

# Williamsburg Wastewater System

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Waterworks #120002013

## Annual Report

Prepared for: Municipality of South Dundas

Reporting Period of January 1<sup>st</sup> – December 31<sup>st</sup> 2018

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Certificate of Approval #3-0456-84-887

## Table of Contents

<b>Operations and Compliance Reliability Indices .....</b>	<b>1</b>
<b>System Process Description .....</b>	<b>1</b>
<b>Wastewater System Flows.....</b>	<b>1</b>
Raw Flows .....	1
Effluent Flow.....	2
<b>Effluent Quality Assurance or Control Measures.....</b>	<b>2</b>
<b>Effluent Quality .....</b>	<b>2</b>
<b>Operating Issues .....</b>	<b>3</b>
<b>Maintenance .....</b>	<b>3</b>
Maintenance Summary .....	3
Notice of Modifications .....	3
<b>Sludge Generation .....</b>	<b>3</b>
<b>Summary of Complaints.....</b>	<b>3</b>
<b>Summary of Abnormal Discharge Events .....</b>	<b>3</b>
Bypass/Overflow.....	3
Spills.....	3
<b>Performance Assessment Reports .....</b>	<b>A</b>

## Operations and Compliance Reliability Indices

Compliance Event	# of Events
Ministry of Environment Inspections	0
Ministry of Labour Inspections	0
Non-Compliance	0
Spills	0
Sewer Main Blockages	0

## System Process Description

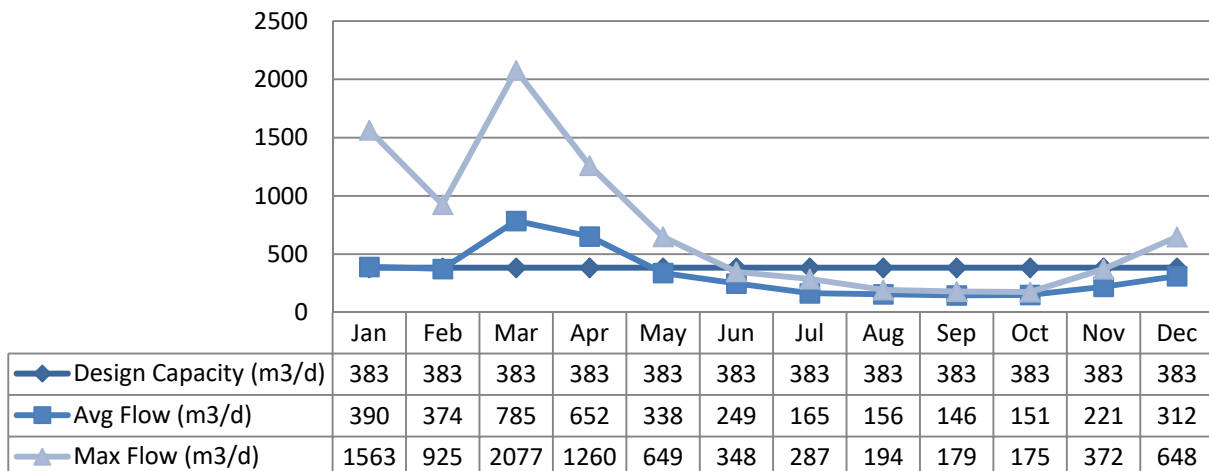
Williamsburg's sewage system is owned and operated by the Municipality of South Dundas. It consists of a gravity fed collection system, two sewage pumping stations and a wastewater treatment lagoon. The two-cell facultative lagoon system is a Class I wastewater treatment system. Effluent from the the lagoon is discharged annually to the McMartin Drain between March 15<sup>th</sup> and April 21<sup>st</sup> in accordance with the facility's Certificate of Approval.

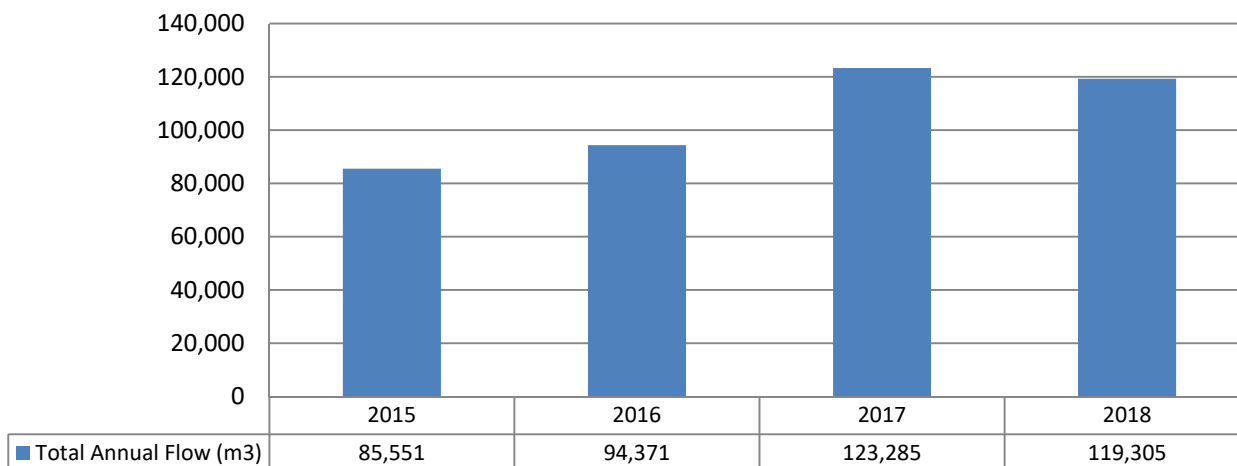
## Wastewater System Flows

The hydraulic flows reaching the sewage lagoons in 2018 averaged 328 m<sup>3</sup>/day which represents 86% of the 383 m<sup>3</sup>/day design capacity.

### Raw Flows

2018 Raw Flows:



**Annual Raw Flow Comparison:****Effluent Flow**

A total of 17,708 m<sup>3</sup> was discharged from Williamsburg’s sewage lagoons in the spring of 2018. Please refer to the Performance Assessment Reports attached in Appendix A for details.

**Effluent Quality Assurance or Control Measures**

Effluent control measures include pre-discharge sampling and testing of lagoon cell contents prior to seasonal discharges. Samples are collected by the Municipality of South Dundas’ competent and licensed staff using approved methods and protocols for sampling including those specified in the Ministry’s Procedure F-10-1, “Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works”, the Ministry’s publication, “Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater” and the publication, “Standard Methods for the Examination of Water and Wastewater”.

Effluent samples collected during the reporting period were submitted to Caduceon laboratory in Ottawa for analysis, with the exception of pH and temperature. Caduceon is accredited by the Canadian Association for Laboratory Accreditation (CALA). Accredited labs must meet strict provincial guidelines including an extensive quality assurance/quality control program. By choosing this laboratory, the Municipality of South Dundas is ensuring appropriate control measures are undertaken during sample analysis.

The pH and temperature were analyzed in the field at the time of sample collection by certified operators to ensure accuracy and precision of the results obtained.

**Effluent Quality**

There were no exceedances of the concentration limits outlined in the facility’s Certificate of Approval during the 2018 discharge period. The results from the spring discharge can be found tabulated in the

Performance Assessment Reports attached in Appendix A.

## **Operating Issues**

There were no operating issues to report for 2018.

## **Maintenance**

### **Maintenance Summary**

Both wet wells were cleaned in March, May and November of 2018

### **Notice of Modifications**

No modifications took place during the reporting period.

## **Sludge Generation**

Sludge depth is monitored periodically, and plans for sludge removal are made as required for optimal operation of the lagoon system.

## **Summary of Complaints**

No complaints were documented during the reporting period.

## **Summary of Abnormal Discharge Events**

### **Bypass/Overflow**

No bypasses or overflows occurred during the reporting period.

### **Spills**

No spills occurred during the reporting period.

# Appendix A

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## Performance Assessment Reports

## MUNICIPALITY OF SOUTH DUNDAS PERFORMANCE ASSESSMENT REPORT

PROJECT: WILLIAMSBURG SEWAGE  
 WORKS NUM.: 3-0456-84-887  
 DESCRIPTION: A TWO CELL LAGOON HAVING A TOTAL SURFACE AREA OF 7.1 HA

YEAR: 2018  
 WATER COURSE: MCMARTIN DRAIN  
 DESIGN CAPACITY: 383 m<sup>3</sup>/day

MONTH	FLOWS					BIOCHEMICAL O <sub>2</sub> DEMAND			SUSPENDED SOLIDS			PHOSPHORUS			TKN
	Total Flow m <sup>3</sup>	Avg Day Flow m <sup>3</sup>	Max Day Flow m <sup>3</sup>	Effluent Flow m <sup>3</sup>	Discharge Duration (days)	Avg Raw BOD (mg/L)	Avg Eff BOD (mg/L)	Percent Removal	Avg Raw SS (mg/L)	Avg Eff SS (mg/L)	Percent Removal	Avg Raw PHOS. (mg/L)	Avg Eff PHOS. (mg/L)	Percent Removal	Avg Raw TKN
JAN	11712	390	1,563			181			248			3.97			29.1
FEB	10462	374	925			268			2530			3.03			21.3
MAR	24342	785	2077			180			276			2.38			20.9
APR	19560	652	1260	17,708	5	44	3.0		60	6.7		1.87	0.11		16.9
MAY	10485	338	649			54			64			1.59			15.2
JUN	7461	249	348			108			360			4.37			3.7
JUL	5108	165	287			208			160			8.65			59.0
AUG	4836	156	194			159			190			4.76			37.1
SEPT	4389	146	179			275			170			4.65			42.0
OCT	4673	151	175			197			145			76.60			827.0
NOV	6615	221	372			190			200			5.42			44.1
DEC	9662	312	648			51			65			2.30			18.5
TOTAL	119,305			17,708	5										
AVG		328				160	3.0	98.1	372	6.7	98.2	9.97	0.11	98.9	94.6
MAX			2077			275			2530			76.6			
CRITERIA		<b>383</b>					<b>30</b>			<b>30</b>					

COMPLIANCE		YES					YES			YES					
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COMMENTS: PERCENT REMOVAL BASED ON 12 MONTHS OF RAW COMPOSITE SAMPLES

## MUNICIPALITY OF SOUTH DUNDAS LAGOON PERFORMANCE ASSESSMENT REPORT

PROJECT: WILLIAMSBURG LAGOON  
 WORKS NUM.: 3-0456-84-887  
 DESCRIPTION: A TWO CELL LAGOON HAVING A TOTAL SURFACE AREA OF 7.1 HA

YEAR: 2018  
 WATER COURSE: MCMARTIN DRAIN  
 DESIGN CAPACITY: 383 m<sup>3</sup>/day

	SAMPLE RESULTS	17,708 m <sup>3</sup>				C of A Limit*
		DATE	17-Apr	18-Apr	20-Apr	
<b>Minimum 2x per Week Sample Collection</b>	BOD (mg/L)	<3	<3	<3	3.0	<b>30</b>
	TSS (mg/L)	5	10	5	6.7	<b>30</b>
	TP (mg/L)	0.09	0.13	0.11	0.11	
	NH <sub>3</sub> (mg/L)	0.06	0.07	0.48	0.20	
	NO <sub>2</sub> (mg/L)	<0.1	<0.1	<0.1		
	NO <sub>3</sub> (mg/L)	<0.1	<0.1	0.2		
	TKN (mg/L)	0.6	0.8	1.2		
	S2- (mg/L)	0.01	0.02	0.02		

EFFLUENT FLOW	
DATE	Flow (m <sup>3</sup> /d)
17-Apr	3418
18-Apr	6524
19-Apr	5437
20-Apr	2330

\* Discharge between March 15 & April 21

pH	7.81	8.08	7.7
Temp	4.14	6.4	7.3
S2- (mg/L)	0.01	0.02	0.02
%	23.4	14.9	45.8
undissociated H2S	0.002	0.003	0.009