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March 30, 2017

Mr. John Telfer
Town Clerk/CAO
Town of Shelburne
203 Main Street East
Shelburne, ON
L0N 1S0

Re: 2016 Performance Report for Shelburne Waste Water Treatment Facility

Attached is the 2016 Performance Report for the **Shelburne Waste Water Treatment Facility** located at Centennial Street in the Town of Shelburne. This report has been completed in accordance with the Amended Certificate of Approval # 6413-ABLQQS dated July 19, 2016 and issued to the Town of Shelburne.

This report was prepared by the Ontario Clean Water Agency on behalf of the Town of Shelburne based on the information we have in our records. The report covers the period from January 1, 2016 to December 31, 2016.

If you have questions regarding the attached report please do not hesitate to contact me at (519) 925-1938.

Kind Regards,

Scott Craggs
Senior Operations Manager
Ontario Clean Water Agency
Highlands Hub

SC/lb

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Annual Report

for the

Shelburne Water Pollution Control Plant

Certificate of Approval No. 6413-ABLQQS

for the year

2016

prepared for the Town of Shelburne

by the Ontario Clean Water Agency

Prepared by: Lisa Benoit
Process & Compliance Technician
Ontario Clean Water Agency
Highlands Hub

2016 Annual Performance Report for The Town of Shelburne Wastewater Treatment Plant Certificate of Approval No. 6413-ABLQQS

Operated by the Ontario Clean Water Agency (OCWA) under contract to the Town of Shelburne for the year 2016

Section 1 - Introduction:

The Ontario Clean Water Agency is pleased to provide the Ministry of the Environment and Climate Change (MOECC) with the 2016 Annual Performance Report for the Shelburne Wastewater Treatment Plant.

This report is designed to inform the MOECC of the quality of effluent being discharged from this facility. The entire treatment process at the Shelburne Wastewater Treatment Plant can best be described as a "transformation".

A transformation from a harmful wastewater into two useful end products:
a) A disinfected treated effluent
b) An agricultural liquid fertilizer

Inquiries regarding this report can be directed to Scott Craggs, Senior Operations Manager at the Ontario Clean Water Agency office located at 136 Main St. East, in Shelburne, Ontario. (Tel) (519) 925-1938, Fax (519) 925-0322, email: scraggs@ocwa.com.

Section 2 - Project Description:

The Town of Shelburne is a community of approximately 8,200 people located approximately 100 kilometers northwest of Toronto. The community first obtained a waste disposal system in 1968 with the construction of a 5.5 ha lagoon and associated gravity collection and pumping system. The Town grew consistently over the years and eventually overloaded the lagoon system. In July 1981 construction was completed on a wastewater treatment system located at the present location. This expansion consisted of a new trunk sewer, pumping facilities, secondary and tertiary treatment and modifications to the existing lagoons which now provide storm and effluent holding during excess storm flows and plant upsets and maintenance.

The facility consisted of a wet well, a manual screen, grit channels, an oxidation ditch, one secondary clarifier, four effluent sand filters and a chlorine contact chamber. The oxidation ditch used two brush rotors. The facility operated as an extended aeration plant in this configuration from 1981 until December 1999.

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A major expansion (Phase 1) took place at the Shelburne WWTP in 1999, changing the configuration of the plant and the method of treating wastewater. The plant went under construction starting in April 1999 with the start-up of the new process in December of 1999. The Shelburne WWTP is still an extended aeration plant. As an extended aeration plant it is designed to remove suspended solids, $CBOD_5$ and phosphorus from the wastewater. Major improvements were two aeration tanks constructed with fine bubble diffusers. The sludge treatment system consists of a two stage aerobic sludge digestion system with a total storage volume of $580m^3$, equipped with coarse bubble aeration system and supernatant decanting. The former oxidation ditch was converted to a sludge storage facility with approximately six months storage.

Sludge loading facilities provide for transfer of digested aerobic sludge to trucks. Digested sludge is land-applied as farm fertilizer.

Two ultra-violet radiation banks replaced the sodium hypochlorite disinfection system.

In March 2006 the Ministry of the Environment issued an amended Certificate of Approval # 9046-6GAJUM for the Phase 2 extension and upgrading including;

- Construction of a hauled sewage receiving station;
- Replacement of the raw sewage pumping station - two submersible pumps;
- Replacement of the inlet works;
- Construction of a secondary clarifier ;
- Replacement of the clarifier effluent pump system; and
- Reconfiguration of the stormwater and effluent holding ponds.

New media was introduced into the filters, and OCWA and the Town of Shelburne are debating if a dual media filter is necessary as per the amended Certificate of Approval No. 9972-7FYJUB. Currently the filters are operating on single media, and if the Town of Shelburne continues to use a single media filter an administrative amendment to the Certificate of Approval will have to be submitted to reflect the current plant process.

In 2016 the Ministry of the Environment and Climate Change issued an amended Environmental Compliance Approval #6413-ABLQQS for upgrading of the filtration and standby power which included;

- Two cloth-filter treatment units with a design capacity of 4,400 m^3 each
- One 650 kW standby power diesel generator and 9000L diesel tank with double-walled containment

This facility receives residential, commercial, institutional and industrial wastewater and provides a level of treatment to meet the amended "Environmental Compliance Approval - # 6413-ABLQQS" for discharging into the Beasley Drain a minor tributary of the Boyne River. The Boyne Creek empties into the Nottawasaga River, ultimately meeting Georgian Bay at Wasaga Beach.

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A "Process Flow Schematic" is included in Appendix D of this report.

Section 3 - Plant Facts:

Facilities ➢ Extended Aeration Sewage Treatment Plant

Design Capacity ➢ 3,420 m^3/day
Average Daily Flow 2016 ➢ 2,252 m^3/day
Receiving Water ➢ Besley Drain to Boyne Creek to Nottawasaga River
Service Population ➢ approx 8,200 (2016)
Environmental Compliance Approval ➢ 6413-ABLQQS
Plant Classification ➢ WWT-III

Organization Number ➢ 5773

Effluent Objectives

Table 2 – Effluent Objectives	
Effluent Parameter	**Concentration Objective** (milligrams per litre unless otherwise indicated)
Column 1	Column 2
$CBOD_5$	**4.0**
Total Suspended Solids	**4.0**
Total Phosphorous	**0.12**
Total Ammonia Nitrogen Oct 1 – May 31 Jun 1 – Sept 30	 **2.0** **0.5**
E-coli	**100 organisms /100 mL (monthly Geometric Mean Density)**
pH of the effluent maintained between 6.5 – 8.5, inclusive, at all times.	

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Effluent Requirements:

Table 1 – Effluent Limits			
Effluent Parameter	**Maximum Concentration** (milligrams per litre unless otherwise indicated)	**Monthly Average Concentration** (milligrams per litre unless otherwise indicated)	**Annual or Seasonal Average Loading** (kilograms per day unless otherwise indicated)
Column 1	Column 2	Column 3	Column 4
$CBOD_5$	-	5.0	17.1
Total Suspended Solids	-	5.0	17.1
Total Phosphorous	-	0.25	0.86
Total Ammonia Nitrogen Oct 1 – May 31 Jun 1 – Sept 30	-	2.4 0.8	8.2 2.7
E-coli	-	200 organisms /100 mL (monthly Geometric Mean Density)	-
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times.			

Sampling Requirements ➢

Final effluent: a 24 hour composite sample to be collected weekly and tested for BOD_5, $CBOD_5$, Total Suspended Solids, Total Ammonia Nitrogen, Total Kjeldahl Nitrogen, Nitrite, Nitrate and Total Phosphorus, pH, Alkalinity and Temperature; a weekly grab sample for E.coli.

Raw sewage: a grab sample to be collected monthly and tested for BOD_5, $CBOD_5$, Total Suspended Solids, Total Kjeldahl Nitrogen, Total Phosphorous, pH and Alkalinity.

Hauled sewage: a grab sample is collected monthly and tested for BOD_5, $CBOD_5$, Total Suspended Solids, Total Kjeldahl Nitrogen, and Total Phosphorous.

Aerobic sludge: a grab sample is collected monthly during the non-spreading and spreading season and tested for total solids, nitrite, nitrate, total phosphorous, total ammonia nitrogen, total kjeldahl nitrogen, pH and metals.

Section 4 - Sampling Procedures:

Raw sewage is sampled monthly and tested for BOD_5, $CBOD_5$, Suspended Solids, Total Kjeldahl Nitrogen, pH, Alkalinity and Total Phosphorus. Samples are collected using an automatic composite sampler (over a twenty-four hour period).

Final effluent is sampled weekly and tested for $CBOD_5$, Total Suspended Solids, Total Phosphorus, pH, Alkalinity, Total Kjeldahl Nitrogen, Total Ammonia Nitrogen, Nitrite and Nitrate. These are collected using an automatic composite sampler (over a twenty-four hour period). A weekly grab sample is collected and tested for E.coli. Grab samples of final effluent is also collected and tested in the plant by the operator for pH and temperature.
The concentration of un-ionized ammonia is calculated using the grab pH and temperature results and the total ammonia concentration result from SGS Lakefield Research Limited.

In-house tests are conducted by licensed operators for monitoring purposes using Standard Methods. The data generated from these tests is used to determine the treatment efficiency while maintaining process control. All in-house monitoring equipment is calibrated based on the manufacturer's recommendations.

Aerobic sludge is collected and tested as per the sampling requirements.

Section 5 - Summary of Report:

In 2016, the Shelburne WWTP provided effective wastewater treatment, producing effluent with removal rates for $CBOD_5$, TSS, TKN and Total Phosphorus all 97.3 % or better.

The bacteriological quality of the effluent complied with the certificate of approval monthly geometric mean density of <200 organisms per 100 ml sample for every month during 2016.

The aerobic sludge produced at the facility continued to meet all the Guidelines established for agricultural utilization. Eden Environmental Services Limited of Kenilworth are contracted to haul and spread sludge from the Shelburne WPCP.

Section 6 - Compliance With Provincial Regulations:

OCWA operates this sewage system in accordance with provincial regulations. Here is how we do it:

- Use of Accredited Labs (SGS Canada Inc.): Analytical tests to monitor the effluent quality are conducted by a laboratory audited by the Canadian Association for Environmental Analytical Laboratories (CAEAL) and accredited by the Standards Council of Canada (SCC). Accreditation ensures that the laboratory has acceptable laboratory protocols and test methods in place. It also requires the laboratory to provide evidence and assurances of the proficiency of the analysts performing the test methods. During 2016, all chemical sample analyses were conducted by SGS Lakefield Research Limited.

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- Operation by Licensed Operators: This sewage system is operated and maintained by the OCWA's licensed staff. The mandatory licensing program for operators of sewage treatment facilities in Ontario is regulated under the Ontario Water Resources Act (OWRA) Ontario
- Regulation 129/04. Licensing means that an individual meets the education and experience requirements and has successfully passed the certification exam.

The following are certified operators who operated this facility during 2016 with current certified classification, certificate numbers and certificate expiry dates (TABLE 1):

TABLE 1

Operator	Level	Certificate #	Expiry Date
Alex Solonomov	WWT 2 WWC 2	#49144 #16652	Jul 31, 2018 Jan 31, 2018
Bill Smith	WWT 2 WWC 1	#65685 Deemed	Aug 31, 2017 Aug 31, 2017
Curtis Parker	WWT 4 WWC 3	#79166 #79167	Mar 31, 2019 Jul 31, 2018
Emanuel Castro	WWT 1 WWC 1	#95067 Deemed	Oct 31, 2019 Oct 31, 2019

- Sampling and Analytical Requirements: OCWA follows a sampling and analysis schedule required by the Certificate of Approval.

Section 7 - System Information:

Facility Name:	Town of Shelburne Waste Water Treatment Plant	Client Services: Phone Number	Dave O'Connell (289) 523-3653
Receiving Water Disinfection Method	Besley Drain to Boyne River Ultra Violet	E-mail Address	doconnell@ocwa.com
Municipal Location	Town of Shelburne	Senior Operations Manager Phone Number	Scott Craggs (519) 925-1938
Service Population	Approx 8,200 (2016)	E-mail Address	scraggs@ocwa.com

Section 8 - Flows:

The total flow treated in 2016 was 823,570 m^3. The annual average daily flow of 2,252 m^3/day was 65.8% of the design capacity. The maximum peak flow of 4,285 m^3/day represents 48.0% of the design peak flow of 8,921 m^3/day. The monthly average daily design flow was not exceeded during 2016.

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Section 9 - Raw Sewage Quality:

The annual average raw sewage $CBOD_5$ concentration to the plant was 180.667 mg/L. This corresponds to an average $CBOD_5$ loading of 406.86 kg/day. The annual average raw sewage suspended solids (TSS) concentration to the plant was 139.00 kg/day. This corresponds to an average TSS loading of 313.03 kg/day. The annual average raw sewage nitrogen concentration (as represented by TKN) to the plant was 27.308 mg/L. This corresponds to an average TKN loading of 61.50 kg/day. The annual average raw sewage Total Phosphorus concentration to the plant was 3.497 mg/L. This corresponds to an average Total Phosphorus loading of 7.88 kg/day.

Section 10 - Plant Performance & Effluent Quality:

There were no operating problems encountered or corrective actions required at the Shelburne Water Pollution Control Plant during 2016 that affected the quality of the effluent leaving the plant. All repairs/maintenance can be found in Section 14.

Detailed analytical results from SGS Lakefield Research Limited are available at the office on request. A summary of flows and plant performance is provided in this report.

The Shelburne WWTP provided effective wastewater treatment with removal rates for $CBOD_5$, TSS, TKN and Total Phosphorus of 97.3% or better for 2016.

Effluent Limits

The annual average effluent $CBOD_5$ concentration was 2.22 mg/l with a removal efficiency of 99.4%. The annual average effluent TSS concentration was 2.26 mg/l with a removal efficiency of 99.4%. The annual average effluent Total Kjeldahl Nitrogen (TKN) concentration was 0.75 mg/l with a removal efficiency of 97.3%. The annual average effluent Total Phosphorus concentration was 0.06 mg/l with a removal efficiency of 99.0%. The annual average effluent concentration for Total Ammonia-Nitrogen was 0.21 mg/l for the season (Oct 1 to May 31, 2013). The annual average effluent concentration for Total Ammonia-Nitrogen was 0.27 mg/l for the season (June 1 to Sept 30, 2013).

This facility was in compliance with all the effluent concentration and loading limits for the year 2016. The average waste loadings for the final effluent can be found in Appendix A.

The 2016 bacteriological quality of the effluent complied with the certificate of approval monthly geometric mean density of <200 organisms per 100 ml sample for every month during 2016. The monthly geometric mean densities of organisms were between 1.68 to 2.30 per 100 ml.

2016 Annual Performance Report for the Town of Shelburne Wastewater Treatment Plant Certificate of Approval No. 6413-ABLQQS

Effluent Objectives

The effluent from the facility met the effluent concentration objectives for Total Phosphorus, $CBOD_5$, Total Suspended Solids and E.coli. The effluent concentration objectives for Total Ammonia Nitrogen in June and pH in September were not met.

Section 11 - Sludge Management:

Digested sludge produced at the Shelburne WWTP is land-applied in accordance with the Nutrient Management Act 2002 and Ontario Regulation 267/03.

Grab samples of digested (aerobic) sludge are collected and tested as per these requirements. In 2016 sludge sample analysis were carried out by SGS Lakefield Research Limited. A summary of sludge sample results is provided in Appendix B of this report.

Eden Environmental Services Ltd. was contracted to haul and spread sludge from the Shelburne plant in 2016. (Certificate of Approval - Waste Management System #9566-6HYKC3)

The following certified sites were utilized in 2016:

- ***NASM Plan #21028 – Oscar Martin***
- ***NASM Plan #20622 – David Barker***

A total volume of 5,616.0 m^3 of sludge was applied to the above fields from the Shelburne WWTP in 2016.

Based on the design flow and average wastewater quality, the anticipated volume of sludge generated for 2016 would be approximately 5,700.0 m^3.

Section 12 – A summary of any complaints received during the reporting period and any steps taken to address the complaints:

A standard operating procedure (SOP) has been in place for a number of years to deal with complaints received from the community. All complaints are to be addressed and logged in detail in the facility logbook and a generic "Complaint Form". The information from the form would be entered on OCWA's electronic database system "OPEX". This system contains all the required information and history of all complaints.

No complaints were received during this reporting period with regard to the Shelburne Water Pollution Control Plant.

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Section 13 - Bypassing and Abnormal Conditions:

There were no bypasses at the Shelburne Water Pollution Control Plant during the 2015 reporting period.

Section 14 - Maintenance and Calibration Activities:

Plant maintenance, including non-scheduled maintenance is monitored using Maximo Workplace Management System. Detailed maintenance reports are available. All routine and preventative maintenance was conducted as scheduled in 2016.

A number of repairs or improvements to equipment on the works were made or identified in 2016 as follows:

Plant:

- Replaced the drive gear on the south clarifier.
- Cleaned out sand from UV channel.
- Replaced the spur gear on the south clarifier.
- Cleaned out the scum pits.
- Welded a patch on the filter pipe.
- Repaired the plating on the bar screen.
- Replaced the contactor on filter return pump #2.
- Completed the annual diesel generator inspection.
- Installed two (2) cloth-filter treatment units each having a Peak Flow Rate of 558 m^3/h via one (1) 450 mm diameter inlet piping to a splitter box, 250 mm process pipings to the units and overflow over a weir.
- Installed one (1) 650 kW standby power diesel generator and 9000L diesel tank with double-walled containment.

Hollen Controls Limited was contracted to calibrate all flow measuring equipment on October 6, 2016. Copies of the calibration reports can be found in Appendix C of this report.

Section 15 – Inspection of the Facility by the Ministry of the Environment and Climate Change:

There was no MOECC inspection of the Shelburne Water Pollution Control Plant in 2016.

2016 Annual Performance Report for the Town of Shelburne Wastewater Treatment Plant Certificate of Approval No. 6413-ABLQQS

Section 16 – Notice of Modifications:

There were no notices of modifications sent to the Water Supervisor during this reporting period with regard to the Shelburne Water Pollution Control Plant.

Section 17 - Operational Objectives:

The Town of Shelburne Wastewater Treatment Plant continues to provide excellent wastewater treatment. OCWA and its operators will continue to strive through expertise and knowledge to meet all objectives and to continually improve and optimize the efficiency of the facility.

Section 18 - Appendix:

- 2015 Annual Performance Summary – Appendix A
    - Annual Summary for 2016
    - Flows and Effluent Quality 2016
- Sludge Quality Data & Haulage 2016 – Appendix B
- Calibration Reports 2016 – Appendix C
- Process Flow Schematic 2016 – Appendix D

2016 Annual Performance Report for
the Town of Shelburne Wastewater Treatment Plant
Certificate of Approval No. 9972-7FYJUB

Appendix A

Annual Performance Summary

2016

SHELBURNE WWTP

ANNUAL SUMMARY FOR 2016

FLOWS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		C. of A. LIMIT
Total	1000m3	79.619	74.833	90.655	97.574	77.860	61.391	55.627	55.402	52.620	52.553	59.526	65.911	823.570	Total
Avg day flow	1000m3/d	2.568	2.580	2.924	3.252	2.512	2.046	1.794	1.787	1.736	1.695	1.984	2.126	2.252	Average
Max day flow	1000m3/d	3.399	3.293	3.619	4.285	3.059	2.281	2.233	2.280	2.005	2.131	2.325	2.587	4.285	Maximum

BYPASS

Primary Volume	1000m3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Total
Time	hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Total
Secondary Volume	1000m3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Total
Time	hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Total
Tertiary Volume	1000m3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Total
Time	hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Total

RAW SEWAGE

														ANNUAL AVERAGE
CBOD5	mg/l	134	240	106	79	174	277	114	124	130	309	135	346	181
TSS	mg/l	84	132	48	100	120	198	52	200	56	186	164	328	139
TKN	mg/l	30.3	24.0	18.8	17.4	24.4	29.9	30.4	32.1	33.8	30.6	22.8	33.2	27.3
Total P	mg/l	4.0	2.9	2.8	2.3	2.5	4.0	3.2	4.4	3.3	4.3	3.9	4.6	3.5
Alkalinity	mg/l	368	372	377	340	335	355	359	355	252	363	337	383	358

FINAL EFFLUENT

														ANNUAL AVERAGE	Monthly Limits	min	max
CBOD5	mg/l	2.00	2.00	2.00	2.25	2.20	2.00	2.50	2.00	3.00	2.00	2.20	2.50	2.22	5.0		
TSS	mg/l	2.00	2.00	2.00	2.25	3.00	2.00	2.75	2.40	2.75	2.00	2.00	2.00	2.26	5.0		
TAN Monthly Average	mg/l	0.10	0.10	0.10	0.10	0.74	0.78	0.10	0.10	0.10	0.10	0.10	0.10	0.21			
TAN Monthly Limits	mg/l	2.40	2.40	2.40	2.40	2.40	0.80	0.80	0.80	0.80	2.40	2.40	2.40	Monthly Limits			
TAN Daily Maximum	mg/L	0.10	0.10	0.10	0.10	2.30	1.50	0.10	0.10	0.10	0.10	0.10	0.10	0.40			2.30
TKN	mg/l	0.50	0.50	0.53	0.68	1.12	1.45	0.70	0.50	0.73	0.60	0.78	0.98	0.75			
Total P	mg/l	0.04	0.05	0.05	0.08	0.07	0.05	0.05	0.08	0.06	0.05	0.06	0.04	0.06	0.25		
Nitrite	mg/l	0.03	0.03	0.03	0.04	0.05	0.04	0.03	0.03	0.04	0.03	0.05	0.11	0.04			
Nitrate	mg/l	13.41	12.80	11.79	8.95	3.80	3.04	8.59	11.15	13.05	6.94	7.71	8.80	9.17			
Alkalinity	mg/l	224	237	238	248	243	247	175	206	195	228	236	232	226			
pH (grab)	min	7.44	7.59	7.37	8.06	8.19	8.27	8.20	8.22	7.79	7.88	7.80	7.89	7.89		7.37	
pH (grab)	max	7.77	8.01	7.89	8.21	8.27	8.60	8.62	8.63	8.02	8.09	8.14	8.01	8.19			8.63
Temperature (grab)	Celsius	7.90	8.08	9.00	9.28	11.14	13.03	15.85	17.08	15.33	12.48	10.70	8.55	11.55			
Unionized Ammonia	mg/l	0.001	0.001	0.001	0.002	0.023	0.052	0.007	0.010	0.003	0.002	0.002	0.001	0.009			

STREAM LOADING COMPLIANCE is now an Annual Average Loading Limit "Average Waste Loadings"

*** Note: the Total Ammonia Nitrogen(TAN) - Average Waste Loadings are "Seasonal Loadings"**

HAULED SEWAGE

														Annual Average	Total
Hauled Sewage Volume	m^3	4.5		27.3	10.9			5.5			21.4		4.5		74.1
BOD5	mg/l	1430.0		1576.2	911.0			5260.0			4315.0		3430.0	2648.8	
CBOD5	mg/l	2040.0		1285.0	563.0			4360.0			3127.5		1940.0	2028.6	
TSS	mg/l	12900.0		2978.0	1113.5			1360.0			17675.0		15100.0	8369.8	
TKN	mg/l	584.0		404.8	83.2			514.0			942.5		670.0	552.0	
Total P	mg/l	81.0		25.8	14.3			85.2			177.8		140.0	83.9	

SHELBURNE WWTP

ANNUAL SUMMARY FOR 2016

CHEMICALS & SLUDGE HAULAGE

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	
Alum Used	kg	6141.8	5740.0	6141.8	5969.6	6342.7	6027.0	6371.4	6314.0	6314.0	6199.2	6141.8	6314.0	74017	Total
Alum Dosage	mg/l	51.2	50.3	44.5	40.2	53.3	64.0	76.3	74.4	78.6	77.8	67.5	62.4	61.7	Average
Sludge Haulage	m3				1656.0							3960.0		5616.0	Total
Total Solids	%	3.0	2.6	2.5	2.3	2.3	2.1	2.1	2.3	2.6	3.1			2.5	Average

COMPLIANCE LOADINGS FOR 2016
FINAL EFFLUENT

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
CBOD5	kg/d	5.137	5.161	5.849	7.318	5.526	4.093	4.486	3.574	5.262	3.391	4.365	5.32
LIMIT	kg/d	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1
Suspended Solids	kg/d	5.137	5.161	5.849	7.318	7.535	4.093	4.935	4.289	4.823	3.391	3.968	4.252
LIMIT	kg/d	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1
Total Phosphorus	kg/d	0.109	0.136	0.145	0.267	0.170	0.110	0.084	0.142	0.096	0.082	0.109	0.094
LIMIT	kg/d	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Total Ammonia Nitrogen	kg/d	0.257	0.258	0.292	0.325	1.859	1.586	0.179	0.179	0.175	0.170	0.198	0.213
LIMIT	kg/d	8.2	8.2	8.2	8.2	8.2	2.7	2.7	2.7	2.7	8.2	8.2	8.2

BACTERIOLOGICAL DATA 2016

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Sample #1	# per 100 mL	2	2	2	2	2	2	2	2	2	2	2	2
Sample #2	# per 100 mL	2	2	2	2	2	2	2	2	2	2	2	2
Sample #3	# per 100 mL	2	2	2	2	2	2	2	2	2	2	2	2
Sample #4	# per 100 mL	2	2	2	2	0	2	0	2	2	2	0	2
Sample #5	# per 100 mL		2				2		4			2	
Monthly Geo. Mean	# per 100 mL	2.00	2.00	2.00	2.00	1.68	2.00	1.68	2.30	2.00	1.68	1.74	2.00
Annual Geometric Mean	# per 100 mL	1.92											
C. of A. Requirement	# per 100 mL	<200											

2016 Annual Performance Report for
the Town of Shelburne Wastewater Treatment Plant
Certificate of Approval No. 9972-7FYJUB

Appendix B

Sludge Quality Data & Haulage

2016

SHELBURNE WWTP
ANNUAL SUMMARY FOR 2016

SLUDGE QUALITY DATA - 2016

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE
Nutrients														
Ammonia	mg/l	330.0	322.0	155.5	284.5	325.0	430.0	1010.0	632.0	679.0	721.0			488.9
Phosphorus	mg/l	600.0	620.0	510.0	535.0	470.0	410.0	380.0	450.0	520.0	660.0			515.5
Nitrate	mg/l	0.30	0.30	0.30	0.30	0.40	0.30	0.30	0.30	0.30	0.30			0.31
Ammonia + Nitrate	mg/l	165.2	161.2	77.9	142.4	162.7	215.2	505.2	316.2	339.6	360.7			244.6
TS	mg/l	29700	25500	24900	23300	23100	21400	21400	23200	26400	30700			24960
Metal Concentrations														
Copper	mg/l	8.40	8.60	6.95	7.05	6.60	6.20	5.90	6.70	8.00	10.00			7.44
Nickel	mg/l	0.35	0.34	0.29	0.30	0.28	0.27	0.23	0.30	0.29	0.41			0.31
Lead	mg/l	0.50	0.60	0.40	0.45	0.40	0.40	0.40	0.50	0.50	0.70			0.49
Zinc	mg/l	10.00	10.00	8.10	8.30	7.80	7.10	6.90	7.90	9.70	12.00			8.78
Arsenic	mg/l	0.40	0.70	0.55	0.55	0.50	0.50	0.40	0.30	0.50	0.60			0.50
Cadmium	mg/l	0.020	0.015	0.018	0.013	0.016	0.012	0.009	0.017	0.016	0.030			0.02
Cobalt	mg/l	0.09	0.09	0.07	0.08	0.10	0.08	0.05	0.08	0.08	0.11			0.08
Chromium	mg/l	0.60	0.58	0.47	0.49	0.46	0.44	0.41	0.48	0.53	0.68			0.51
Mercury	mg/l	0.012	0.013	0.012	0.011	0.011	0.009	0.010	0.014	0.009	0.013			0.011
Molybdenum	mg/l	0.29	0.29	0.24	0.26	0.28	0.21	0.28	0.26	0.31	0.40			0.28
Selenium	mg/l	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10			0.10
Metal/Solids Concentration														
Copper	(Max. 1700)	282.828	337.255	279.116	302.575	285.714	289.720	275.701	288.793	303.030	325.733			297
Nickel	(Max. 420)	12	13	11	13	12	13	11	13	11	13			12
Lead	(Max. 1100)	17	24	16	19	17	19	19	22	19	23			19
Zinc	(Max. 4200)	337	392	325	356	338	332	322	341	367	391			350
Arsenic	(Max. 170)	13	27	22	24	22	23	19	13	19	20			20
Cadmium	(Max. 34)	0.7	0.6	0.7	0.6	0.7	0.6	0.4	0.7	0.6	1.0			0.7
Cobalt	(Max. 340)	3	4	3	3	4	4	2	3	3	4			3
Chromium	(Max. 2800)	20	23	19	21	20	21	19	21	20	22			21
Mercury	(Max. 11)	0.40	0.51	0.48	0.47	0.48	0.42	0.47	0.60	0.34	0.42			0.46
Molybdenum	(Max. 94)	10	11	9	11	12	10	13	11	12	13			11
Selenium	(Max. 34)	3	4	4	4	4	5	5	4	4	3			4

SLUDGE HAULAGE BY SITE 2016

NASM PLAN #			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL TOTAL
Nasm Plan #21028													1620		1620.0
Nasm Plan #20622						1656							2340		3996.0
Total Haulage						1656							3960		5616.0

Ammonia
Phosphorus
Nitrate
Ammonia + Nitrate
TS

Metal Concentrations
Copper
Nickel
Lead
Zinc
Arsenic
Cadmium
Cobalt
Chromium
Mercury
Molybdenum
Selenium

Metal/Solids Ratio
Copper
Nickel
Lead
Zinc
Arsenic
Cadmium
Cobalt
Chromium
Mercury
Molybdenum
Selenium

EDEN Environmental Services Ltd.
519-848-5646
KENILWORTH, ON

Sewage Biosolid's Daily Haulage Record

Amended Environmental Compliance Approval No.9566-6HYKC3
Amended Environmental Compliance Approval No.2336-84CPFV
Broker # BROKTR11069
Applicator's License #PMAB TR11057

Customer Name: Shelburne
Date: April 28, 2016
Generator Location: Shelburne
Receiver Location: David Barker **NASM/C of A#: 20622**

Number of Loads	Carried With	Tanker Capacity in m3	Total m3 per tanker per day
9	International	36.00	324.00
8	Kenworth	36.00	288.00
9	Mack	36.00	324.00
		Daily Total m3:	**936.00**

Date Signed: April 29th, 2016
Carrier's Signature: Michelle Burns

EDEN Environmental Services Ltd.
519-848-5646
KENILWORTH, ON

Sewage Biosolid's Daily Haulage Record

Amended Environmental Compliance Approval No.9566-6HYKC3
Amended Environmental Compliance Approval No.2336-84CPFV
Broker # BROKTR11069
Applicator's License #PMAB TR11057

Customer Name: Shelburne
Date: April 29, 2016
Generator Location: Shelburne
Receiver Location: David Barker **NASM/C of A#: 20622**

Number of Loads	Carried With	Tanker Capacity in m3	Total m3 per tanker per day
7	International	36.00	252.00
7	Kenworth	36.00	252.00
6	Mack	36.00	216.00
		Daily Total m3:	**720.00**

Date Signed: May 3rd, 2016
Carrier's Signature: Michelle Burns

LB

Saugeen AGRI SERVICE Ltd.
519-848-5646

Sewage Biosolid's Daily Haulage Record

Amended Environmental Compliance Approval No.9566-6HYKC3
Amended Environmental Compliance Approval No.2336-84CPFV
Broker # BROKTR11069
Applicator's License #PMAB TR11057

Customer Name: OCWA
Date: November 9th, 2016
Generator Location: Shelburne
Receiver Location: David Barker **NASM/C of A#: 20622**

Number of Loads	Carried With	Tanker Capacity in m3	Total m3 per tanker per day
9	International	36.00	324.00
8	Kenworth	36.00	288.00
5	Mack	36.00	180.00
		Daily Total m3:	**792.00**

Date Signed: November 10th, 2016
Carrier's Signature: Michelle Burns

Saugeen AGRI SERVICE Ltd.
519-848-5646

Sewage Biosolid's Daily Haulage Record

Amended Environmental Compliance Approval No.9566-6HYKC3
Amended Environmental Compliance Approval No.2336-84CPFV
Broker # BROKTR11069
Applicator's License #PMAB TR11057

Customer Name: OCWA
Date: November 10th, 2016
Generator Location: Shelburne
Receiver Location: David Barker **NASM/C of A#: 20622**

Number of Loads	Carried With	Tanker Capacity in m3	Total m3 per tanker per day
12	International	36.00	432
13	Kenworth	36.00	468
	Mack	36.00	
		Daily Total m3:	**900.00**

Date Signed: November 14th, 2016
Carrier's Signature: Michelle Burns

Saugeen AGRI SERVICE Ltd.
519-848-5646

Sewage Biosolid's Daily Haulage Record

Amended Environmental Compliance Approval No.9566-6HYKC3
Amended Environmental Compliance Approval No.2336-84CPFV
Broker # BROKTR11069
Applicator's License #PMAB TR11057

Customer Name: OCWA
Date: November 14th, 2016
Generator Location: Shelburne
Receiver Location: David Barker **NASM/C of A#:** 20622

Number of Loads	Carried With	Tanker Capacity in m3	Total m3 per tanker per day
1	International	36.00	36.00
1	Kenworth	36.00	36.00
1	Mack	36.00	36.00
		Daily Total m3:	108.00

Date Signed: November 15th, 2016
Carrier's Signature: Michelle Burns

Saugeen AGRI SERVICE Ltd.
519-848-5646

Sewage Biosolid's Daily Haulage Record

Amended Environmental Compliance Approval No.9566-6HYKC3

Amended Environmental Compliance Approval No.2336-84CPFV

Broker # BROKTR11069

Applicator's License #PMAB TR11057

Customer Name: OCWA

Date: November 15th, 2016

Generator Location: Shelburne

Receiver Location: David Barker **NASM/C of A#:** 20622

Number of Loads	Carried With	Tanker Capacity in m3	Total m3 per tanker per day
5	International	36.00	180.00
5	Kenworth	36.00	180.00
5	Mack	36.00	180.00
		Daily Total m3:	540.00

Date Signed: November 17th, 2016

Carrier's Signature: Michelle Burns

Saugeen AGRI SERVICE Ltd.
519-848-5646
ARTHUR, ON

Sewage Biosolid's Daily Haulage Record

Amended Environmental Compliance Approval No.9566-6HYKC3
Amended Environmental Compliance Approval No.2336-84CPFV
Broker # BROKTR11069
Applicator's License #PMAB TR11057

Customer Name: OCWA
Date: November 16th, 2016
Generator Location: Shelburne
Receiver Location: Oscar Martin **NASM/C of A#: 21028**

Number of Loads	Carried With	Tanker Capacity in m3	Total m3 per tanker per day
7	International	36.00	252.00
7	Kenworth	36.00	252.00
3	Mack	36.00	108.00
		Daily Total m3:	**612.00**

Date Signed: November 17th, 2016
Carrier's Signature: Michelle Burns

Saugeen AGRI SERVICE Ltd.
519-848-5646

Sewage Biosolid's Daily Haulage Record

Amended Environmental Compliance Approval No.9566-6HYKC3
Amended Environmental Compliance Approval No.2336-84CPFV
Broker # BROKTR11069
Applicator's License #PMAB TR11057

Customer Name: OCWA
Date: November 17th, 2016
Generator Location: Shelburne
Receiver Location: Oscar Martin **NASM/C of A#: 21028**

Number of Loads	Carried With	Tanker Capacity In m3	Total m3 per tanker per day
7	International	36.00	252.00
6	Kenworth	36.00	216.00
5	Mack	36.00	180.00
		Daily Total m3:	**648.00**

Date Signed: November 18th, 2016
Carrier's Signature: Michelle Burns

Saugeen AGRI SERVICE Ltd.
519-848-5646

Sewage Biosolid's Daily Haulage Record

Amended Environmental Compliance Approval No.9566-6HYKC3
Amended Environmental Compliance Approval No.2336-84CPFV
Broker # BROKTR11069
Applicator's License #PMAB TR11057

Customer Name: OCWA
Date: November 18th, 2016
Generator Location: Shelburne
Receiver Location: Oscar Martin **NASM/C of A#: 21028**

Number of Loads	Carried With	Tanker Capacity in m3	Total m3 per tanker per day
3	International	36.00	108.00
4	Kenworth	36.00	144.00
3	Mack	36.00	108.00
		Daily Total m3:	**360.00**

Date Signed: November 21st, 2016
Carrier's Signature: Michelle Burns

2016 Annual Performance Report for
the Town of Shelburne Wastewater Treatment Plant
Certificate of Approval No. 9972-7FYJUB

Appendix C

Calibration Reports

2016

HOLLEN CONTROLS LIMITED
160 Southgate Drive
Guelph, Ontario, N1G 4P5
Phone: 519-766-1152
Fax: 519-766-1153
www.hollencontrols.ca

Instrument Report

Magmeter

Verification: Yes Calibration:

Customer: OCWA West Highland Hub
Description: Digester Flow Dif. Pressure
Manufacturer: Maghelic
Model: 2000 Series

Plant: Shelburne WWTP
Date: 06-Oct-16
Checked By: Matt O'Grady
Serial No: 62544

Tag No.: FI 08 Application: Airflow

Input %	Input (PSI)	As Found	As Left	% Error
0%	0.00	0 L/s	0 L/s	0.000%
25%	2.50	250 L/s	250 L/s	0.000%
50%	5.00	500 L/s	500 L/s	0.000%
75%	7.50	750 L/s	750 L/s	0.000%
100%	10.00	1000 L/s	1000 L/s	0.000%

Confirmed Run Mode: Yes Returned to service: Yes

Flowmeter Information:

Meter Type: Differential Pressure
Flow Unit: L/s
Flow Range: 0-1000 L/s (0-10 PSI)
PipeSize: 10"
Pipe Material: Stainless Steel
Calibration Factor:

Comments:
Verification of original calibration.

Signature:

HOLLEN CONTROLS LIMITED
160 Southgate Drive
Guelph, Ontario, N1G 4P5
Phone: 519-766-1152
Fax: 519-766-1153
www.hollencontrols.ca

Instrument Report

Magmeter

Verification: Yes Calibration:

Customer: OCWA West Highland Hub
Description: Aeration Flow Dif. Pressure
Manufacturer: Maghelic
Model: 2000 Series

Plant: Shelburne WWTP
Date: 06-Oct-16
Checked By: Matt O'Grady
Serial No: 62544

Tag No.: FI 09 Application: Airflow

Input %	Input (PSI)	As Found	As Left	% Error
0%	0.00	0 L/s	0 L/s	0.000%
25%	2.50	250 L/s	250 L/s	0.000%
50%	5.00	500 L/s	500 L/s	0.000%
75%	7.50	750 L/s	750 L/s	0.000%
100%	10.00	1000 L/s	1000 L/s	0.000%

Confirmed Run Mode: Yes Returned to service: Yes

Flowmeter Information:

Meter Type: Differential Pressure
Flow Unit: L/s
Flow Range: 0-1000 L/s (0 - 10 PSI)
PipeSize: 10"
Pipe Material: Stainless Steel
Calibration Factor:

Comments:
Verification of original calibration.

Signature:

HOLLEN CONTROLS LIMITED
160 Southgate Drive
Guelph, Ontario, N1G 4P5
Phone: 519-766-1152
Fax: 519-766-1153
www.hollencontrols.ca

Instrument Report

Magmeter

Verification: Yes Calibration:

Customer: OCWA West Highland Hub
Description: Chart Recorder FIR 05
Manufacturer: ABB
Model: Commander 1900

Plant: Shelburne WWTP
Date: 06-Oct-16
Checked By: Matt O'Grady
Serial No: A 50398/3/1

Tag No.: FIR 05 Application: Flow Recorder

Input %	Input (mA)	As Found	As Left	% Error
0%	4.00	0 L/s	0 L/s	0.000%
25%	8.00	26 L/s	26 L/s	0.000%
50%	12.00	52 L/s	52 L/s	0.000%
75%	16.00	78 L/s	78 L/s	0.000%
100%	20.00	105 L/s	105 L/s	0.000%

Confirmed Run Mode: Yes Returned to service: Yes

Flowmeter Information:

Meter Type: Open Channel
Flow Unit: L/s
Flow Range: 0-105 L/s
PipeSize: 9" Parshall Flume
Pipe Material:
Calibration Factor:

Comments:
Verification of original calibration. Simulated Calibration with loop calibrator.

Signature:

HOLLEN CONTROLS LIMITED
160 Southgate Drive
Guelph, Ontario, N1G 4P5
Phone: 519-766-1152
Fax: 519-766-1153
www.hollencontrols.ca

Instrument Report

Magmeter

Verification: Yes Calibration:

Customer: OCWA West Highland Hub Plant: Shelburne WWTP
Description: WAS Flow Date: 06-Oct-16
Manufacturer: Krohne Checked By: Matt O'Grady
Model: IFC010D Serial No: A99 15693

Tag No.: FIT 01 Application: North Aeration Cells

Input %	Input	As Found	As Left	% Error
0%	4.00	3.99	3.99	0.250%
10%	5.60	5.59	5.59	0.179%
50%	12.00	11.99	11.99	0.083%
100%	20.00	19.99	19.99	0.050%

Confirmed Run Mode: Yes Returned to service: Yes

Flowmeter Information:

Meter Type:	Magnetic
Flow Unit:	L/s
Flow Range:	0-28 L/s
PipeSize:	3"
Pipe Material:	Stainless Steel
Calibration Factor:	5.167

Comments:
Verification of original calibration.

Signature:

HOLLEN CONTROLS LIMITED
160 Southgate Drive
Guelph, Ontario, N1G 4P5
Phone: 519-766-1152
Fax: 519-766-1153
www.hollencontrols.ca

Instrument Report

Magmeter

Verification: Yes Calibration:

Customer: OCWA West Highland Hub Plant: Shelburne WWTP
Description: Tank 1 RAS Flow Date: 06-Oct-16
Manufacturer: Krohne Checked By: Matt O'Grady
Model: IFC010D Serial No: A99 15978

Tag No.: FIT 02 Application: RAS Flow

Input %	Input	As Found	As Left	% Error
0%	4.00	3.99	3.99	0.250%
10%	5.60	5.59	5.59	0.179%
50%	12.00	11.99	11.99	0.083%
100%	20.00	19.99	19.99	0.050%

Confirmed Run Mode: Yes Returned to service: Yes

Flowmeter Information:

Meter Type:	Magnetic
Flow Unit:	L/s
Flow Range:	0-66.67 L/s
PipeSize:	4"
Pipe Material:	Stainless Steel
Calibration Factor:	5.243

Comments:
Verification of original calibration.

Signature:

HOLLEN CONTROLS LIMITED
160 Southgate Drive
Guelph, Ontario, N1G 4P5
Phone: 519-766-1152
Fax: 519-766-1153
www.hollencontrols.ca

Instrument Report

Magmeter

Verification: Yes Calibration:

Customer: OCWA West Highland Hub
Description: Tank 2 RAS Flow
Manufacturer: Krohne
Model: IFC010D

Plant: Shelburne WWTP
Date: 06-Oct-16
Checked By: Matt O'Grady
Serial No: A99 15977

Tag No.: FIT 03 Application: North Aeration Cells

Input %	Input	As Found	As Left	% Error
0%	4.00	3.99	3.99	0.250%
10%	5.60	5.59	5.59	0.179%
50%	12.00	12.00	12.00	0.000%
100%	20.00	20.00	20.00	0.000%

Confirmed Run Mode: Yes Returned to service: Yes

Flowmeter Information:

Meter Type:	Magnetic
Flow Unit:	L/s
Flow Range:	0-66.67 L/s
PipeSize:	4"
Pipe Material:	Stainless Steel
Calibration Factor:	5.243

Comments:
Verification of original calibration.

Signature: Matt O'Grady

HOLLEN CONTROLS LIMITED
160 Southgate Drive
Guelph, Ontario, N1G 4P5
Phone: 519-766-1152
Fax: 519-766-1153
www.hollencontrols.ca

Instrument Report

Magmeter

Verification: Yes Calibration:

Customer: OCWA West Highland Hub
Description: Truck Fill Flow
Manufacturer: Krohne
Model: IFC 010D

Plant: Shelburne WWTP
Date: 06-Oct-16
Checked By: Matt O'Grady
Serial No: A99 15979

Tag No.: FIT 04 Application: Sludge Loading

Input %	Input	As Found	As Left	% Error
0%	4.00	4.00	4.00	0.000%
10%	5.60	5.62	5.60	0.357%
50%	12.00	12.03	12.00	0.250%
100%	20.00	20.03	20.00	0.150%

Confirmed Run Mode: Yes Returned to service: Yes

Flowmeter Information:

Meter Type: Magnetic
Flow Unit: L/s
Flow Range: 0-75 L/s
PipeSize: 4"
Pipe Material: Stainless Steel
Calibration Factor:

Comments:
Verification of original calibration. 4-20mA Trim Completed.

Signature:

HOLLEN CONTROLS LIMITED
160 Southgate Drive
Guelph, Ontario, N1G 4P5
Phone: 519-766-1152
Fax: 519-766-1153
www.hollencontrols.ca

Instrument Report

OCM III

Verification: Yes **Calibration:**

Customer: OCWA West Highland Hub
Description: Effluent Flow
Manufacturer: Milltronics
Model: OCM III

Plant: Shelburne WWTP
Date: 06-Oct-16
Checked By: Matt O'Grady
Type: 9" Parshall Flume

Tag No.: FIT 05 Range: 0-105 L/s

Input %	Input (mA)	As Found (mA)	As Left (mA)	% Error
0%	4.00	3.99	3.99	0.25%
25%	8.00	7.99	7.99	0.12%
50%	12.00	11.99	11.99	0.08%
75%	16.00	15.99	15.99	0.06%
100%	20.00	19.99	19.99	0.05%

Confirmed Run Mode: Yes Placed in service: Yes

Parameters:

Setup Parameters

P0	Language	0
P1	Units	0
P2	Temperature Unit	0
P3	Primary Element	0
P4	Calculation	1
P5	Flow Unit	0
P6	Max Flow	105
P7	Height of Max Head	34.48
U0	Exponent	1.53
P24	mA Assignment	0
P26	mA Span	0
P32	Totalizer Multiplier	6
P45	Low Flow Cut-off	0
P46	Range at Zero Head	87
P47	Blanking Distance	30.48264

Relay Parameters

Relay	Function	On	Off
Parameters	P13	P14	P15
Relay 1	1	0	0
Parameters	P18	P19	P20
Relay 2			
Parameters	P21	P22	P23
Relay 3			

Comments:

Verification of Calibration.

Signature:

HOLLEN CONTROLS LIMITED
160 Southgate Drive
Guelph, Ontario, N1G 4P5
Phone: 519-766-1152
Fax: 519-766-1153
www.hollencontrols.ca

Instrument Report

Magmeter

Verification: Yes Calibration:

Customer: OCWA West Highland Hub
Description: Raw Sewage Flow
Manufacturer: Rosemount
Model: 8712

Plant: Shelburne WWTP
Date: 06-Oct-16
Checked By: Matt O'Grady
Serial No: 860188157

Tag No.: FIT 06 Application: Raw Sewage

Input %	Input	As Found	As Left	% Error
0%	4.00	4.00	4.00	0.000%
25%	8.00	8.00	8.00	0.000%
50%	12.00	12.00	12.00	0.000%
75%	16.00	16.00	16.00	0.000%
100%	20.00	20.00	20.00	0.000%

Confirmed Run Mode: Yes Returned to service: Yes

Flowmeter Information:

Meter Type: Magnetic
Flow Unit: L/s
Flow Range: 0-150 L/s
PipeSize: 8"
Pipe Material: Stainless Steel
Calibration Factor:

Comments:
Verification of original calibration.

Signature:

HOLLEN CONTROLS LIMITED
160 Southgate Drive
Guelph, Ontario, N1G 4P5
Phone: 519-766-1152
Fax: 519-766-1153
www.hollencontrols.ca

Instrument Report

Magmeter

Verification: Yes Calibration:

Customer: OCWA West Highland Hub
Description: Storm Flow
Manufacturer: ABB
Model: Magmaster

Plant: Shelburne WWTP
Date: 06-Oct-16
Checked By: Matt O'Grady
Serial No: 3K22/16426

Tag No.: FIT 07 Application: Storm Flow

Input %	Input (mA)	As Found	As Left	% Error
0%	4.00	3.99	3.99	0.25%
25%	8.00	7.99	7.99	0.12%
50%	12.00	11.99	11.99	0.08%
75%	16.00	15.98	15.98	0.12%
100%	20.00	19.98	19.98	0.10%

Confirmed Run Mode: Yes Returned to service: Yes

Flowmeter Information:

Meter Type: Magnetic
Flow Unit: L/s
Flow Range: 0-200 L/s
PipeSize: 10"
Pipe Material: Stainless Steel
Calibration Factor:

Comments:
Verification of original calibration.

Signature:

HOLLEN CONTROLS LIMITED
160 Southgate Drive
Guelph, Ontario, N1G 4P5
Phone: 519-766-1152
Fax: 519-766-1153
www.hollencontrols.ca

Instrument Report

Magmeter

Verification: Yes Calibration:

Customer: OCWA West Highland Hub
Description: Storm Return Flow
Manufacturer: ABB
Model: Magmaster

Plant: Shelburne WWTP
Date: 06-Oct-16
Checked By: Matt O'Grady
Serial No: 3K22/16425

Tag No.: FIT 08 Application: Storm Return Flow

Input %	Input (mA)	As Found	As Left	% Error
0%	4.00	3.99	3.99	0.25%
25%	8.00	7.99	7.99	0.12%
50%	12.00	11.99	11.99	0.08%
75%	16.00	15.98	15.98	0.12%
100%	20.00	19.98	19.98	0.10%

Confirmed Run Mode: Yes Returned to service: Yes

Flowmeter Information:

Meter Type: Magnetic
Flow Unit: L/s
Flow Range: 0-100 L/s
PipeSize: 8"
Pipe Material: Stainless Steel
Calibration Factor:

Comments:
Verification of original calibration.

Signature:

HOLLEN CONTROLS LIMITED
160 Southgate Drive
Guelph, Ontario, N1G 4P5
Phone: 519-766-1152
Fax: 519-766-1153
www.hollencontrols.ca

Instrument Report

Magmeter

Verification: Yes

Calibration:

Customer: OCWA West Highland Hub
Description: Sludge Transfer Flow
Manufacturer: ABB
Model: Magmaster

Plant: Shelburne WWTP
Date: 06-Oct-16
Checked By: Matt O'Grady
Serial No: 3K62000015302

Tag No.: FIT 09

Application: Sludge Flow

Input %	Input (mA)	As Found	As Left	% Error
0%	4.00	4.00	4.00	0.00%
25%	8.00	8.00	8.00	0.00%
50%	12.00	12.00	11.99	0.00%
75%	16.00	16.00	15.98	0.00%
100%	20.00	20.00	19.98	0.00%

Confirmed Run Mode: Yes

Returned to service: Yes

Flowmeter Information:

Meter Type: Magnetic
Flow Unit: L/s
Flow Range: 0-80 L/s
PipeSize: 8"
Pipe Material: Stainless Steel
Calibration Factor:

Comments:
Verification of original calibration.

Signature:

HOLLEN CONTROLS LIMITED
160 Southgate Drive
Guelph, Ontario, N1L 1R1
Phone: 519-766-1152
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www.hollencontrols.ca

Instrument Report

MultiRanger Plus

Verification: Yes Calibration:

Customer: OCWA West Highland Hub
Description: Primary Digester Level
Manufacturer: Millitronics
Model: Multiranger Plus

Plant: Shelburne WWTP
Date: 06-Oct-16
Checked By: Matt O'Grady
Serial No.: 62504

Tag No.: LIT 02 Range: 0.00m - 4.40m

Input %	Input (mA)	As Found	As Left	% Error
0%	4.00	4.00	4.00	0.00%
25%	8.00	8.00	8.00	0.00%
50%	12.00	11.99	11.99	0.08%
75%	16.00	15.99	15.99	0.06%
100%	20.00	19.99	19.99	0.05%

Confirmed Run Mode: Yes Returned to service: Yes

Setup Parameters:

Parameters

P1	Units	1
P2	Mode of Measurement	1
P3	Empty	4.81
P4	Span	4.4
P5	Near Blanking	0.31
P6	mA Output	2
P7	Decimal Point	2
P8	Relay 1	0
P9	Relay 1 Setpoint	1.05
P10	Relay 1 Setpoint	1.01

Relays

Relay	Function	On	Off
Parameter	P8	P9	P10
Relay 1	0	1.05	1.01
Parameter	P11	P12	P13
Relay 2			
Parameter	P14	P15	P16
Relay 3			
Parameter	P17	P18	P19
Relay 4			
Parameter	P20	P21	P22
Relay 5			

Comments:
Verified Original Calibration.
Level 4.41m (above span)
Note: Span can be set to 4.51m

Signature:

HOLLEN CONTROLS LIMITED
160 Southgate Drive
Guelph, Ontario, N1G 4P5
Phone: 519-766-1152
Fax: 519-766-1153
www.hollencontrols.ca

Instrument Report

MultiRanger Plus

Verification: Yes Calibration:

Customer: OCWA West Highland Hub
Description: Secondary Digester Level
Manufacturer: Millitronics
Model: Multiranger Plus

Plant: Shelburne WWTP
Date: 06-Oct-16
Checked By: Matt O'Grady
Serial No.: 62505

Tag No.: LIT 03 Range: 0.00 - 2.25m

Input %	Input (mA)	As Found	As Left	% Error
0%	4.00	3.99	3.99	0.25%
25%	8.00	7.99	7.99	0.12%
50%	12.00	11.99	11.99	0.08%
75%	16.00	15.99	15.99	0.06%
100%	20.00	19.99	19.99	0.05%

Confirmed Run Mode: Yes Returned to service: Yes

Setup Parameters:

Parameters

P1	Units	1
P2	Mode of Measurement	1
P3	Empty	3.2
P4	Span	2.25
P5	Near Blanking	0.35
P6	mA Output	2
P7	Decimal Point	2
P8	Relay 1	0
P9	Relay 1 Setpoint	–

Relays

Relay	Function	On	Off
Parameter	P8	P9	P10
Relay 1			
Parameter	P11	P12	P13
Relay 2			
Parameter	P14	P15	P16
Relay 3			
Parameter	P17	P18	P19
Relay 4			
Parameter	P20	P21	P22
Relay 5			

Comments:
Verified Original Calibration.
Span can be adjusted to as high as 2.85m

Signature:

HOLLEN CONTROLS LIMITED
160 Southgate Drive
Guelph, Ontario, N1G 4P5
Phone: 519-766-1152
Fax: 519-766-1153
www.hollencontrols.ca

Instrument Report

MultiRanger 100

Verification: Yes Calibration:

Customer: OCWA West Highland Hub
Description: Well Level
Manufacturer: Siemens
Model: Multiranger 100

Plant: Shelburne WWTP
Date: 06-Oct-16
Checked By: Matt O'Grady
Serial No.: PBD/TN220356

Tag No.: LIT 04 Range: 0.00 - 2.30m

Input %	Input (mA)	As Found	As Left	% Error
0%	4.00	4.00	4.00	0.00%
25%	8.00	8.00	8.00	0.00%
50%	12.00	12.01	12.01	0.08%
75%	16.00	16.01	16.01	0.06%
100%	20.00	20.01	20.01	0.05%

Confirmed Run Mode: Yes Returned to service: Yes

Setup Parameters:

Parameters

P001	Operation	1
P002	Material	1
P003	Process Speed	2
P004	Transducer	102
P005	Units	1
P006	Empty	2.64 m
P007	Span	2.30 m
P065	LOE	5.00 m
P070		0:00

Relays

Relay	Function	On	Off
Parameter	P111	P112	P113
Relay 1			
Parameter			
Relay 2			
Parameter			
Relay 3			
Parameter			
Relay 4			
Parameter			
Relay 5			

Comments: Verification of original calibration.

Signature:

2016 Annual Performance Report for
the Town of Shelburne Wastewater Treatment Plant
Certificate of Approval No. 9972-7FYJUB

Appendix D

Process Flow Schematic

2016

EXPANSION OF
WATER POLLUTION
CONTROL FACILITIES
PHASE 2
TOWN OF SHELBURNE
GENERAL PLANS
PROCESS FLOW SCHEMATIC
Must Be Updated To
Incorporate Phase
2 As Constructed
Information