



City of Summerside  
Waste Water Treatment and Collection Facilities  
Report for 2016

**Date Submitted:** January, 2017

**Submitted by:** City of Summerside Sewer Utility

## **1. Introduction**

The City of Summerside operates a Treatment Facility that services approximately 15,000 people within the city. The plant is a tertiary BNR system that removes ammonia, phosphorus, and nitrogen from the water before it leaves the facility. The utility includes 116,077.3 meters of gravity sewer main, 9,927.9 meters of sewer force main, and 12 lift stations. This report is prepared to give the public a clear understanding of the facilities operation over the past year, 2016.

## **2. Summary of Wastewater Effluent Data Operation**

The City of Summerside is required to meet maximum concentrations of 25mg/L of carbonaceous Biochemical Oxygen Demand (cBOD) and 25 mg/L of Total Suspended Solids (TSS) with Faecal Coliform of 200 Most Probable Number (MPN) / 100ml. These parameters are as per our Certificate of Approval from the Province of Prince Edward Island.

## **3. Summary of Discharge Notifications**

During the calendar year 2016 the Summerside Wastewater Treatment Plant and Lift Stations operated in satisfactory ways such that no Discharge Events as defined in the Conditional Management Plan occurred.

## **4. Major Operational Modifications**

The City of Summerside made no major operational modifications or plant design changes in 2016.

## **5. Major Construction WWTP Projects**

The City has had no major upgrades to the Waste Water Treatment Plant in 2016. We continue to perform good quality maintenance on the existing equipment to insure its proper operation. In regard to the Municipal Works Department which operates 9 City of Summerside lift stations work was completed to construct one new lift station known as Lift Station #12 MacKenzie Drive #2. Work also allowed a new SCADA system to be used for Granville Street lift station, Crozier Drive lift station and the new MacKenzie Drive lift station #2.

## 6. Summary of Biosolids Production

The City of Summerside produced a total of 3415 metric tons of product through their N-Viro system during 2016. See table 4 for the breakdown of product used.

## 7. Summary of Flow Metering

The flow at the City of Summerside WWTP is measured using a Parshall flume and electronic instrument and recorded on our SCADA system. See Appendix D for daily flow readings.

## 8. Summary of Waste Water Collection System

In 2016 the City of Summerside continued to operate a modern Waste Water Collection System including gravity mains, force mains, and lift stations. There were no overflows or discharges from the system in 2016. During 2016 one new lift station was commissioned on MacKenzie Drive to convey wastewater from a newly developed parcel of land. Below are a list of lift stations under the care of the City of Summerside which all continued to receive maintenance as per usual in 2016:

<b>Summerside Lift Station ID number</b>	<b>Location</b>
LS 1	Northumberland Street
LS 2	Eustane Street
LS 3	Read's Corner
LS 4	Red Bridge
LS 5	Crozier Drive
LS 6	Glover's Shore Road
LS 7	Whitecap Drive
LS 8	Heather Moyse Drive
LS 9	MacKenzie Drive
LS 10	Briggs Street
LS 11	Granville Street
LS 12	MacKenzie Drive #2

**Table 1: Summary of Wastewater Effluent Data**

Date Sampled	Sample Location (WWTP)	ID #	cBOD (mg/L)	TSS (mg/L)	Faecal (MPN/100mL)
January 14 2016	After UV Lights	W160114006	<10	5	<2
January 27 2016	After UV Lights	W160127003	<10	5	<2
February 10 2016	After UV Lights	W160210003	<10	8	2
February 24 2016	After UV Lights	W160224002	Not available	9	<2
March 2 2016	After UV Lights	W160302003	<10	Not available	Not available
March 9 2016	After UV Lights	W160309002	<10	3	<2
March 23 2016	After UV Lights	W160323002	<10	3	<2
April 6 2016	After UV Lights	W160406002	<10	8	130
April 20 2016	After UV Lights	W160420002	<10	7	2
May 4 2016	After UV Lights	W160504002	<10	11	5
May 18 2016	After UV Lights	W160518003	<10	10	<2
June 1 2016	After UV Lights	W160601002	<10	6	<2
June 15 2016	After UV Lights	W160615006	<10	4	<2
June 29 2016	After UV Lights	W160629002	<10	4	<2
July 13 2016	After UV Lights	W160713001	<10	11	<2
July 27 2016	After UV Lights	W160727003	<10	5	<2
August 10 2016	After UV Lights	W160810001	<10	3	<2
August 24 2016	After UV Lights	W160824004	<10	3	<2
September 7 2016	After UV Lights	W160907001	<10	3	<2
September 21 2016	After UV Lights	W160921002	<10	5	<2
October 5 2016	After UV Lights	W161005004	<10	4	<2
October 19 2016	After UV Lights	W161019001	<10	3	<2
November 2 2016	After UV Lights	W161102002	<10	4	<2
November 16 2016	After UV Lights	W161116002	<10	3	4
December 1 2016	After UV Lights	W161201005	<10	4	23
December 14 2016	After UV Lights	W161214004	<10	7	8
December 29 2016	After UV Lights	W161229002	<10	10	11

**Table 2: Summary of Wastewater Effluent Chemistry Data**

Date Sampled	Sample Location (WWTP Unless noted Lagoon)	ID #	Ammonia-N (ppm)	pH	Total Nitrogen (ppm)	Total Phosphorus (ppb)
February 24 2016	After UV Lights	W160224002	0.411	7.0	2.5	105
May 18 2016	After UV Lights	W160518003	<0.100	7.3	2.8	101
August 24 2016	After UV Lights	W160824004	<0.100	7.2	3.0	204
November 16 2016	After UV Lights	W161116002	0.113	7.6	4.3	231

**Table 3: Summary of Discharge Notifications**

No Discharge Events Occurred in 2016.

Date	Time	WW Type	Location	Period of Discharge	Total Discharge	Reason for Discharge
None in 2016						

**Table 4: Summary of Biosolids Production Data**

Sludge Total (Kg)	Lime Total (Kg)	Lime Dust Total (Kg)	Fournier Press % Solids Average	Final Product % Solids Average	Product Total (tonnes)
3,342,077	196,998	1,521,753	22.43	67.17	3415

### **Appendix A: Effluent Wastewater Lab Reports**

See data in Table 1 of this report. For original copies of PEI Analytical Laboratories Reports please see Appendix F.

### **Appendix B: Discharge Notification Reports**

In 2016 no discharge events occurred, thus no reports are filed.

### **Appendix C: Biosolids Quality Lab Reports**

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	Lime	Lime	Lime	Lime	Lime	Units
<b>Date</b>	29/03/2016	11/05/2016	07/07/2016	31/08/2016	14/11/2016	
<b>Lot Number</b>	2016-1	2016-1	2016-2	2016-2	2016-2	
<b>Lab Number</b>	927001	1347010	1947011	2507008	3217017	
Fecal Coliform	<3	<3	<3	<3	<3	MPN/gdry
Salmonella	<3	<3	<3	<3	<3	MPN/4g
pH	10.20	8.38	8.49	12.63	9.17	
Volatile Solids	19.67	14.70	19.74	26.54	24.09	%
Ammonia (NH <sub>3</sub> -N)	1872.42	3553.96	3122.52	1078.49	2353.47	ug/g
TNV	72.25	77.25	72.50	70.25	64.75	%
Total Phosphorus (As P <sub>2</sub> O <sub>5</sub> )	1.00	1.05	1.19	1.48	1.19	%
Nitrogen (Total)	1.27	0.90	1.16	1.67	1.34	%
Phosphorus (Available P <sub>2</sub> O <sub>5</sub> )	1.0	1.1	1.2	1.6	1.3	%
Potassium (Soluble K <sub>2</sub> O)	0.4	BDL	0.4	0.2	BDL	%
Aluminium	669.00	665.00	603.00	1062.50	1026.50	ug/g
Boron	10.49	8.60	5.20	18.53	11.90	ug/g
Calcium	392750.00	328800.00	424140.00	476700.00	283770.00	ug/g
Copper	41.69	54.10	68.50	98.25	94.10	ug/g
Iron	1235.00	1295.50	1404.00	1780.50	1687.00	ug/g
Magnesium	2148.00	2099.50	1994.50	2059.00	1844.50	ug/g
Manganese	192.15	212.70	164.70	89.45	124.00	ug/g
Phosphorus	4380.00	4597.00	5270.00	6475.00	5195.00	ug/g
Potassium	3241.00	3220.00	2513.50	2366.50	3201.00	ug/g
Sodium	1148.50	1057.00	1332.00	1040.50	541.00	ug/g
Sulphur	1705.50	1831.50	1955.50	2335.50	2272.50	ug/g
Zinc	34.95	44.51	58.85	80.50	92.45	ug/g
Organic Matter @ 550deg C	19.67	14.70	19.74	26.54	24.09	%
Moisture (as received)	28.93	19.94	23.59	31.00	22.18	%
Total Neutralizing Value (CCE)	73.59	71.67	66	68	75.60	
Sieve #10 (% Passing)	98.40	9.60	98.40	98.20	9.20	%
Sieve #60 (% Passing)	75.20	90.10	90.30	76.30	89.00	%
Sieve #100 (% Passing)	69.50	81.50	82.60	73.20	85.60	%
Arsenic	BDL	BDL	1.16	1.93	BDL	ug/g
Cadmium	BDL	BDL	BDL	BDL	BDL	ug/g
Chromium	3.00	3.32	5.24	5.07	5.96	ug/g
Cobalt	BDL	BDL	BDL	BDL	BDL	ug/g
Lead	3.74	4.72	11.57	4.00	8.47	ug/g
Mercury	0.19	0.18	0.12	0.17	0.23	ug/g

Molybdenum	BDL	BDL	1.0	1.4	1.6	ug/g
Nickel	1.91	2.28	2.52	3.40	4.01	ug/g
Selenium	1.21	BDL	1.42	BDL	BDL	ug/g

Notes: All Data above is from testing performed by A&L Laboratories  
BDL = Below Detection Limit

### Appendix D: Daily Flow Meter Average Monthly Readings

Note: Readings are in cubic meters per day

Day	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
1	10957	10711	10691	12857	9320	8565	7633	7408	7655	6561	7392	8091
2	11360	9934	10313	13561	9376	8294	7620	7375	7354	6421	7422	10886
3	11345	10162	12701	12791	9461	8565	7528	7192	6689	5978	7033	10197
4	10951	11054	10255	12028	9636	7982	8069	7158	6857	5799	6809	8487
5	10764	10061	10436	11545	9386	8159	8303	7538	7334	6223	7258	8176
6	10708	9522	10160	11275	9221	9120	8178	7349	7333	6322	6859	8369
7	10843	9636	9742	11222	9068	8913	9245	7430	7253	6765	6797	8048
8	10597	10082	10315	12123	9076	8896	8119	7684	7223	6348	7747	7834
9	9974	10243	9954	11064	8629	9426	7546	7862	7088	7394	7055	8037
10	11591	9800	10634	10699	8454	8532	7853	6886	6547	9343	6945	7837
11	13476	9163	10186	10765	8952	8016	7969	7694	6780	7155	6742	7429
12	11562	9351	10444	11659	9105	8593	8354	7957	6973	7172	6900	7356
13	11706	9093	9806	11333	9140	10231	7713	8326	7391	6754	6591	7810
14	10907	8726	9511	10959	8967	9735	7417	9430	8064	6889	6697	7493
15	11155	8998	10252	10693	9621	9471	7874	7589	7407	6327	7256	7601
16	11164	15443	9907	10513	8362	8586	7363	7580	6858	6663	7208	7342
17	10947	14424	9928	10610	8364	8540	7621	7110	6378	6980	7603	7011
18	11254	11053	9195	10825	9592	7936	7679	6866	7108	6969	6885	6991
19	10631	10845	9714	10636	9150	8143	7775	8692	7475	6848	6865	9563
20	10294	10728	9399	10424	9320	8580	7661	7733	7204	6548	6905	7914
21	10025	11205	9527	10204	9376	8682	7378	7534	6926	7303	6817	7678
22	10264	10715	15871	10001	9461	8423	7795	7308	6647	7953	7181	7687
23	9921	10138	13898	10315	9636	8557	7491	7680	8080	6835	7318	7624
24	10015	11958	12240	9927	9386	8718	7343	6937	6582	6873	7493	7344
25	10401	17341	12075	9637	9221	8340	7830	6987	6861	6928	7013	7162
26	10009	13556	10691	9737	9068	7914	7818	8129	7252	7488	6955	5996
27	9994	12195	10313	9604	9076	8494	7583	7732	7541	6641	6094	7367
28	9473	11635	12701	9817	8629	8086	8528	7469	7223	7467	7768	8004
29	9856	11760	10255	9368	8454	8382	7789	7408	6963	7909	7885	7349
30	9445		10436	9025	8952	8032	7137	7375	6777	7389	7458	7682
31	9614		10160			8565	7061	7192	7655	7392	7392	8761



# Appendix E Ortho Map

