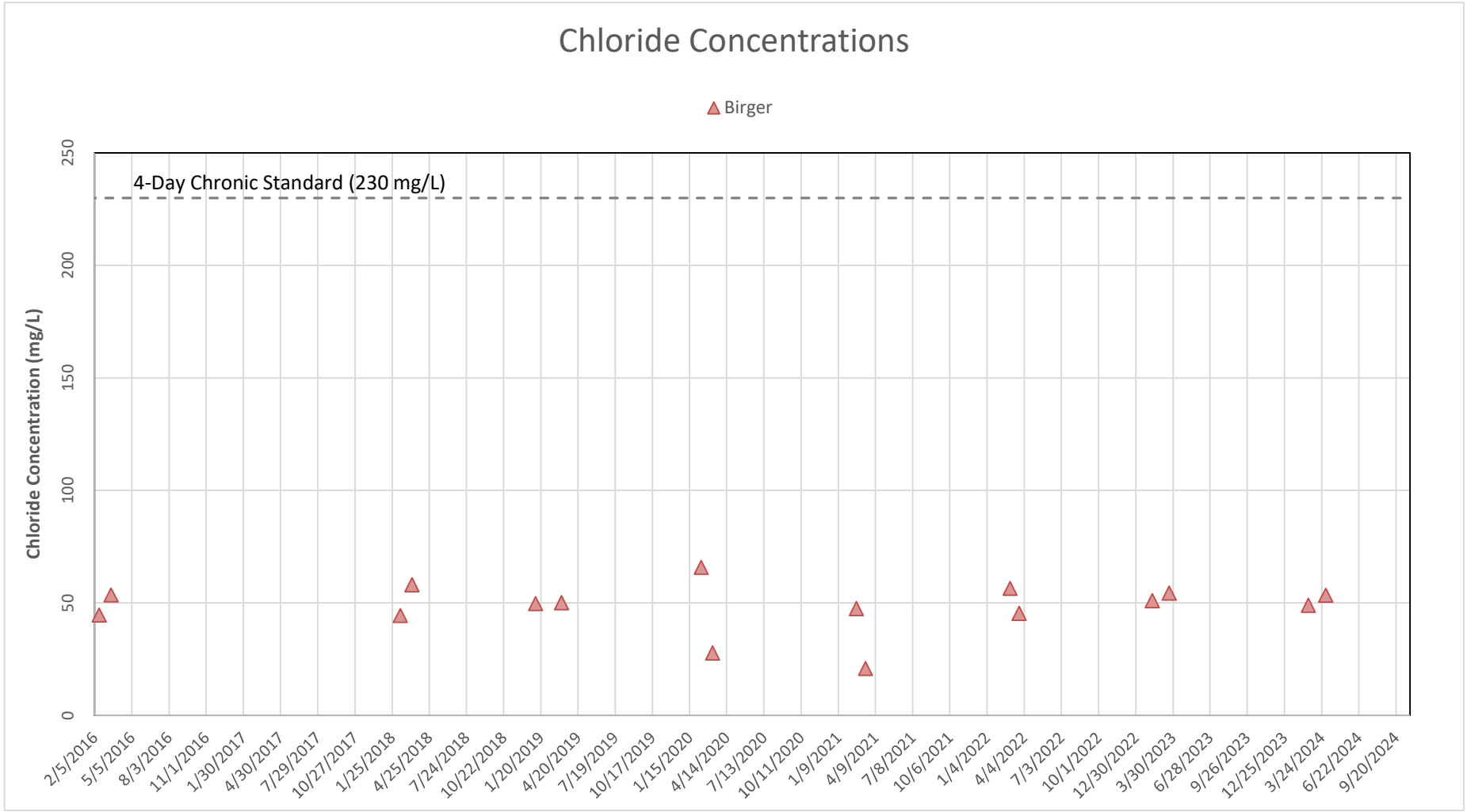
3/24/2024
6/22/2024
9/20/2024


Chloride Concentrations
Birger
4-Day Chronic Standard (230 mg/L)
Chloride Concentration (mg/L)
0
50
100
150
200
250
2/5/2016
5/5/2016
8/3/2016
11/1/2016
1/30/2017
4/30/2017
7/29/2017
10/27/2017
1/25/2018
4/25/2018
7/24/2018
10/22/2018
1/20/2019
4/20/2019
7/19/2019
10/17/2019
1/15/2020
4/14/2020
7/13/2020
10/11/2020
1/9/2021
4/9/2021
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7/3/2022
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12/30/2022
3/30/2023
6/28/2023
9/26/2023
12/25/2023
3/24/2024
6/22/2024
9/20/2024

2025 Well Pumping Record

GPM	*1,200*	*1,235*	*1,600*	*1,500*	*1,500*	*1,500*	*2,000*	*500*	*500*				Precipitation		
2025	**Well 7**	**Well 8**	**Well 9**	**Well 12**	**Well 14**	**Well 15**	**Well 16**	**Rural 1**	**Rural 2**	**2025 Total**	**2024 Total**	**% Change**	**2024**	**2025**	**Diff**
Jan	3,000	0	21,065,000	0	111,000	15,871,000	10,463,000	12,000	4,720,000	52,245,000	49,142,000	6.3%	0.13	0.13	0.00
Feb	17,000	19,000	18,332,000	13,000	14,000	22,453,000	1,700,000	2,090,000	2,140,000	46,778,000	40,577,000	15.3%	0.65	0.41	-0.24
Mar	49,000	21,000	20,553,000	4,242,000	69,000	0	17,766,000	2,413,000	2,344,000	47,457,000	47,841,000	-0.8%	2.51	2.96	0.45
Q1 Total	69,000	40,000	59,950,000	4,255,000	194,000	38,324,000	29,929,000	4,515,000	9,204,000	146,480,000	137,560,000	6.5%	3.29	3.50	0.21
Apr	60,000	15,000	23,632,000	19,843,000	16,000	16,000	252,000	3,137,000	2,788,000	49,759,000	55,991,000	-11.1%	4.19	1.98	-2.21
May	21,000	19,229,000	28,603,000	20,674,000	17,212,000	13,861,000	32,390,000	1,394,000	1,622,000	135,006,000	101,270,000	33.3%	5.81	3.27	-2.54
Jun										0	90,507,000	-100.0%	7.27		-7.27
Q2 Total	81,000	19,244,000	52,235,000	40,517,000	17,228,000	13,877,000	32,642,000	4,531,000	4,410,000	184,765,000	247,768,000	-25.4%	17.27	5.25	-12.02
Jul										0	144,584,000	-100.0%	5.61		-5.61
Aug										0	127,865,000	-100.0%	5.37		-5.37
Sep										0	153,032,000	-100.0%	0.06		-0.06
Q3 Total	0	0	0	0	0	0	0	0	0	0	425,481,000	-100.0%	11.04	0.00	-11.04
Oct										0	110,407,000	-100.0%	1.74		-1.74
Nov										0	53,984,000	-100.0%	1.94		-1.94
Dec										0	50,288,000	-100.0%			0.00
Q4 Total	0	0	0	0	0	0	0	0	0	0	214,679,000	-100.0%	3.68	0.00	-3.68
Total	**150,000**	**19,284,000**	**112,185,000**	**44,772,000**	**17,422,000**	**52,201,000**	**62,571,000**	**9,046,000**	**13,614,000**	**331,245,000**	**1,025,488,000**	***-67.7%***	**35.28**	**8.75**	-26.53
Average/Mo	30,000	3,856,800	22,437,000	8,954,400	3,484,400	10,440,200	12,514,200	1,809,200	2,817,500	66,343,700	85,555,803	-22.5%			
Average/Day	411	52,833	307,356	122,663	47,732	143,016	171,427	24,784	37,299	907,521	2,809,556	-67.7%			
									Year To-Date	***331,245,000***	***294,821,000***	***12.4%***	***35.28***	***8.75***	***-26.53***

2024 Well Pumping Record

GPM	1,200	1,235	1,600	1,500	1,500	1,500	2,000	500	500				Precipitation		
2024	**Well 7**	**Well 8**	**Well 9**	**Well 12**	**Well 14**	**Well 15**	**Well 16**	**Rural 1**	**Rural 2**	**2024 Total**	**2023 Total**	**% Change**	**2023**	**2024**	**Diff**
Jan	0	0	0	17,166,000	1,052,000	25,843,000	0	2,620,000	2,461,000	49,142,000	44,173,000	11.2%	2.25	0.13	-2.12
Feb	0	15,000	16,606,000	73,000	0	114,000	18,910,000	2,472,000	2,387,000	40,577,000	42,162,000	-3.8%	2.38	0.65	-1.73
Mar	0	0	1,953,000	15,206,000	23,484,000	0	2,231,000	2,518,000	2,449,000	47,841,000	47,112,000	1.5%	2.72	2.51	-0.21
Q1 Total	0	15,000	18,559,000	32,445,000	24,536,000	25,957,000	21,141,000	7,610,000	7,297,000	137,560,000	133,447,000	3.1%	7.35	3.29	-4.06
Apr	3,000	21,814,000	792,000	78,000	112,000	27,480,000	216,000	2,580,000	2,916,000	55,991,000	46,373,000	20.7%	2.39	4.19	1.80
May	0	35,153,000	1,848,000	8,863,000	42,627,000	2,570,000	3,889,000	1,652,000	4,668,000	101,270,000	110,781,000	-8.6%	1.62	5.81	4.19
Jun	0	3,372,000	29,922,000	4,838,000	1,883,000	10,411,000	34,736,000	2,607,000	2,738,000	90,507,000	162,212,500	-44.2%	0.93	7.27	6.34
Q2 Total	3,000	60,339,000	32,562,000	13,779,000	44,622,000	40,461,000	38,841,000	6,839,000	10,322,000	247,768,000	359,517,000	-31.1%	4.94	17.27	12.33
Jul	504,000	38,591,000	8,475,000	13,024,000	12,672,000	41,238,000	20,103,000	4,945,000	5,032,000	144,584,000	168,701,000	-14.3%	2.57	5.61	3.04
Aug	727,000	6,338,000	37,460,000	9,199,000	49,513,000	5,665,000	9,392,000	4,584,000	4,987,000	127,865,000	182,711,000	-30.0%	2.29	5.37	3.08
Sep	1,607,000	39,092,000	11,575,000	13,785,000	12,139,000	31,348,000	37,108,000	2,935,000	3,443,000	153,032,000	151,939,000	0.7%	5.72	0.06	-5.66
Q3 Total	2,838,000	84,021,000	57,510,000	36,008,000	74,324,000	78,251,000	66,603,000	12,464,000	13,462,000	425,481,000	503,351,000	-15.5%	10.58	11.04	0.46
Oct	50,000	27,626,000	10,965,000	3,717,000	3,687,000	29,806,000	27,837,000	3,309,000	3,410,000	110,407,000	87,864,000	25.7%	4.50	1.74	-2.76
Nov	8,000	0	2,960,000	16,740,000	25,935,000	4,043,000	0	765,000	3,533,000	53,984,000	46,602,000	15.8%	0.04	1.94	1.90
Dec	6,000	10,000	18,745,000	2,100,000	3,638,000	0	21,427,000	0	4,362,000	50,288,000	50,371,000	-0.2%	2.28	1.27	-1.01
Q4 Total	64,000	27,636,000	32,670,000	22,557,000	33,260,000	33,849,000	49,264,000	4,074,000	11,305,000	214,679,000	153,856,000	39.5%	6.82	4.95	-1.87
Total	**2,905,000**	**172,011,000**	**141,301,000**	**104,789,000**	**176,742,000**	**178,518,000**	**175,849,000**	**30,987,000**	**42,386,000**	**1,025,488,000**	**1,150,171,000**	**-10.8%**	**29.69**	**36.55**	**6.86**
Average/Mo	242,083	14,334,250	11,775,083	8,732,417	14,728,500	14,876,500	14,654,083	2,582,250	3,630,636	85,555,803	101,790,826	-15.9%			
Average/Day	7,959	471,263	387,126	287,093	484,225	489,090	481,778	84,896	116,126	2,809,556	3,335,118	-15.8%			
										Year To-Date	***1,025,488,000***	***1,141,001,500***	***-10.1%***	***29.69***	***36.55***	***6.86***