



2018 Annual Parks Water Quality Report

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1.0 Executive Summary

The Township of Langley has three parks that are serviced by their own dedicated wells and water distribution system. Each park is an isolated system and is not connected to the Township of Langley's distribution system. The water supply from these wells is tested on a regular basis to ensure that clean and potable water is delivered to park visitors.

Source water quality from Williams, Brown and Ponder Park met regulatory requirements in 2018. Water from Williams and Brown Park is tested weekly for colour, conductivity, *E. coli*, Heterotrophic Plate Count, total coliforms, turbidity, temperature and pH; and on a quarterly basis for arsenic. Source water from Ponder Park Well was sampled quarterly for microbiological and annually for chemical parameters and met regulatory requirements.

All sources met the requirements of the British Columbia Drinking Water Protection Regulation and the Guidelines for Canadian Drinking Water Quality. Specifically, there were no confirmed positive *E. coli* test results from any of the Township Park sources.

The BC Drinking Water Protection Regulation (Section 11) requires monitoring of water quality from all public drinking sources as well as an annual report on water quality that must be available to the public. Copies of this report are available at tol.ca as well as at Civic Facility, 20338 - 65 Avenue, Langley, British Columbia.



2.0 Introduction

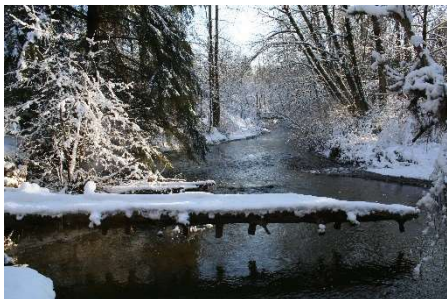
The Township of Langley has three parks that are serviced by their own dedicated wells and water distribution system. These wells are tested on a regular basis to ensure that clean and potable water is delivered to park visitors.

The BC Drinking Water Protection Regulation (Section 11) requires all water suppliers to produce and make public an annual water quality report. This report provides an overview of the water system in the three Township Parks, and documents the test results of the Township's well water quality monitoring program.

3.0 System Description

Township of Langley's Williams, Brown and Ponder Parks have water service provided by their own dedicated wells and water distribution systems. These parks function as their own water system with no interconnects to the Township of Langley municipal water distribution system.

Williams Park and Brown Park are located in the center of the Township of Langley in an area called the Salmon River Uplands. Williams Park is 36.5 acres bounded to the east by 238 Street and to the south by 64 Avenue. Brown Park is located off of 240 Street, south of 51 Avenue and is 12.9 acres in size. Ponder Park is located at the west end of 76 Ave at 25199 76 Ave. The 80 acres park is surrounded by private properties. Park locations are show in Figure 3.0.1.



Williams Park receives potable water from one well which supplies water to restrooms, drinking fountains, and a caretaker residence within the park. The treatment system for Williams Park includes a greensand filter, a filter to remove arsenic, a five micron filter and NSF UV Sterilization.

Brown Park has two wells; the shallow well in the northwest corner of the property (Well 1), and a deeper well, in the southwest corner (Well 2). Well 1 is exclusively for irrigation purposes and has no treatment, whereas Well 2 supplies drinking water to the park for restrooms, a concession, drinking fountains, and a caretaker residence. The treatment system for Brown Park (Well 2) includes a water softener, a sediment filter and NSF UV Sterilization.

Ponder Park well supplies water to the caretaker and to the Harry Irving Shelter for sanitation purposes only.

Well depths and rated capacity are shown in Table 3.0.1.

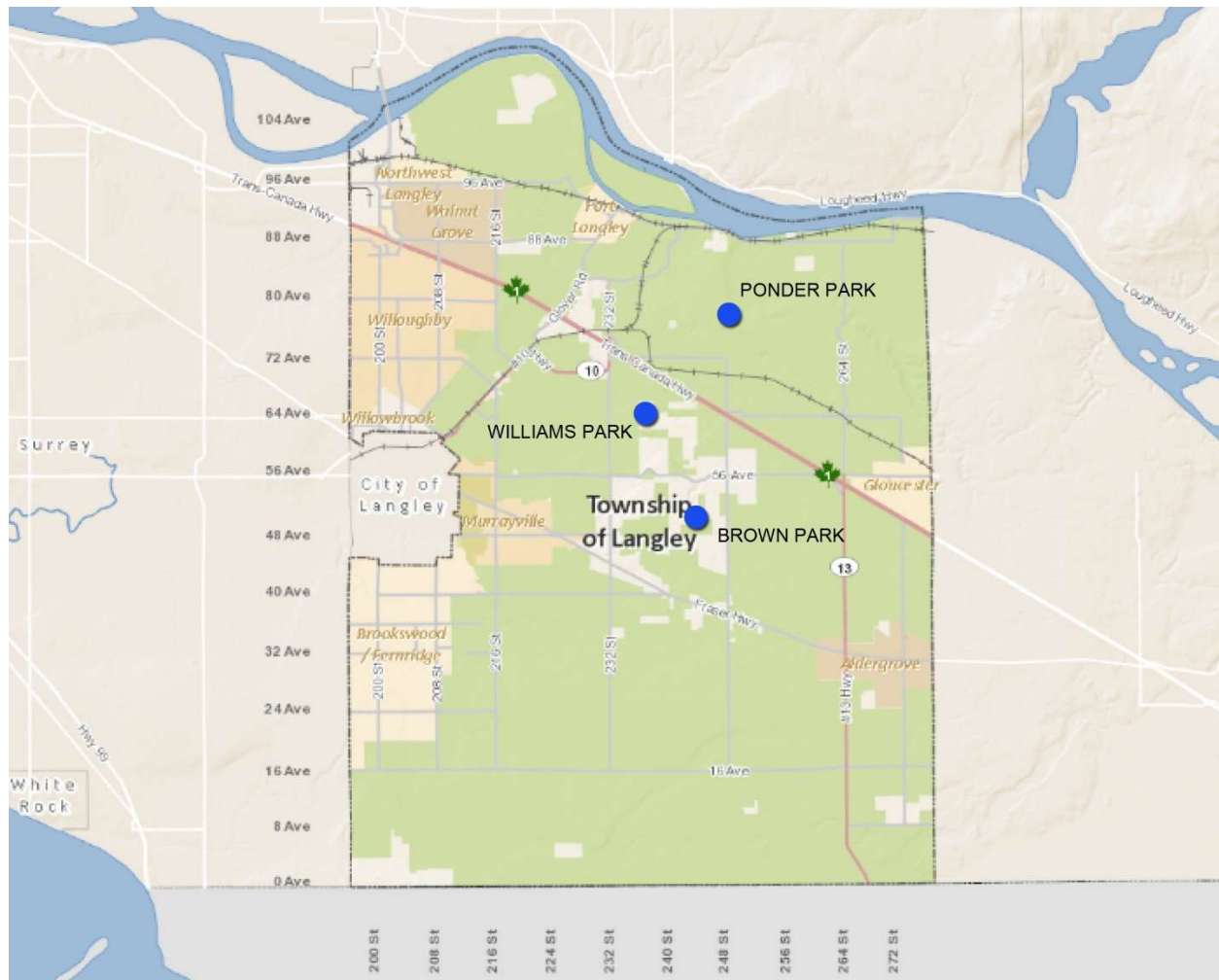


Figure 3.0.1 Location of Brown, Ponder and Williams Parks

Table 3.0.1 Municipal Well Data

Well Name	Well Tag Number	Year Drilled	Rated Capacity (l/s)	Depth (m)
Williams Park Well	41893	1979	0.95	55
Brown Park Well 1	49289	1981	1.58	19
Brown Park Well 2	104834	2007	1.89	68
Ponder Park Well	50754	1982	0.63	67

(Source: maps.gov.bc.ca, Retrieved May 2018)



3.1 Staff Training and Operation Level

The Environmental Operators Certification Program (EOCP) has not yet rated the water systems in Williams and Brown Parks.

Water quality sampling in Township Parks is undertaken by utilities staff, and the operation and maintenance is overseen by the Superintendent of Parks who is an EOCP-certified Small Water Systems Operator.

Starting in November 2019 the operation and maintenance of the Parks water system will be overseen by the Senior Water Systems Operator in Utilities Operations.

3.2 System Maintenance

The Township maintains the Williams and Brown parks' water systems by servicing the treatment systems bi-annually, replacing the UV bulbs annually, and adding salt to the softener as necessary. Water samples from these parks are collected weekly. These two systems are also inspected annually by the Fraser Health Authority.

3.3 Emergency Response and Contingency Plan

In the event of a positive test for contaminated water, or in the case of field evidence indicating that the water quality from a park system may be compromised, the Township stops usage of water from the contaminated source and then advises Fraser Health Authority of the situation. "Non-potable" signage will be posted on all taps in the parks. All necessary steps are taken by staff to determine the cause and to rectify the problem. It is the responsibility of the Township to notify the public if an advisory is issued and the Medical Health Officer (MHO) determines when an advisory can be lifted.

4.0 Water Sampling and Testing Program

The Township utilizes a regular sampling and testing program in order to maintain delivery of safe, high quality drinking water to its park visitors. Weekly testing is performed at all three parks and testing locations are shown in the figures below.

Water sampling and testing, as described in Table 4.0.1, meets regulatory requirements as set by the Guidelines for Canadian Drinking Water Quality.

Table 4.0.1 Water Sampling and Testing Schedule

Parameter	Frequency Williams & Brown Parks	Frequency Ponder Park
E.coli, Total Coliforms, HPC	Weekly	Quarterly
Free Chlorine		
Turbidity		
pH, Temperature, Colour, Conductivity		
Arsenic	Quarterly	
Chemical Analysis		Annually



Salmon River Uplands barn and field

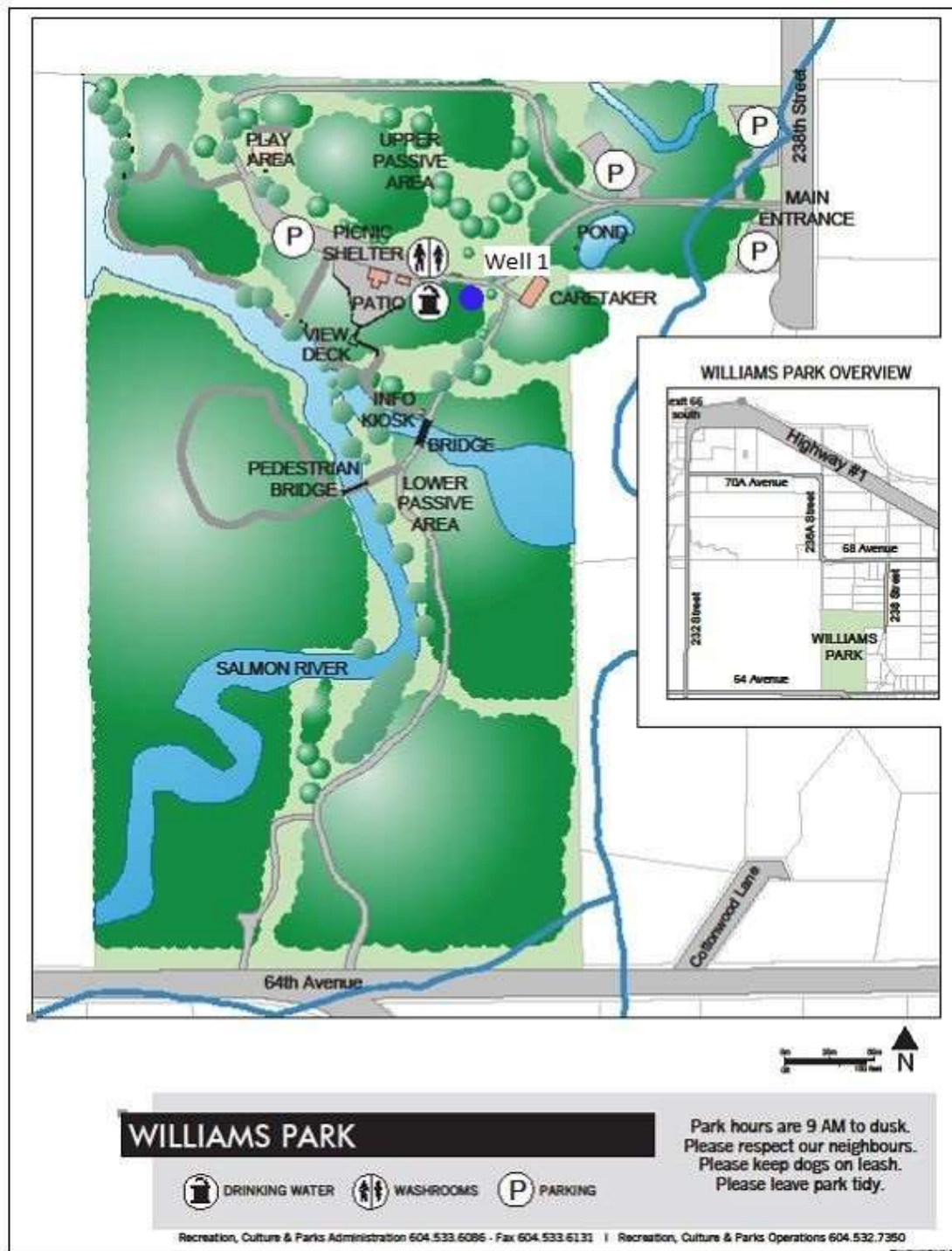


Figure 4.0.1 Williams Park Weekly Water Sampling Site Location

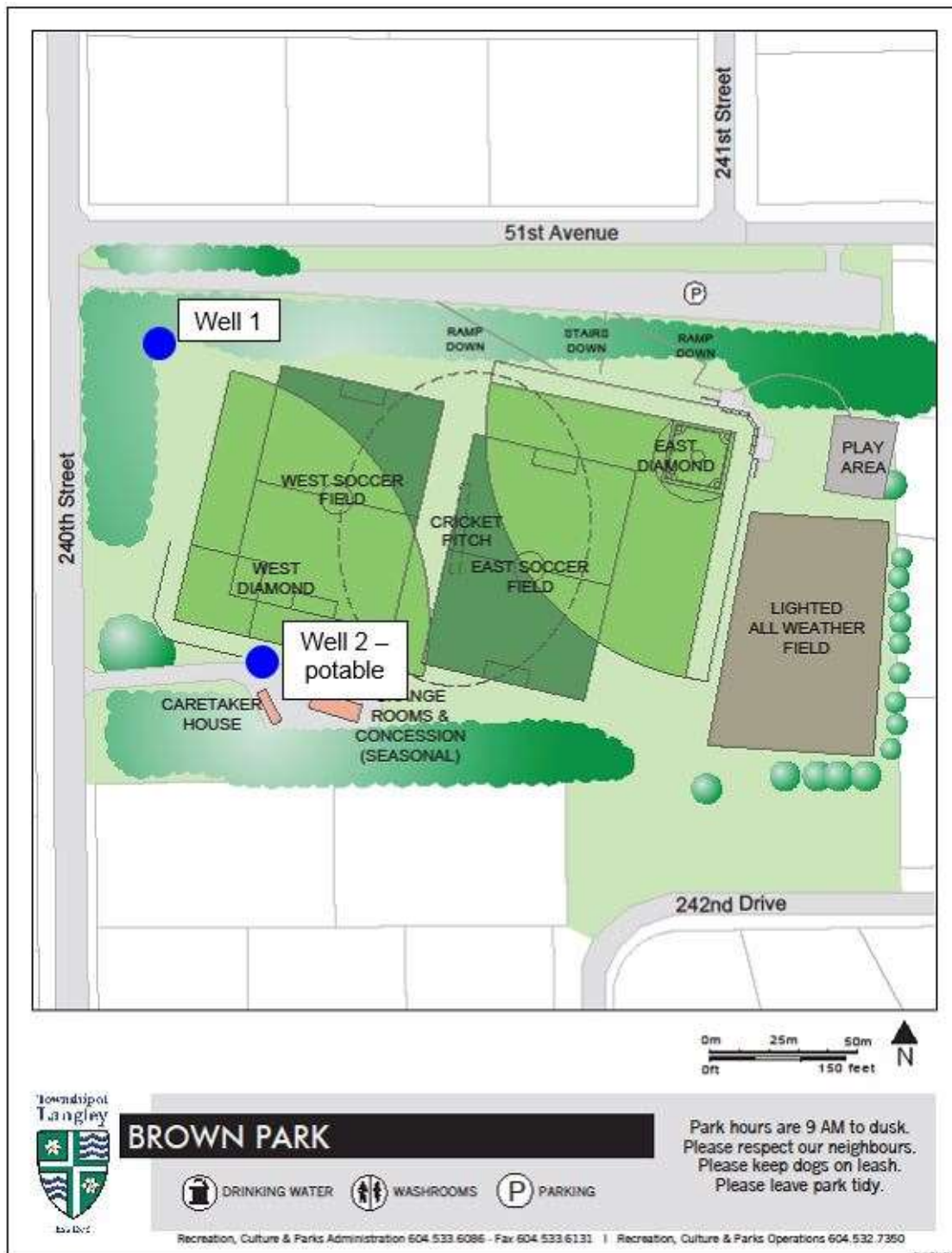


Figure 4.0.2 Brown Park Weekly Water Sampling Site Location

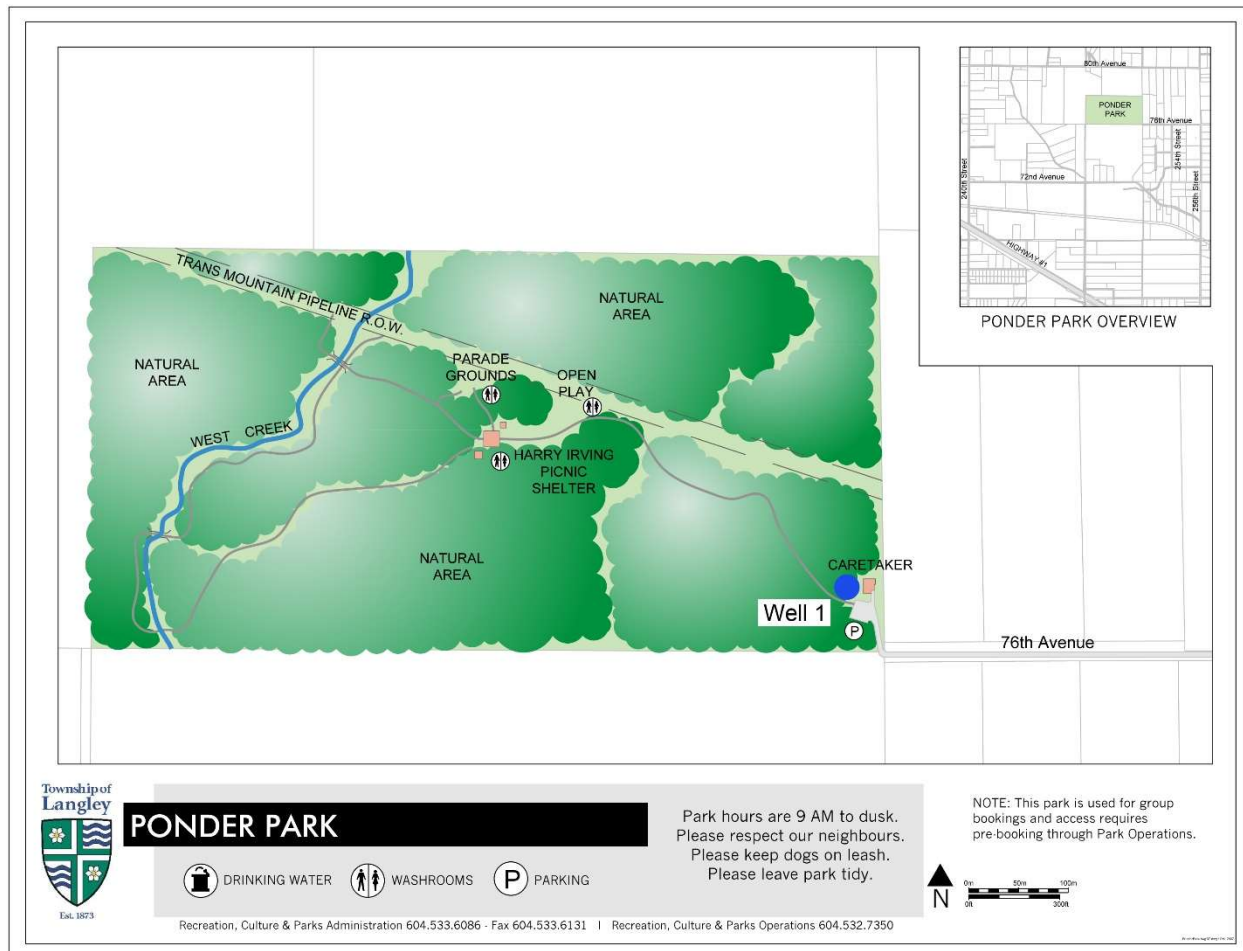


Figure 4.0.3 Ponder Park Weekly Water Sampling Site Location



Farmhouse in Salmon River Uplands

The wells in Brown Park and Williams Park supply water for a caretaker, drinking fountains in the picnic area, and for irrigation purposes only. Fewer than 5,000 people are served by the water supply in these parks yearly. Based on the yearly volume the number of samples required is four per month and the Township follows this guideline by taking four samples per month. Water sampling and testing for E.coli and total coliform bacteria, as described in Table 4.0.3, meets regulatory requirements as set by the Guidelines for Canadian Drinking Water Quality.

Table 4.0.3 Schedule A of the B.C. Drinking Water Protection Regulation

Parameter	Standard
Escherichia coli	No detectable Escherichia coli (<i>E.coli</i>) per 100 ml
Total coliform bacteria:	
(a) 1 sample in a 30 day period	No detectable total coliform bacteria per 100 ml
(b) more than 1 sample in a 30 day period	At least 90% of samples have no detectable total coliform bacteria per 100 ml and no sample has more than 10 total coliform bacteria per 100 ml

Appendix A shows results for the 2018 analysis of the source water. The Township Parks water did not test positive for total coliform at any site however the indicator Heterotopic Bacteria was recorded at Williams Park. Per the Guidelines to Canadian Drinking Water, HPC “*is a useful operational tool for monitoring general bacteriological water quality throughout the treatment process and in the distribution system. HPC results are not an indicator of water safety and, as such, should not be used as an indicator of potential adverse human health effects.*”

4.1 Microbial Results for 2018

The Maximum Allowable Concentration (MAC) for E. coli is no detectable E. coli per 100ml and for Total Coliform is 10% of samples taken and; in 2018 none of samples tested were positive for E. coli or the indicator bacteria, Total Coliform. These results can be seen in Figure 4.1.1.

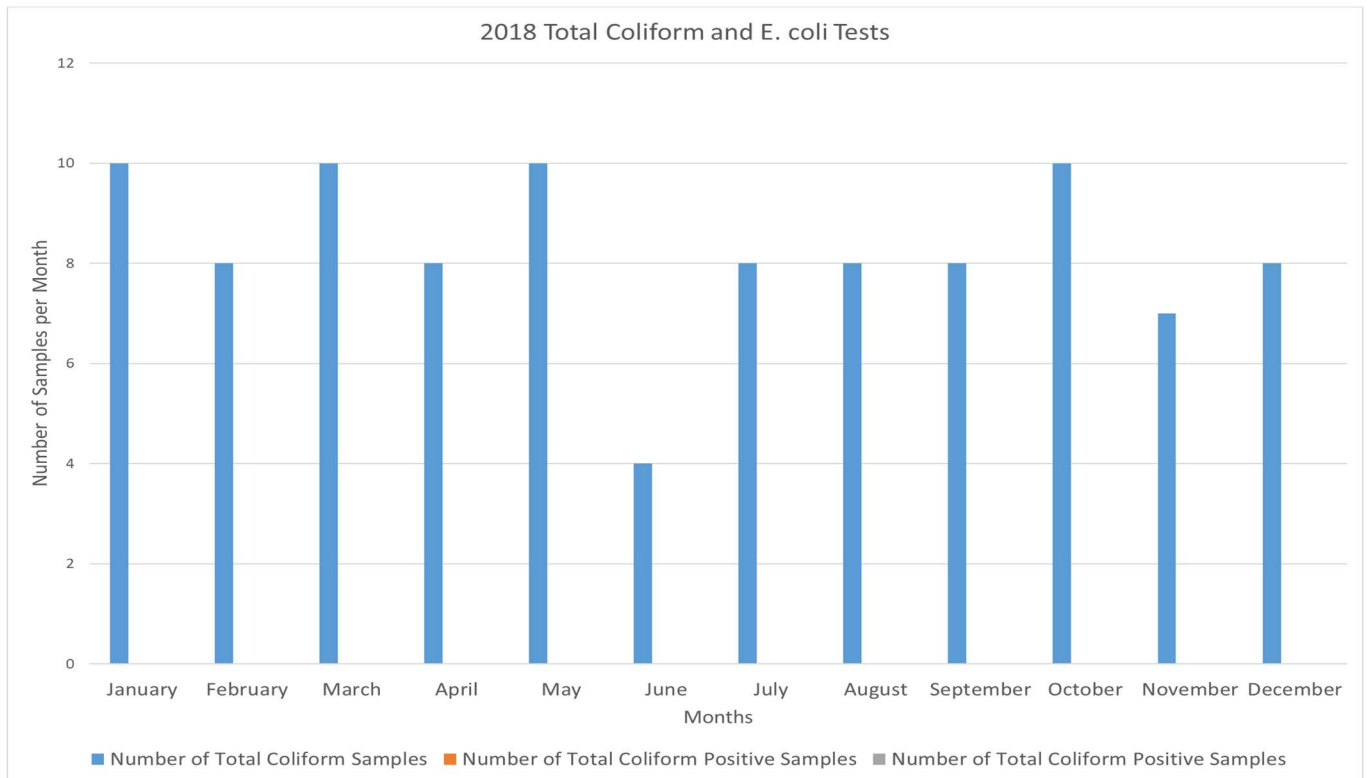


Figure 4.1.1 Number of Samples per Month for 2018 Total Coliform Bacteria and E. coli Tests

5.0 Project Updates

5.1 2018 Projects

The following projects were completed in 2018

5.2 2019 Projects

The following projects are scheduled during 2019



Salmon River Uplands field

6.0 Conclusion

The 2018 water quality monitoring results indicate that the Township of Langley Parks water is potable and safe for consumption. The Township operators continue to seek improvements to the water supply and distribution at the Township of Langley Parks.

Township of
Langley



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Annual Parks Water Quality Report 2018

Appendix A: Source Water Test Results

Facility	Date Collected	Total Arsenic (mg/L)	Colour (CU)	Conductivity (uS/cm)	E. coli (MPN/100ml)	HPC (CFU/ml)	pH	Temperature (°C)	Total Coliforms (MPN/100ml)	Turbidity (NTU)
Brown Park	January									
Brown Park	02/01/2018		-5	173	-1	11	8.17	7.8	-1	0.34
Brown Park	09/01/2018		-5	202	-1	-1	8.09	11.3	-1	0.27
Brown Park	16/01/2018		-5	180	-1	-1	8.46	19.7	-1	0.22
Brown Park	23/01/2018		-5	175	-1	-1	8.47	10.5	-1	0.27
Brown Park	30/01/2018		-5	202	-1	-1	8.10	11	-1	0.25
Brown Park	February									
Brown Park	06/02/2018		-5	176	-1	-1	8.29	13.4	-1	0.18
Brown Park	13/02/2018		-5	175	-1	-1	8.47	12.5	-1	0.36
Brown Park	20/02/2018		-5	177	-1	-1	8.47	9.6	-1	0.35
Brown Park	27/02/2018		-5	176	-1	-1	8.20	11.1	-1	0.41
Brown Park	March									
Brown Park	06/03/2018		-5	178	-1	-1	8.25	14.3	-1	0.21
Brown Park	13/03/2018		-5	181	-1	-1	7.99	13.8	-1	0.29
Brown Park	15/03/2018				-1	-1			-1	
Brown Park	20/03/2018		-5	176	-1	-1	8.32	13	-1	0.23
Brown Park	27/03/2018		-5	186	-1	-1	8.00	11	-1	0.23
Brown Park	April									
Brown Park	03/04/2018		-5	177	-1	-1	8.58	14.5	-1	0.14
Brown Park	10/04/2018		-5	175	-1	-1	8.30	21.3	-1	0.12

Facility	Date Collected	Total Arsenic (mg/L)	Colour (CU)	Conductivity (uS/cm)	E. coli (MPN/100ml)	HPC (CFU/ml)	pH	Temperature (°C)	Total Coliforms (MPN/100ml)	Turbidity (NTU)
Brown Park	17/04/2018		-5	183	-1	-1	8.17	13.5	-1	0.29
Brown Park	24/04/2018		-5	174	-1	-1	8.32	13.5	-1	0.32
Brown Park	May									
Brown Park	01/05/2018		-5	177	-1	-1	8.56	14.6	-1	0.22
Brown Park	08/05/2018		-5	172	-1	-1	8.33	17.5	-1	0.26
Brown Park	15/05/2018		-5	174	-1	-1	8.27	17.3	-1	0.38
Brown Park	22/05/2018		-5	173	-1	-1	8.31	16	-1	0.38
Brown Park	29/05/2018		-5	184	-1	-1	7.80	16.7	-1	0.44
Brown Park	June									
Brown Park	12/06/2018		-5	177	-1	-1	8.47	19	-1	0.26
Brown Park	19/06/2018		-5	183	-1	-1	7.96	16	-1	0.41
Brown Park	July									
Brown Park	10/07/2018		-5	179	-1	-1	8.23	22	-1	0.29
Brown Park	17/07/2018		-5	179	-1	-1	8.31	27.1	-1	0.33
Brown Park	24/07/2018		-5	184	-1	-1	8.30	17.9	-1	0.65
Brown Park	31/07/2018		-5	179	-1	-1	8.34	21.6	-1	0.45
Brown Park	August									
Brown Park	07/08/2018		-5	0.17	-1	-1	7.82	22	-1	0.63
Brown Park	14/08/2018		-5	176	-1	-1	8.29	18.5	-1	0.31
Brown Park	21/08/2018		-5	172	-1	-1	8.17	19.3	-1	0.5

Facility	Date Collected	Total Arsenic (mg/L)	Colour (CU)	Conductivity (uS/cm)	E. coli (MPN/100ml)	HPC (CFU/ml)	pH	Temperature (°C)	Total Coliforms (MPN/100ml)	Turbidity (NTU)
Brown Park	28/08/2018		-5	172	-1	-1	8.06	19.3	-1	0.45
Brown Park	29/08/2018				-1	67			-1	
Brown Park	30/08/2018	0.00156	5.7				8.14			0.96
Brown Park	September									
Brown Park	04/09/2018		-5	0.16	-1	-1	8.12	19.9	-1	0.29
Brown Park	11/09/2018		-5	177	-1	1	8.38	16.1	-1	0.24
Brown Park	18/09/2018		-5	180	-1	-1	8.59	17.3	-1	0.34
Brown Park	25/09/2018		-5	171	-1	-1	8.01	17.5	-1	0.54
Brown Park	October									
Brown Park	02/10/2018		-5	172	-1	-1	8.11	16.8	-1	0.33
Brown Park	09/10/2018		-5	174	-1	-1	8.07	14.3	-1	0.38
Brown Park	16/10/2018		-5	185	-1	-1	8.93	13	-1	0.35
Brown Park	23/10/2018		-5	200	-1	-1	8.26	15.2	-1	0.35
Brown Park	30/10/2018		-5	191	-1	-1	8.33	16	-1	0.47
Brown Park	November									
Brown Park	06/11/2018		-5	170	-1	-1	7.99	13.6	-1	0.69
Brown Park	13/11/2018		-5	188	-1	-1	8.35	12.6	-1	0.28
Brown Park	20/11/2018		-5	169	-1	-1	7.77	16.2	-1	0.37
Brown Park	27/11/2018		-5	0.2	-1	-1	8.25	16.4	-1	0.25
Brown Park	December									

Facility	Date Collected	Total Arsenic (mg/L)	Colour (CU)	Conductivity (uS/cm)	E. coli (MPN/100ml)	HPC (CFU/ml)	pH	Temperature (°C)	Total Coliforms (MPN/100ml)	Turbidity (NTU)
Brown Park	04/12/2018		-5	170	-1	-1	8.16	10.1	-1	0.4
Brown Park	11/12/2018		-5	173	-1	-1	8.04	12.1	-1	0.24
Brown Park	18/12/2018		-5	190	-1	-1	8.21	13.4	-1	0.24
Brown Park	19/12/2018	0.0014 7	-5				8.20			0.22
Brown Park	20/12/2018						14.0 0			
Ponder Park	August									
Ponder Park	29/08/2018				-1	4			-1	
Ponder Park	December									
Ponder Park	13/12/2018				-1				-1	
Williams Park	January									
Williams Park	02/01/2018		-5	256	-1	3	7.34	9.5	-1	0.18
Williams Park	09/01/2018		-5	349	-1	22	6.89	10.6	-1	0.18
Williams Park	16/01/2018		-5	265	-1	4	7.61	12.1	-1	0.1
Williams Park	23/01/2018		-5	271	-1	-1	7.27	11.3	-1	0.13
Williams Park	30/01/2018		-5	263	-1	-1	7.66	10.9	-1	0.12
Williams Park	February									
Williams Park	06/02/2018		-5	292	-1	4	7.47	11.7	-1	-0.1
Williams Park	13/02/2018		-5	269	-1	-1	7.12	11.8	-1	0.11
Williams Park	20/02/2018		-5	257	-1	-1	7.81	11.4	-1	0.15
Williams Park	27/02/2018		-5	265	-1	-1	6.99	11.8	-1	-0.1

Facility	Date Collected	Total Arsenic (mg/L)	Colour (CU)	Conductivity (uS/cm)	E. coli (MPN/100ml)	HPC (CFU/ml)	pH	Temperature (°C)	Total Coliforms (MPN/100ml)	Turbidity (NTU)
Williams Park	March									
Williams Park	06/03/2018		-5	268	-1	-1	7.53	12.1	-1	0.11
Williams Park	13/03/2018		-5	445	-1	40	6.40	11	-1	-0.1
Williams Park	15/03/2018				-1	5700			-1	
Williams Park	20/03/2018		-5	266	-1	1	8.03	12.2	-1	-0.1
Williams Park	27/03/2018		-5	315	-1	-1	6.70	11.3	-1	-0.1
Williams Park	April									
Williams Park	03/04/2018		-5	249	-1	-1	8.11	11.2	-1	0.12
Williams Park	10/04/2018		-5	262	-1	1	7.15	14.2	-1	0.1
Williams Park	17/04/2018		-5	266	-1	-1	7.16	10.8	-1	0.14
Williams Park	24/04/2018		-5	251	-1	-1	6.79	12.2	-1	-0.1
Williams Park	May									
Williams Park	01/05/2018		-5	263	-1	-1	7.71	12.9	-1	-0.1
Williams Park	08/05/2018		-5	266	-1	12	7.13	14	-1	0.11
Williams Park	15/05/2018		-5	265	-1	1	7.69	12.9	-1	-0.1
Williams Park	22/05/2018		-5	258	-1	2	7.23	13.3	-1	-0.1
Williams Park	29/05/2018		-5	305	-1	-1	7.91	13.4	-1	-0.1
Williams Park	June									
Williams Park	12/06/2018		-5	267	-1	-1	7.68	12.7	-1	0.14
Williams Park	19/06/2018		-5	342	-1	-1	7.58	14.4	-1	0.12

Facility	Date Collected	Total Arsenic (mg/L)	Colour (CU)	Conductivity (uS/cm)	E. coli (MPN/100ml)	HPC (CFU/ml)	pH	Temperature (°C)	Total Coliforms (MPN/100ml)	Turbidity (NTU)
Williams Park	July									
Williams Park	10/07/2018		-5	259	-1	-1	7.25	14.7	-1	0.11
Williams Park	17/07/2018		6.1	190	-1	-1	7.87	15.8	-1	-0.1
Williams Park	24/07/2018		-5	263	-1	-1	7.21	14	-1	-0.1
Williams Park	31/07/2018		-5	269	-1	1	7.48	15.1	-1	-0.1
Williams Park	August									
Williams Park	07/08/2018		-5	0.25	-1	-1	6.43	14.3	-1	0.33
Williams Park	14/08/2018		-5	256	-1	-1	6.87	14	-1	0.14
Williams Park	21/08/2018		-5	263	-1	-1	7.35	13	-1	0.2
Williams Park	28/08/2018		-5	254	-1	1	7.10	13.3	-1	0.21
Williams Park	29/08/2018				-1	5700			-1	
Williams Park	30/08/2018	-0.0005	-5				6.77			0.21
Williams Park	September									
Williams Park	04/09/2018		-5	0.26	-1	4	7.44	13.3	-1	0.12
Williams Park	11/09/2018		-5	268	-1	-1	6.84	14.5	-1	0.13
Williams Park	14/09/2018				-1	698			-1	
Williams Park	18/09/2018		-5	274	-1	-1	8.04	11.5	-1	0.11
Williams Park	25/09/2018		-5	262	-1	-1	7.03	13.1	-1	-0.1
Williams Park	October									
Williams Park	02/10/2018		-5	262	-1	1	7.25	12.7	-1	0.25

Facility	Date Collected	Total Arsenic (mg/L)	Colour (CU)	Conductivity (uS/cm)	E. coli (MPN/100ml)	HPC (CFU/ml)	pH	Temperature (°C)	Total Coliforms (MPN/100ml)	Turbidity (NTU)
Williams Park	09/10/2018		-5	257	-1	-1	6.86	12.7	-1	0.18
Williams Park	16/10/2018		-5	283	-1	-1	8.12	11.5	-1	0.18
Williams Park	23/10/2018		-5	300	-1	-1	6.80	12.9	-1	0.15
Williams Park	30/10/2018		-5	283	-1	2	7.40	11.6	-1	0.14
Williams Park	November									
Williams Park	06/11/2018		-5	256	-1	-1	6.83	12.5	-1	-0.1
Williams Park	20/11/2018		-5	257	-1	-1	7.16	9.1	-1	0.17
Williams Park	27/11/2018		-5	0.29	-1	1	7.48	13.7	-1	0.3
Williams Park	December									
Williams Park	04/12/2018		-5	251	-1	-1	6.45	10.3	-1	0.12
Williams Park	11/12/2018		-5	254	-1	3	7.40	10.2	-1	0.24
Williams Park	18/12/2018		-5	270	-1	-1	6.76	14	-1	0.19
Williams Park	19/12/2018	-0.0005	-5				7.56			0.19