

Finch Drinking Water System

Waterworks # 210003912
System Category – Large Municipal Residential

Annual Report

Township of North Stormont

Reporting Period of January 1st – December 31st 2024

Issued: February 21, 2025

Revision: 0

Operating Authority:



This report has been prepared to satisfy the annual reporting requirements in O. Reg. 170/03 Section 11 and Schedule 22

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Revision History

Date	Revision #	Revision Notes
February 21, 2025	0	Issued Annual Report

Report Availability

As Finch's drinking water system is considered a large municipal residential system under O. Reg. 170/03, this report must be made available to the public. It can be found at the Township of North Stormont's municipal office, 15 Union Street, Berwick, Ontario and on the Township website (<https://www.northstormont.ca>).

Compliance Report Card

Compliance Event	# of Events
Ministry of Environment Inspections	Report Received – September 19, 2023 Inspection - No actions identified - Inspection Rating 100% Report Received – June 5, 2024 Inspection - No action identified - Inspection Rating 100%
Ministry of Labour Inspections	0
QEMS External Audit	1 (S2 Audit)
AWQI's/BWA	0/0
Non-Compliance	0
Spills	0
Watermain Breaks	0

System Process Description

Raw Source

Finch's drinking water system draws water from two groundwater production wells completed in bedrock (Well #1 and Well #2). Well #1 is a 200 mm diameter 54 m deep drilled well located inside the treatment building equipped with a submersible well pump rated at 5 L/s at 50 m total dynamic head (TDH). Well #2 is a 200 mm diameter 54 m deep drilled well located inside the treatment building equipped with a submersible well pump rated at 9.5 L/s at 44.5 m total dynamic head (TDH).

Treatment

The treatment plant is designed for 777.6 m³ per day. Contact time is provided in the plant piping, clear well and filters. The treatment facility houses a forced draft aeration tower with capacity of 8 L/s equipped with plastic packing. Sodium hypochlorite is used for primary and secondary disinfection. Sodium hypochlorite is injected by one of two chemical feed pumps prior to entry into the clear well. The clear well is constructed of reinforced concrete and has a minimum operating volume of 20.5 m³. Two high lift pumps, each with a capacity of 5 L/s at a TDH of 60 m, deliver water from the clear well to two dual media pressure filters and then to the distribution system. Operation of the high lift pumps is controlled by the water level in the elevated storage tank. The dual media pressure filters are operated in parallel. Each filter has a flow rate of 4 L/s at a filtration rate of approximately 9 m/h. The treatment plant also houses a 1.5 m diameter baffled pressure vessel for flocculation (presently unused) with a volume of approximately 4 m³. The pressure vessel provides a detention time of 8 minutes at a design flow of 8 L/s. Backwash wastewater is collected in a surge tank of approximately 15 m³ capacity. The wastewater is pumped directly from the surge tank to the sanitary sewer. Water leaving the treatment plant is continuously monitored for flow, chlorine residual and turbidity.

Distribution

The distribution system consists of an elevated storage tank and approximately 9 km of PVC distribution piping installed in the 1970's. The elevated tank is located across the street from the water treatment plant and has a storage capacity of 580 m³. It provides for peak hour demands and fire flows.

Treatment Chemicals used during the reporting year

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Jutzi

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
None to Report						

Non-Compliance

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
None to Report				

Non-Compliance Identified in a Ministry Inspection

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
None to Report				

Flows

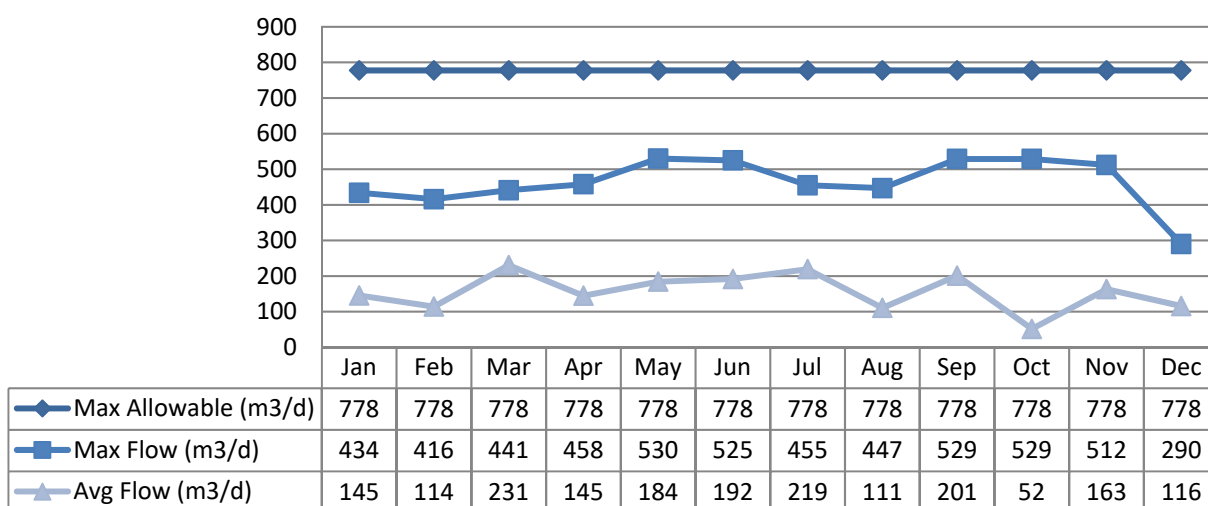
Finch's drinking water system is operating on average under half the rated capacity.

Raw Water Flows

Raw water flows are regulated under the Permit to Take Water (PTTW). Raw flow data for 2024 was submitted to the Ministry electronically under Permit #8713-C2HJT3. The submission confirmation can be found attached in Appendix A.

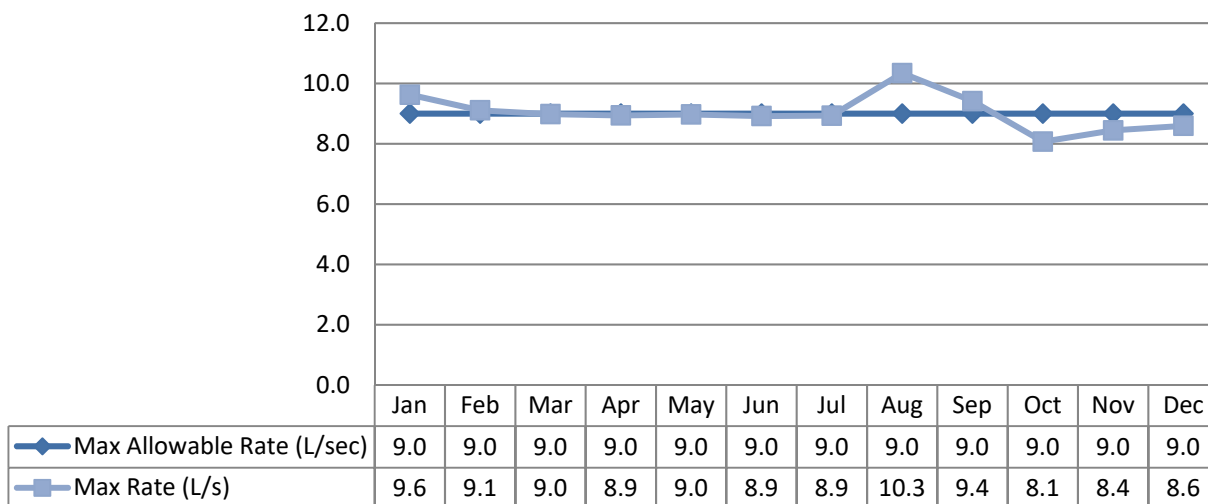
Well #1 - Flows

Max. Allowable Flow - PTTW



Well #1 - Maximum Flow Rates

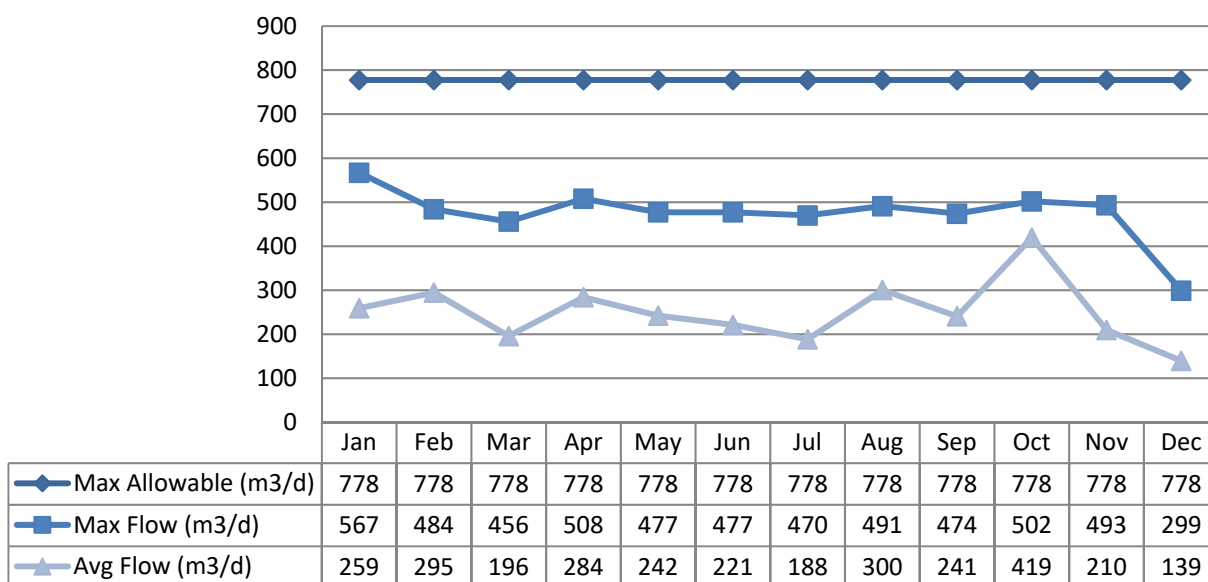
Max. Allowable Rate - PTTW



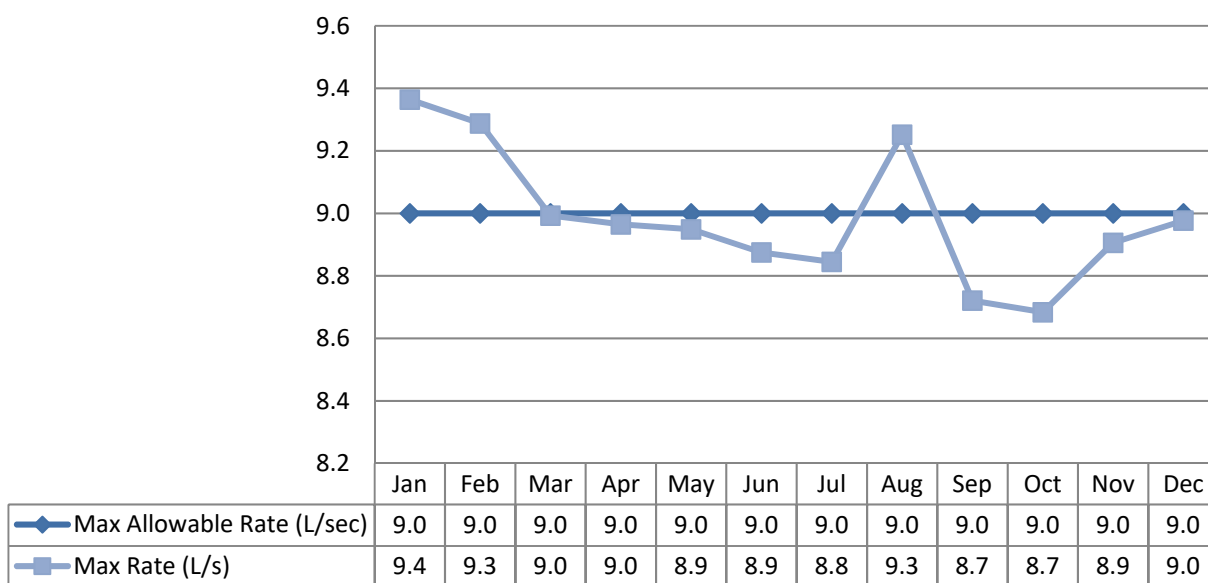
* Well #1 – Max rate above 9 L/s caused by brief spikes on start-up of less than 1 minute.

Well #2 - Flows

Max. Allowable Flow - PTTW

Well #2 - Maximum Flow Rates

Max. Allowable Rate - PTTW



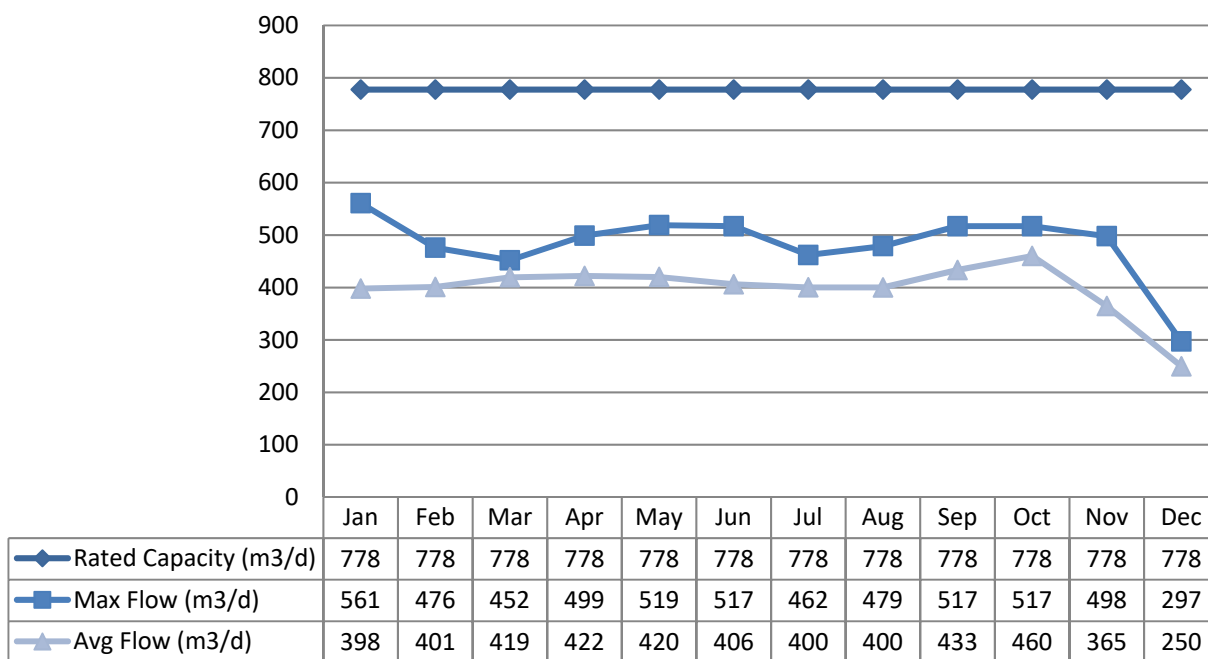
* Well #2 – Max Rate above 9 L/s caused by brief spikes on start-up of less than 1 minute.

Treated Water Flows

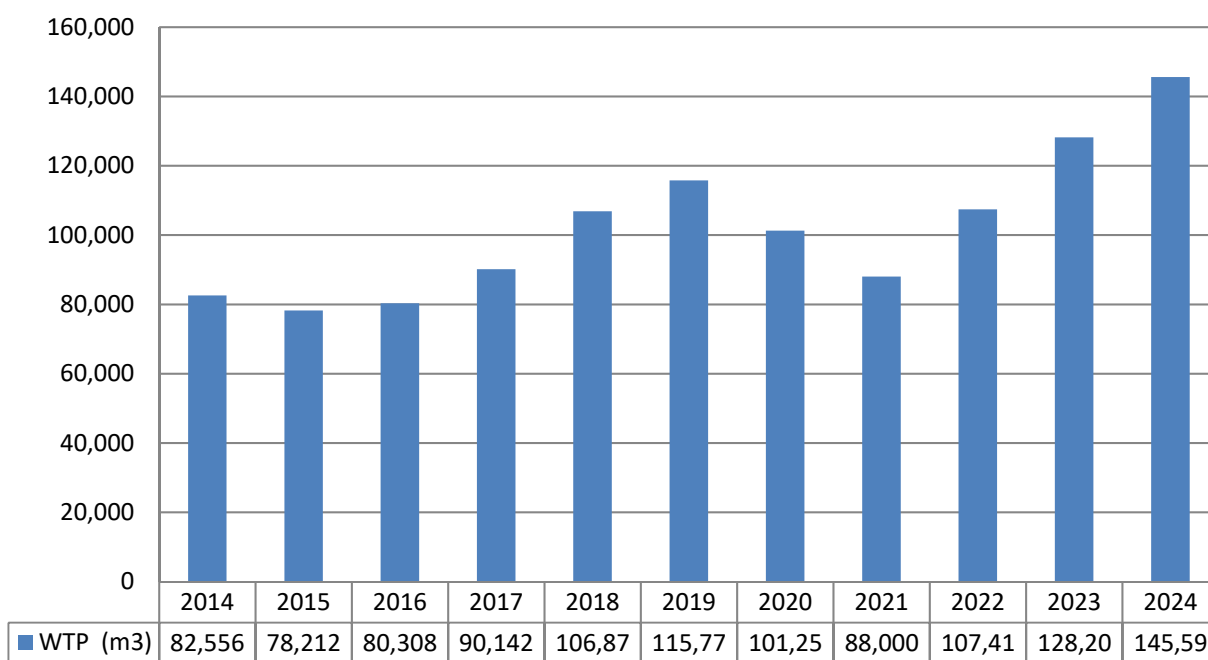
Treated water flows are regulated under the Municipal Drinking Water Licence (MDWL).

Treated Flows

Rated Capacity - MDWL



Annual Total Flow Comparison



Regulatory Sample Results Summary

Microbiological Testing

	No. of Samples Collected	Range of E.Coli Results		Range of Total Coliform Results		Number of HPC Samples	Range of HPC Results	
		Min	Max	Min	Max		Min	Max
Raw Well #1	52	0	0	0	18	0		
Raw Well #2	53	0	0	0	2	0		
Treated Water	53	0	0	0	0	53	2	4
Distribution Water #1	106	0	0	0	0	53	2	6

Operational Testing

Parameter & Sample Type	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity; In-House (NTU)- RW1	12	0.85	1.17
Turbidity; In-House (NTU)- RW2	12	0.75	1.26
Free Chlorine Residual; On-Line (mg/L)- TW	8760	0.50	3.64
Free Chlorine Residual; TW Field (mg/L) - TW	53	1.11	2.61
Free Chlorine Residual; On-Line (mg/L)- DW1	8760	0.72	1.86
Free Chlorine Residual; DW Field (mg/L) - DW1	114	0.79	2.57

NOTE: Spikes recorded by on-line instrumentation may result from air bubbles and various maintenance/calibration activities. All spikes are reviewed for compliance with O. Reg. 170/03

Inorganic Parameters

These parameters are tested as a requirement under O. Reg. 170/03. Sodium and Fluoride are required to be tested every 60 months. Nitrate and Nitrite are tested quarterly, and metals are tested every 36 months as required under O. Reg. 170/03. In the event any parameter exceeds half the maximum allowable concentration the parameter is required to be sampled quarterly.

- MAC = Maximum Allowable Concentration as per O. Reg. 169/03
- MDL = Below the laboratory detection level

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Antimony: Sb (ug/L) - TW	2024/01/08	< MDL 0.1	6	No	No
Arsenic: As (ug/L) - TW	2024/01/08	< MDL 0.1	10	No	No
Barium: Ba (ug/L) - TW	2024/01/08	472	1000	No	No
Boron: B (ug/L) - TW	2024/01/08	184	5000	No	No
Cadmium: Cd (ug/L) - TW	2024/01/08	< MDL 0.015	5	No	No
Chromium: Cr (ug/L) - TW	2024/01/08	< MDL 1	50	No	No
Mercury: Hg (ug/L) - TW	2024/01/08	<MDL 0.02	1	No	No

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Selenium: Se (ug/L) - TW	2024/01/08	< MDL 1	50	No	No
Uranium: U (ug/L) - TW	2024/01/08	0.14	20	No	No
Additional Inorganics					
Nitrate : (mg/L) - TW	2024/01/08	0.14	10	No	No
Nitrate : (mg/L) - TW	2024/04/02	0.11	10	No	No
Nitrate : (mg/L) - TW	2024/07/02	0.15	10	No	No
Nitrate : (mg/L) - TW	2024/10/07	0.06	10	No	No
Nitrite : (mg/L) - TW	2024/01/08	< MDL 0.05	1	No	No
Nitrite : (mg/L) - TW	2024/04/02	< MDL 0.05	1	No	No
Nitrite : (mg/L) - TW	2024/07/02	< MDL 0.05	1	No	No
Nitrite : (mg/L) - TW	2024/10/07	< MDL 0.05	1	No	No
Sodium / Na (mg/L) - TW	2022/01/17	99.4	20*	Yes	Yes

*There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

Schedule 15 Sampling:

The Schedule 15 Sampling is required under O. Reg. 170/03. This system is under a reduced sampling schedule. No plumbing samples were collected. Lead samples were collected in 2023.

Distribution System	Number of Sampling Points	Number of Samples	Range of Results		MAC (ug/L)	Number of Exceedances
			Minimum	Maximum		
Alkalinity (mg/L)	4	4	300	305	N/A	N/A
pH	4	4	8.06	8.7	N/A	N/A
Lead (ug/l)	2	0	N/A	N/A	10	N/A

Organic Parameters

These parameters are tested every 36 months as a requirement under O. Reg. 170/03. In the event any parameter exceeds half the maximum allowable concentration the parameter is required to be sampled quarterly. Distribution samples are tested quarterly for THM's and HAA's in accordance with O. Reg. 170/03.

- MAC = Maximum Allowable Concentration as per O. Reg. 169/03
- MDL = Below the laboratory detection level

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
1,1-Dichloroethylene (ug/L)-TW	2024/01/08	< MDL 0.5	14	No	No
1,2-Dichlorobenzene (ug/L)-TW	2024/01/08	< MDL 0.5	200	No	No
1,2-Dichloroethane (ug/L)-TW	2024/01/08	< MDL 0.5	5	No	No
1,4-Dichlorobenzene (ug/L)-TW	2024/01/08	< MDL 0.5	5	No	No

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
2,3,4,6-Tetrachlorophenol (ug/L)-TW	2024/01/08	< MDL 0.2	100	No	No
2,4,6-Trichlorophenol (ug/L)-TW	2024/01/08	< MDL 0.2	5	No	No
2,4-Dichlorophenol (ug/L)-TW	2024/01/08	< MDL 0.2	900	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L)-TW	2024/01/08	< MDL 1	100	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L)-TW	2024/01/08	< MDL 10	100	No	No
Alachlor (ug/L) -TW	2024/01/08	< MDL 0.3	5	No	No
Atrazine + N-dealkylated metabolites (ug/L)-TW	2024/01/08	< MDL 0.5	5	No	No
Azinphos-methyl (ug/L)-TW	2024/01/08	< MDL 1	20	No	No
Benzene (ug/L)-TW	2024/01/08	< MDL 0.5	1	No	No
Benzo(a)pyrene (ug/L)-TW	2024/01/08	< MDL 0.006	0.01	No	Yes
Bromoxynil (ug/L)-TW	2024/01/08	< MDL 0.5	5	No	No
Carbaryl (ug/L)-TW	2024/01/08	< MDL 3	90	No	No
Carbofuran (ug/L) -TW	2024/01/08	< MDL 1	90	No	No
Carbon Tetrachloride (ug/L) -TW	2024/01/08	< MDL 0.2	2	No	No
Chlorpyrifos (ug/L) -TW	2024/01/08	< MDL 0.5	90	No	No
Diazinon (ug/L)-TW	2024/01/08	< MDL 1	20	No	No
Dicamba (ug/L)-TW	2024/01/08	< MDL 1	120	No	No
Dichloromethane (Methylene Chloride) (ug/L)-TW	2024/01/08	< MDL 5	50	No	No
Diclofop-methyl (ug/L)-TW	2024/01/08	< MDL 0.9	9	No	No
Dimethoate (ug/L)-TW	2024/01/08	< MDL 1	20	No	No
Diquat (ug/L)-TW	2024/01/08	< MDL 5	70	No	No
Diuron (ug/L)-TW	2024/01/08	< MDL 5	150	No	No
Glyphosate (ug/L)-TW	2024/01/08	< MDL 25	280	No	No
Malathion (ug/L)-TW	2024/01/08	< MDL 5	190	No	No
Metolachlor (ug/L)-TW	2024/01/08	< MDL 3	50	No	No
Metribuzin (ug/L)-TW	2024/01/08	< MDL 3	80	No	No
Paraquat (ug/L)-TW	2024/01/08	< MDL 1	10	No	No
PCB (ug/L)-TW	2024/01/08	< MDL 0.05	3	No	No
Pentachlorophenol (ug/L)-TW	2024/01/08	< MDL 0.2	60	No	No
Phorate (ug/L)-TW	2024/01/08	< MDL 0.3	2	No	No
Picloram (ug/L)-TW	2024/01/08	< MDL 5	190	No	No
Prometryne (ug/L)-TW	2024/01/08	< MDL 0.1	1	No	No
Simazine (ug/L)-TW	2024/01/08	< MDL 0.5	10	No	No

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Terbufos (ug/L)-TW	2024/01/08	< MDL 0.5	1	No	No
Tetrachloroethylene (ug/L)-TW	2024/01/08	< MDL 0.5	10	No	No
Triallate (ug/L) -TW	2024/01/08	< MDL 10	230	No	No
Trichloroethylene (ug/L)-TW	2024/01/08	< MDL 0.5	5	No	No
Trifluralin (ug/L)-TW	2024/01/08	< MDL 0.5	45	No	No
Vinyl Chloride (ug/L)-TW	2024/01/08	< MDL 0.2	1	No	No
HAA Total (ug/L) RAA*-DW2	2024/01/01	6.325	80	No	No
Trihalomethane: Total (ug/L) RAA*-DW1	2024/01/01	42	100	No	No

*RAA = Running Annual Average

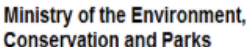
Additional Legislated Samples

No additional sampling required.

Major Maintenance Summary

Description
– Completed below grade camera inspection of Well #1 – Completed leak detection on entire distribution system – Repaired services at 55 Front St., 88 Front St., 4 Front St., 12 Church St. & 8 Victoria St. – Repaired curb stop at 7 Victoria St. & 10 Casselman St. – New 2" service installed at Ball Diamond – Purchased VFD's for well pumps – Replaced alarm dialer at WTP – Rebuilt Hydrant #'s 10, 11, 16 & 17

Appendix A - WTRS Submission Confirmation



| [WT DATA](#) | [USER PROFILE](#) | [CONTACT US](#) | [HELP](#) | [HOME](#) | [LOGOUT](#) |

Location: [WTRS](#) / [WT DATA](#) / [Input WT Record](#)WTRS-WT-008

Water Taking Data submitted successfully.

Confirmation:

Thank you for submitting your water taking data online.

Permit Number: 8713-C2HJT3
Permit Holder: THE CORPORATION OF THE TOWNSHIP OF NORTH STORMONT.
Received on: Feb 5, 2025 2:08 PM

This confirmation indicates that your data has been received by the Ministry, but should not be construed as acceptance of this data if it differs from that specified on the Permit Number, assigned to the Permit Holder stated above.

[Print Confirmation](#) [Return to Main Page](#)

VANESSA GREATRIX | 2025/02/05
version: v4.5.0.21 (build#: 22)
Last modified: 2018/09/18

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FINCH DRINKING WATER SYSTEM / Raw Well #1

Yearly Summary (Flow) 2024

Annual Values and Summary

Units: cubic meter per day

Station:

Daily Max: 530.0 on May 20

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	434.00	409.00	391.00	430.00	391.00	1.00	1.00	447.00	1.00	168.00	1.00	2.00
2	69.00	416.00	409.00	123.00	391.00	1.00	2.00	427.00	1.00	1.00	1.00	2.00
3	1.00	395.00	403.00	1.00	425.00	363.00	0.00	373.00	356.00	1.00	2.00	2.00
4	1.00	413.00	424.00	1.00	419.00	449.00	0.00	425.00	362.00	169.00	3.00	2.00
5	0.00	76.00	408.00	1.00	434.00	421.00	0.00	404.00	442.00	526.00	1.00	2.00
6	1.00	1.00	403.00	1.00	70.00	438.00	0.00	120.00	440.00	529.00	1.00	2.00
7	1.00	1.00	407.00	1.00	1.00	401.00	0.00	1.00	414.00	174.00	1.00	2.00
8	3.00	1.00	410.00	2.00	1.00	394.00	306.00	1.00	423.00	1.00	2.00	2.00
9	1.00	1.00	409.00	1.00	1.00	405.00	406.00	295.00	118.00	1.00	2.00	223.00
10	0.00	1.00	422.00	1.00	1.00	385.00	356.00	406.00	1.00	1.00	2.00	228.00
11	0.00	2.00	144.00	1.00	1.00	358.00	455.00	382.00	1.00	1.00	2.00	233.00
12	0.00	3.00	1.00	1.00	1.00	425.00	333.00	100.00	1.00	1.00	293.00	244.00
13	1.00	1.00	1.00	1.00	348.00	326.00	450.00	1.00	1.00	1.00	455.00	246.00
14	1.00	1.00	1.00	1.00	432.00	339.00	417.00	1.00	1.00	1.00	430.00	260.00
15	2.00	1.00	1.00	3.00	424.00	525.00	429.00	1.00	1.00	3.00	366.00	290.00
16	1.00	1.00	1.00	3.00	414.00	427.00	410.00	20.00	2.00	1.00	512.00	269.00
17	1.00	2.00	1.00	1.00	445.00	91.00	425.00	1.00	1.00	1.00	465.00	241.00
18	0.00	2.00	2.00	1.00	439.00	0.00	437.00	1.00	1.00	1.00	438.00	245.00
19	0.00	1.00	1.00	1.00	432.00	0.00	355.00	1.00	1.00	1.00	371.00	245.00
20	2.00	3.00	1.00	1.00	530.00	0.00	437.00	1.00	1.00	1.00	457.00	240.00
21	2.00	1.00	1.00	1.00	108.00	0.00	420.00	3.00	1.00	2.00	325.00	257.00
22	279.00	1.00	1.00	280.00	0.00	0.00	55.00	10.00	1.00	1.00	230.00	272.00
23	433.00	1.00	1.00	458.00	1.00	0.00	1.00	1.00	265.00	1.00	238.00	64.00
24	417.00	1.00	1.00	447.00	1.00	2.00	0.00	1.00	443.00	2.00	254.00	2.00
25	417.00	1.00	350.00	416.00	1.00	0.00	1.00	1.00	433.00	1.00	35.00	2.00
26	380.00	355.00	413.00	453.00	1.00	0.00	1.00	3.00	443.00	1.00	2.00	2.00
27	417.00	400.00	441.00	435.00	1.00	1.00	1.00	1.00	439.00	2.00	2.00	2.00
28	394.00	416.00	430.00	443.00	1.00	1.00	1.00	1.00	457.00	2.00	2.00	3.00
29	427.00	403.00	435.00	379.00	1.00	1.00	337.00	1.00	529.00	2.00	2.00	2.00
30	430.00		423.00	458.00	1.00	1.00	430.00	1.00	452.00	2.00	2.00	3.00
31	393.00		412.00		1.00		333.00	1.00		1.00		2.00

FINCH DRINKING WATER SYSTEM / Raw Well #2

Yearly Summary (Flow) 2024

Annual Values and Summary

Units:

cubic meter per day

Station:

Daily Max:

567.0 on January 15

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.00	0.00	0.00	0.00	0.00	444.00	470.00	0.00	445.00	296.00	395.00	248.00
2	294.00	0.00	0.00	276.00	0.00	461.00	370.00	0.00	420.00	464.00	467.00	222.00
3	357.00	0.00	0.00	437.00	0.00	77.00	418.00	0.00	92.00	486.00	426.00	236.00
4	372.00	0.00	1.00	357.00	0.00	0.00	365.00	0.00	0.00	218.00	447.00	231.00
5	433.00	311.00	0.00	461.00	0.00	0.00	426.00	0.00	0.00	0.00	410.00	274.00
6	381.00	384.00	0.00	436.00	327.00	0.00	391.00	260.00	0.00	0.00	463.00	248.00
7	434.00	427.00	0.00	433.00	437.00	0.00	455.00	440.00	0.00	313.00	431.00	252.00
8	349.00	358.00	0.00	391.00	385.00	0.00	70.00	365.00	0.00	497.00	427.00	263.00
9	355.00	430.00	0.00	454.00	375.00	0.00	0.00	117.00	295.00	483.00	475.00	14.00
10	461.00	432.00	0.00	392.00	405.00	1.00	0.00	0.00	463.00	485.00	400.00	0.00
11	317.00	412.00	315.00	431.00	468.00	0.00	0.00	0.00	375.00	476.00	493.00	0.00
12	451.00	380.00	444.00	392.00	461.00	0.00	0.00	292.00	471.00	491.00	79.00	0.00
13	366.00	350.00	430.00	454.00	74.00	0.00	0.00	400.00	403.00	483.00	0.00	0.00
14	442.00	437.00	386.00	439.00	0.00	0.00	0.00	458.00	455.00	480.00	0.00	0.00
15	567.00	358.00	453.00	426.00	0.00	0.00	1.00	328.00	455.00	488.00	0.00	0.00
16	321.00	454.00	436.00	365.00	0.00	0.00	0.00	388.00	463.00	466.00	0.00	1.00
17	468.00	384.00	444.00	430.00	0.00	371.00	0.00	491.00	445.00	415.00	0.00	0.00
18	321.00	441.00	437.00	416.00	0.00	444.00	0.00	384.00	394.00	501.00	2.00	0.00
19	453.00	439.00	403.00	405.00	0.00	397.00	0.00	470.00	474.00	485.00	0.00	0.00
20	397.00	414.00	450.00	508.00	0.00	431.00	0.00	374.00	439.00	489.00	0.00	0.00
21	410.00	365.00	448.00	405.00	308.00	369.00	0.00	389.00	467.00	500.00	0.00	0.00
22	78.00	448.00	438.00	211.00	451.00	399.00	366.00	394.00	471.00	483.00	0.00	0.00
23	0.00	350.00	456.00	0.00	390.00	450.00	365.00	391.00	194.00	430.00	0.00	239.00
24	0.00	484.00	451.00	0.00	429.00	382.00	432.00	436.00	0.00	438.00	0.00	257.00
25	0.00	430.00	80.00	0.00	453.00	477.00	370.00	422.00	0.00	391.00	225.00	244.00
26	0.00	53.00	0.00	0.00	454.00	375.00	396.00	451.00	0.00	502.00	244.00	261.00
27	0.00	0.00	0.00	0.00	383.00	380.00	441.00	406.00	0.00	473.00	214.00	261.00
28	0.00	0.00	0.00	0.00	452.00	407.00	401.00	384.00	0.00	455.00	224.00	299.00
29	2.00	0.00	0.00	1.00	402.00	401.00	103.00	426.00	0.00	421.00	216.00	273.00
30	0.00		0.00	0.00	378.00	373.00	0.00	440.00	0.00	471.00	253.00	262.00
31	0.00		0.00		477.00		0.00	405.00		415.00		238.00