

**2016 Annual Compliance Report**  
**Operation and Maintenance**  
**Of**  
**Chesley Wastewater System**

**March 2017**

**13-028**

**Prepared for:**  
**Municipality of Arran-Elderslie**  
**1925 Bruce Road 10**  
**Box 70**  
**Chesley, ON**  
**N0G 1L0**

**Prepared by:**  
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## 1.0 INTRODUCTION

The Chesley Wastewater System is comprised of a wastewater treatment plant and the four (4) pumping stations: Riverside Park, North End, Arena East and South End. The wastewater generated within Chesley is collected into the sewer system and pumped to the wastewater treatment plant, which is comprised of three (3) aerated lagoons, Parshall flume for flow monitoring and an alum dosing system for phosphorus removal. The treated effluent from the aerated lagoons is continuously discharged into the Saugeen River.

The Municipality of Arran-Elderslie retains GSS Engineering Consultants Ltd., to prepare the Annual Compliance Report for the Chesley Sewage Works, Refer to **Appendix A** for the Environmental Compliance Approval (ECA) #2192-8TQN9Z, which came into effect in December 2012.

The annual report addresses the following requirements:

- Summary of all monitoring data and a comparison to the effluent limits.
- Summary of improvements and maintenance carried out.
- Summary of all by-pass, spill or abnormal discharge events.

The annual report also includes recommendations that the Municipality shall undertake in order to continue to meet the regulatory requirements.

During the reporting period of this Annual Report (January 1, 2016 to December 31, 2016), the Chesley Sewage Works was operated by the Municipality of Arran-Elderslie namely Mark O’Leary, who has WWT II and WWC II License, Trevor Sweiger, who has WWT I License. Chris Legge, who has WWT I and WWC I License and Ted Knapp, who has WWT III and WWCII License. Mr. Scott McLeod was the backup Overall Responsible Operator (ORO), and Mr. Rakesh Sharma was the Overall Responsible Operator (ORO).

This report is prepared based on the information provided by the Municipality of Arran-Elderslie.

## **2.0 DESCRIPTION OF FACILITIES**

### **2.1 Wastewater Treatment Plant**

The wastewater treatment plant consists of three (3) aerated lagoons. Cell 1 has a volume of 34,430 m<sup>3</sup>, Cell 2 has a volume of 33,070 m<sup>3</sup> and Cell 3 has a volume of 35,910 m<sup>3</sup>. All three (3) lagoons are equipped with a fine bubble diffused aeration system; however, the air flow into the lagoons is maximum for Cell 1 and minimum for Cell 3. The air is supplied by way of three (3) (2+1) positive displacement air blowers, each with a capacity of 6.6 m<sup>3</sup>/min. The air flow meters have been provided to monitor the flow of air into Cells 1, 2 and 3.

The incoming wastewater flow is measured by way of a Parshall flume, complete with an ultrasonic transducer and remote readout. Alum is added to the incoming wastewater for phosphorous removal. There are two (2) alum pumps – one (1) duty, one (1) standby. The alum pump injects the required flow-paced amount of alum into the wastewater at the Parshall Flume chamber.

### **2.2 Riverside Park Pumping Station**

This pumping station is the main sewage pumping station and is located near the bridge on Bruce County Road #10 in Chesley. The facility consists of an aboveground building that houses a 65 kW standby power diesel generating set along with electrical controls. A new wet well pumping station was constructed and placed into service in 2010. The wet well was constructed by utilizing a 3.6 m diameter precast concrete pipe. The wet well has two (2) submersible sewage pumps in the wet well, each with a rated capacity of 61.1 L/sec., to pump the wastewater collected in the wet well to the sewage treatment plant. The wet well is equipped with an overflow into the North Saugeen River.

### **2.3 North End Pumping Station**

The North End Pumping Station is located on the west side of 1<sup>st</sup> Avenue North in Chesley. The pumping station consists of a 2.4 m diameter wet well, completed with two (2) pumps, each with a capacity of 6.7 L/sec at 16.8 m TDH. The pumps are submersible raw sewage pumps.

The standby power has been provided by way of a 30 kW standby diesel generator, located in a control building next to the wet well.

### **2.4 Arena East Pumping Station**

This pumping station is comprised of a wet well approximately 2.4 m in diameter and 6 m in depth, complete with benching, access ladder, intermediate platform and ventilation. The wet well is

provided with two (2) submersible sewage pumps, each rated at 10.35 L/sec at 18 m TDH. The wastewater enters the wet well by way of 200 mm diameter sewer pipe. The wet well is also provided with 200 mm diameter emergency flow pipe that discharges into an existing 900 mm diameter storm sewer which ultimately discharges into the north branch of the Saugeen River.

## **2.5 South End (Garner Street) Pumping Station**

The South End Pumping Station is located on the north side of Garner Street and includes a wet well equipped with two (2) submersible sewage pumps, each capable of pumping 18.2 L/sec at 13.1 m TDH. The wet well is provided with a bypass manhole. Emergency standby power has been provided by way of a 100 kW standby diesel generator set, which is located in the control building next to the pumping station wet well.

### 3.0 SUMMARY OF WASTEWATER FLOWS

The plant operator recorded the incoming wastewater flow into the lagoon every day at approximately the same time. The 2016 total monthly flow, monthly average and maximum daily flow has been provided in **Table 1**. The maximum day flow occurred on April 1, 2016 and was 7,333 m<sup>3</sup>, indicating extraneous flows into the wastewater collection system, when compared with design capacity of 2,307 m<sup>3</sup>/day (spring capacity).

The average daily flow from January 1<sup>st</sup> to April 15<sup>th</sup> was 2,374 m<sup>3</sup>/day while the average daily flow from April 16<sup>th</sup> to December 31<sup>st</sup> was 819 m<sup>3</sup>/day.

The calibration of the flow meter was checked in April 2016. See **Appendix C**.

It should be noted that the design capacity of the wastewater treatment plant is 2,307 m<sup>3</sup>/day (January 1 to April 15) and 1,461 m<sup>3</sup>/day (April 16 to December 31). Therefore, the plant operated at approximately 103% of the design capacity from January 1 to April 15 and at approximately 56.1% of the design capacity from April 16 to December 31.

The enclosed **Table 1A** provides a comparative summary of treatment plant capacity utilization since 2012. The table is self-explanatory.

#### 3.1 Pump Hours

The 2016 pump hours for each of the four (4) pumping station have been provided in **Table 2**. The pump running hours at North end and Arena East pumping stations are comparable to 2015. However at Riverside Park and South End pumping stations, pump operating hours are significantly higher indicating high extraneous flows in the two basins.

**TABLE 1**

## Summary of Raw Wastewater Flows: 2016

Chesley Wastewater System

January 2016 to December 2016

Municipality of Arran-Elderslie

March, 2017

13-028

Month	Total Flow (m <sup>3</sup> )	Average Daily Flow (m <sup>3</sup> /day)	Maximum Daily Flow (m <sup>3</sup> /day)
January	51,217.0	1,652.0	3074
February	66,226.0	2,284.0	6051
March	89,628.0	2,891.0	8327
April 1-15	44,584.0	2,972.0	7333
April 16-30	18,964.0	1,264.0	1600
May	23,443.0	1,047.0	2376
June	21,213.0	707.0	637
July	21,257.0	687.0	856
August	24,668.0	796.0	2927
September	22,847.0	762.0	1899
October	21,682.0	699.0	1157
November	20,282.0	676.0	1229
December	38,573.0	1,244.0	3390
Total	464,584.0		
Average(Jan 1 to April15)		2,374.1	
Average (April16 to Dec31)		819.0	
Maximum			8,327

**TABLE 1A**

Comparative Summary of Flows to Lagoons

Chesley Wastewater System

Municipality of Arran-Elderslie

March, 2017

13-028

Year	Average Day (m <sup>3</sup> /day)		Capacity Utilization		Maximum Daily Flow (m <sup>3</sup> /day)
	Jan 1 to April 15	April 16 to Dec 31	Jan 1 to April 15	April 16 to Dec 31	
2016	2,374.0	819.0	103.0%	56.1%	7,333
2015	1,270.9	1,032.0	52.4%	70.6%	3,798
2014	1,909.0	1,231.0	82.7%	84.3%	9,387
2013	2,024.0	1,320.0	87.7%	90.3%	7,924
2012	1,494.0	845.0	64.8%	57.9%	5,114
Rated Capacity	2,307.0	1,461.0			



**TABLE 2**  
Summary of Pump Hours: 2016

March, 2017

13-028

<b>Pumping Station</b>	<b>Pump #1</b>	<b>Pump #2</b>
North End	404	460.5
Riverside Park	649.50	886.50
Arena East	158.6	185.4
South End	316.9	189

#### **4.0 SUMMARY OF EFFLUENT QUALITY MONITORING AND COMPLIANCE**

Weekly composite samples of incoming wastewater and effluent samples were collected for analysis by Caduceon Laboratories in Ottawa, Ontario. **Table 3** provides a summary of effluent quality relating to CBOD<sub>5</sub>, Total Suspended Solids (TSS), Total Phosphorus, Ammonia, TKN, pH and Hydrogen Sulphide.

ECA provides effluent objective and effluent limits for CBOD<sub>5</sub>, Total Suspended Solids and Total Phosphorous. A review of **Table 3** confirms that both effluent objectives and effluent limits were met in 2016 except for Total ammonia exceedance in September, October and November months.

Monthly “Total Ammonia Nitrogen” concentration is also provided in **Table 3**. The total ammonia loadings, however were within the limits of the ECA. MOECC Provincial Officer was informed of ammonia nitrogen exceedances by way of email notification.

The ECA states that the effluent pH should be maintained at a range of 6.0 to 9.5, inclusive. The annual average as 7.67.

The annual concentration average for Sulphide parameter in the Chesley Wastewater Treatment Plant was 0.02 mg/L in 2016.

**Table 4** provides a summary of E Coli results obtained through weekly monitoring of plant effluent. The data has been provided as the geometric mean for each month. The average geometric mean for E Coli results was 118 cfu/100 ml. Highest E.Coli geometric mean of 745 occurred in December, however the annual average was 118 which is less than provincial objective of 200 cfu/100 ml.

**TABLE 3**  
 Summary of Effluent Quality: 2016  
 Chesley Sewage Works, Municipality of Arran-Elderslie

March, 2017

13-028

Month	CBOD mg/L		Total Suspended Solids		Total Ammonia	Effluent Limits as per ECA Total Ammonia	Total Ammonia Nitrogen Loading	Total Ammonia Loading Criteria as per ECA	Estimated Unionized Ammonia	Estimated Unionized Ammonia Loading	TKN		Total Phosphorous		pH Effluent	Sulphide Effluent
	Raw	Effluent	Raw	Effluent	(effluent)						Raw	Effluent	Raw	Effluent		
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)						(mg/L)	(mg/L)	(mg/L)	(mg/L)		
January	29	4	16	3	1.18	11	1.95	25	0.010	0.02	11.03	1.58	1.22	0.15	7.86	0.02
February	18	4	10	2	3.28	14	7.4	32	0.002	0.05	7.78	3.68	0.99	0.21	7.67	0.02
March	13	12	9	15	2.55	14	7.4	32	0.002	0.06	7.33	4.13	1.00	0.10	7.72	0.02
April	26	16	24	19	0.30	5	0.89/0.38	11/7	0.030	0.01/0.04	10.93	1.15	1.31	0.05	7.82	0.02
May	32	3	36	2	0.30	3	0.3	5	0.003	0.06	17.38	0.68	1.65	0.17	7.61	0.02
June	50	4	55	3	0.58	2	0.41	3	0.060	0.04	24.10	1.38	2.62	0.60	8.26	0.02
July	80	4	118	4	0.28	3	0.2	5	0.010	0.01	21.75	1.15	2.52	0.26	7.61	0.02
August	77	10	115	17	0.82	2	0.65	3	0.010	0.01	22.06	2.12	2.96	0.24	7.24	0.03
September	89	14	64	14	<b>3.10</b>	3	2.4	5	0.020	0.02	19.10	4.93	2.11	0.37	7.25	0.07
October	73	5	53	4	<b>6.54</b>	3	4.6	5	0.050	0.04	23.78	7.44	2.51	0.58	7.50	0.03
November	120	4	102	4	<b>7.62</b>	6	5.2	9	0.080	0.05	28.03	8.70	2.96	0.50	7.82	0.04
December	36	4	26	4	6.00	9	7.5	13	0.050	0.06	16.65	7.40	1.61	0.35	7.71	0.02
Annual Average	54	7	52	8	2.71						17.49	3.70	1.96	0.30	7.67	0.30
Effluent Limits (mg/L)		30		30										1.0	6 to 9.0	
Effluent Objectives (mg/L)		25		25											6.5 to 8.5	
Compliance?		Yes		Yes	No			Yes						Yes	Yes	

**TABLE 4**  
Summary of Effluent E.Coli Results  
2016  
Chesley Wastewater System

March, 2017

13-028

<b>Month</b>	<b>E.Coli Geometric Mean (cfu/100ml)</b>
January	52
February	173
March	50
April	14
May	3
June	72
July	7
August	4
September	126
October	82
November	89
December	745
Annual Average	118
Provincial Objective	200

## 5.0 SUMMARY OF 2016 OPERATION AND MAINTENANCE

### January:

- Installed a new eye wash station at the blower room.
- Yearly maintenance completed on all 3 blowers including changing of air filters and oil change.
- Replaced cleanout “top” at Unit 18 Turner Apts. which was damaged by snow equipment.
- Routine maintenance completed at South End, Riverside, and North End pumping station’s diesel generator sets. Oil and fuel filters were changed and topped up with anti-freeze. Batteries were also checked.
- Sewer dug at 117 3<sup>rd</sup> Ave SE. (Prime). Removed old cleanout on property owners’ side.

### February:

- Resolved issues relating to gradient and associated sewer backup in the house at 98 3<sup>rd</sup> St. SW (Perkins).
- Effluent Sigma sampler was provided with new bearings and rollers to prevent tubing damages.

### March:

- Gas cleaning system was taken offline, and gas tanks were sent back to Praxair.
- McCullough contractor completed snaking for home owner experiencing sewer lateral problems at 138 5<sup>th</sup> Ave. SW.
- Received call about a lateral problem which was eventually dug in late April. Home owner was Ron Klages at 192 5<sup>th</sup> Ave. SW.
- There was a bypass at Riverside Lift Station. Approximate 10.6 m<sup>3</sup> of raw sewage overflowed. All authorities were notified. It was a heavy rainfall event. Vac trucks were utilized to prevent overflow.
- Additional sewage bypass occurred on March 31<sup>st</sup> and April 1<sup>st</sup>. Heavy down pours caused significant flows resulting in two additional bypasses of 92 m<sup>3</sup> and 132 m<sup>3</sup>.

### April:

- Sewer blockage issue at 32 3<sup>rd</sup> Ave SW. (MacDonald). Employed sewer camera to find issues. Property owner dug and replaced section of the lateral. Additional issues reoccurred in October that required high pressure flushing through cleanout to remove blockage.

- There was sewer backup on 4<sup>th</sup> St. SW, between manholes 38 and 40. Fosters were employed on site to flush blockage using high water pressure. It was discovered via camera work that a section of clay sewer had been damaged, which was dug and replaced in June.
- Flowmetrix calibrated flow meters at Riverside Park Pumping Station and Lagoons.

**May:**

- Cell #2 water level was raised by installing a weir board to reduce plant growth on pond bottom.

**July:**

- Riverside lift station building was painted.
- Al Reich Construction completed construction of 5<sup>th</sup> St SE between 2<sup>nd</sup> Ave. SE and 4<sup>th</sup> Ave. SE Sections of the sewer and sewer laterals were replaced, up to property line.
- Foster's at site to flush river crossings, and flushing of traditional bad spots within the collection system.
- Arena East pump #1 was lifted out to remove a blockage and re-installed.
- All ¼" fuel lines on diesel generators at North End, Riverside, and South End were replaced.
- The alarm dialer was replaced at the South End Lift Station.

**August:**

- Dewar Electric on site to replace VFD on pump #2 at Riverside Park Sewage Pumping Station.

**September:**

- Annual flushing of the collection system was completed using Arran-Elderslie truck and staff.

**October:**

- The drive belt on blower #3 was replaced at the lagoons.
- Geotubes and sludge were removed from the Chesley Lagoon site, and taken to the Arran Landfill to use as cover material.
- Repairs were made to existing signage around the lagoons.

- Cement blocks were installed around the asphalt pad at cell #1. These blocks are meant to stabilize the Geotubes, in preparation for proposed desludging of Lagoon #1.

**November:**

- Test run of DG Set was completed at the blower building.
- Lid was replaced on manhole #88

**December:**

- Foster's completed sewer flushing and CCTV inspection of various streets to determine the condition of sanitary and storm sewers for consideration for future construction.

## **6.0 SUMMARY OF COMPLAINTS RECEIVED**

There were some complaints / calls regarding sewer blockages in sewer laterals. The locations and details of action taken are provided in section 5.0.



## **7.0 SEWAGE BYPASS**

There were three sewage bypasses in April month from the Chesley Wastewater System in 2016. The total bypass amount was 234.6 m<sup>3</sup>. A copy of the lab reports are included in **Appendix B**.

## **8.0 MINISTRY OF THE ENVIRONMENT INSPECTION**

The Ministry of the Environment did not conduct an inspection of the Chesley Wastewater System in 2016.

## **9.0 LAND APPLICATION OF SLUDGE**

No Sludge was removed or hauled from Chesley lagoons in 2016.

## 10.0 RECOMMENDATIONS

The following recommendations are presented for continual compliance with ECA:

1. The air filters on the blower intake should be checked for dust accumulation twice a year and the filters replaced as required.
2. The plant operators are advised to continue to inform GSS Engineering Consultants Ltd. immediately when the ECA limits are exceeded.
3. Operators require 40 hours of training per year in accordance with Regulation 435/93. Records must be kept.
4. The revised contingency plan for sewage bypasses which was prepared by Oweson Water Services (A Division of WSP Inc.) in February 2010, should continue to be followed in the event of sewage bypasses. It is recommended that the capacity of the pumps at Riverside Park Sewage Pumping Station is checked before spring melt and early fall to ensure that pumps are reliable.

Respectfully submitted:

GSS Engineering Consultants Ltd.

Municipality of Arran-Elderslie

Rakesh Sharma, P. Eng., M.A.Sc.  
Class 4 License, WWC and WWT

Mark O'Leary, Water & Sewer Foreman  
Class 2 License, WWC and WWT

**Appendix A**

**Environmental Compliance Approval**



AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 4717-AAFL4A

Issue Date: October 31, 2016

The Corporation of the Municipality of Arran-Elderslie  
 1925 County Road 10  
 Post Office Box, No. 70  
 Chesley, Ontario  
 N0G 1L0

Site Location: Chesley Sewage Works  
 230, 4th Street Southwest  
 Chesley, Ontario

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

municipal sewage works for the treatment of sanitary sewage and disposal of treated effluent to the North Branch of the Saugeen River, via a Sewage Treatment Plant (Chesley Sewage Works), as follows:

Seasonal Rated Capacity		
Prior to Substantial Completion of all Proposed Works	1,461 m <sup>3</sup> /d (April 16 to December 31)	2,307 m <sup>3</sup> /d (January 1 to April 15)
Upon Substantial Completion of all Proposed Works	1,753 m <sup>3</sup> /d (April 16 to December 31)	2,768 m <sup>3</sup> /d (January 1 to April 15)

Proposed Works

Aerated Waste Stabilization Pond

- replacement of existing diffused air aeration system with fine bubble aeration system consisting of a new air header and six (6) laterals of twelve (12) diffuser assemblies each in Cell 1, five (5) laterals of five (5) diffuser assemblies each in Cell 2 and three (3) laterals of four (4) diffuser assemblies each in Cell 3 and each diffuser assembly comprising eight (8) 63 mm x 500 mm long membrane diffusers in a radial configuration, suspended close to the bottom of the cell, or equivalent aeration as approved in writing by the Water Supervisor;
- replacement of existing blowers with three (3) blowers (one standby), each rated at 368 L/s at 42 kPa;

Previous Works

Inlet Works

- influent chamber including sluice gates and weirs with stop logs to direct flows to Cell 1 of the

aerated waste stabilization pond under normal operating condition, and to the other cells under other emergency and maintenance situations;

#### Aerated Waste Stabilization Pond

- an aerated waste stabilization pond with three Cells operating in series, equipped with diffused air aeration system, with the approximate operating volumes in Cell 1 of 34,430 m<sup>3</sup>, Cell 2 of 33,070 m<sup>3</sup> and Cell 3 of 35,910 m<sup>3</sup> and a total water surface area of approximately 7 hectares;
- raw sewage discharge from the influent chamber to the east end of Cell 1;
- interconnecting Structure No. 1 at the west end of Cell 1 for transfer of sewage to Cell 2 for continuation of treatment;
- outlet Structure No. 2 at the east end of Cell 2 connecting to a 450 mm diameter sewer to the influent discharge structure at the east end of Cell 3 for effluent storage and polishing;
- three (3) blowers (one standby), each rated at 110 L/s at 48 kPa (to be replaced);

#### Effluent Outfall

- effluent structures including sluice gates and weirs at the west end of Cell 3 and a 450 mm diameter effluent outfall pipe to the North Branch of the Saugeen River;

#### Supplementary Treatment

##### Phosphorus Removal

- one (1) 22,500 L chemical storage tank;
- two (2) chemical feed pumps (one standby), each rated at 30 L/h;

##### Gas Cleaning System (to be decommissioned)

- gas cleaning system for utilizing hydrochloric acid gas for periodic cleaning of the aeration piping, including remote gas cleaning pots;

including all other controls, electrical equipment, instrumentation, piping, pumps, valves and appurtenances essential for the proper operation of the Works,

all in accordance with the submitted supporting documents listed in Schedule A.

*For the purpose of this environmental compliance approval, the following definitions apply:*

"Annual Average Concentration" means the arithmetic mean of all Daily Concentrations of a contaminant in the effluent sampled or measured, or both, during a calendar year;

"Approval" means this entire document and any schedules attached to it;

"BOD5" (also known as TBOD5) means five day biochemical oxygen demand measured in an unfiltered sample and includes carbonaceous and nitrogenous oxygen demand;

"Bypass" means diversion of sewage around one or more unit processes within the Sewage Treatment Plant with the diverted sewage flows being returned to the Sewage Treatment Plant treatment train upstream of the Final Effluent sampling location, and discharging to the environment through the Sewage Treatment Plant outfall;

"CBOD5" means five day carbonaceous (nitrification inhibited) biochemical oxygen demand measured in an unfiltered sample;

"Daily Concentration" means the concentration of a contaminant in the effluent discharged over any single day, as measured by a composite or grab sample, whichever is required;

"Director" means a person appointed by the Minister pursuant to section 5 of the EPA for the purposes of Part II.1 of the EPA;

"*E. Coli*" refers to the thermally tolerant forms of Escherichia that can survive at 44.5 degrees Celsius;

"Emergency Situation" means a structural, mechanical or electrical failure that causes a temporary reduction in the capacity of the Sewage Treatment Plant or an unforeseen flow condition that may result in:

- a) danger to the health or safety of any person; or,
- b) injury or damage to any property, or serious risk of injury or damage to any property; or
- c) treatment process biomass washout.

"Equivalent Equipment" means a substituted equipment or like-for-like equipment that meets the required quality and performance standards of a named equipment;

"Event" means an action or occurrence, at a given location within the Sewage Treatment Plant that causes a Bypass or Overflow. An Event ends when there is no recurrence of a Bypass or Overflow in the 12-hour period following the last Bypass or Overflow. Two Events are separated by at least 12 hours during which there has been no recurrence of a Bypass or Overflow. An Overflow and a Bypass are two separate reportable Events even when occurring concurrently;

"Final Effluent" means sewage discharge via the Sewage Treatment Plant outfall;

"Limited Operational Flexibility" (LOF) means any modifications that the Owner is permitted to make to the Works under this Approval;

"Ministry" means the ministry of the government of Ontario responsible for the EPA and OWRA and includes all officials, employees or other persons acting on its behalf;



CONTENT COPY OF ORIGINAL

"Monthly Average Concentration" means the arithmetic mean of all Daily Concentrations of a contaminant in the effluent sampled or measured, or both, during a calendar month;

"Monthly Average Daily Flow" means the cumulative total sewage flow to the sewage works during a calendar month divided by the number of days during which sewage was flowing to the sewage works that month;

"Monthly Average Loading" means the value obtained by multiplying the Monthly Average Concentration of a contaminant by the Monthly Average Daily Flow over the same calendar month;

"Owner" means The Corporation of the Municipality of Arran-Elderslie and its successors and assignees;

"OWRA" means the Ontario Water Resources Act, R.S.O. 1990, c. O.40, as amended;

"Overflow" means a discharge to the environment from the Works at a location other than the Sewage Treatment Plant effluent outfall or into the effluent outfall downstream of the Final Effluent sampling location;

"Previous Works" means those portions of the sewage works previously constructed and approved under an approval;

"Proposed Works" means the sewage works described in the Owner's application, this Approval, to the extent approved by this Approval;

"Seasonal Average Daily Flow" means the cumulative total sewage flow to the sewage works during a seasonal period, from January 1 to April 15 or from April 16 to December 31, and divided by the number of days during which sewage was flowing to the sewage works that seasonal period;

"Seasonal Rated Capacity" means the Seasonal Average Daily Flow for which the Sewage Treatment Plant is approved to handle;

"Sewage Treatment Plant" means the entire sewage treatment and effluent discharge facility;

"Substantial Completion" has the same meaning as "substantial performance" in the Construction Lien Act;

"Water Supervisor" means the Water Compliance Supervisor for the Safe Drinking Water Branch (SDWB) for the Owen Sound office of the Ministry

"Works" means the sewage works described in the Owner's application, and this Approval, and includes Proposed Works, Previous Works, and modifications made under Limited Operational Flexibility.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

## TERMS AND CONDITIONS

### 1. GENERAL PROVISIONS

(1) The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Works is notified of this Approval and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

(2) Except as otherwise provided by these conditions, the Owner shall design, build, install, operate and maintain the Works in accordance with the description given in this Approval, and the application for approval of the Works.

(3) Where there is a conflict between a provision of any document in the schedule referred to in this Approval and the conditions of this Approval, the Conditions in this Approval shall take precedence, and where there is a conflict between the documents in the schedule, the document bearing the most recent date shall prevail.

(4) Where there is a conflict between the documents listed in the Schedule A, and the application, the application shall take precedence unless it is clear that the purpose of the document was to amend the application.

(5) The Conditions of this Approval are severable. If any Condition of this Approval, or the application of any requirement of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

### 2. CHANGE OF OWNER

(1) The Owner shall notify the Water Supervisor and the Director, in writing, of any of the following changes within thirty (30) days of the change occurring:

- a. change of Owner;
- b. change of address of the Owner;
- c. change of partners where the Owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c.B17 shall be included in the notification to the Water Supervisor;
- d. change of name of the corporation where the Owner is or at any time becomes a corporation, and a copy of the most current information filed under the Corporations Information Act, R.S.O. 1990, c. C39 shall be included in the notification to the Water Supervisor;

(2) In the event of any change in ownership of the Works, other than a change to a successor municipality, the Owner shall notify in writing the succeeding owner of the existence of this Approval, and a copy of such notice shall be forwarded to the Water Supervisor and the Director.

### 3. COMPLETION OF THE PROPOSED WORKS

(1) All Proposed Works in this Approval shall be completed and commissioned within five (5) years of issuance of this Approval.

(2) One (1) week prior to the start up of the operation of the Proposed Works, the Owner shall notify the Water Supervisor (in writing) of the pending start up date.

(3) Upon the Substantial Completion of the Proposed Works, the Owner shall prepare a statement, certified by a Professional Engineer, that the Proposed Works are constructed in accordance with this Approval, and shall make the written statement to notify the Water Supervisor.

(4) Within one (1) year of the Substantial Completion of the Proposed Works, a set of as-built drawings showing the Works "as constructed" shall be prepared or updated. These drawings shall be kept up to date through revisions undertaken from time to time and a copy shall be retained at the Works for the operational life of the Works.

### 4. BYPASSES

(1) Any Bypass is prohibited, except:

- a. in an Emergency Situation;
- b. where the Bypass is a direct and unavoidable result of a planned maintenance procedure or other special circumstances, the Owner notified the Water Supervisor 15 days prior to the Bypass and the Water Supervisor has given written consent of the Bypass;

(2) The Owner shall forthwith notify the Spills Action Centre (SAC) and the Medical Officer of Health of all Bypass Events. This notice shall include, at a minimum, the following information:

- a. the date, time, and duration of the Event;
- b. the location of the Event;
- c. the measured or estimated volume of the Event (unless the Event is ongoing);
- d. the reason for the Event; and
- e. the level of treatment the Bypass received and disinfection status of same.

(3) The Owner shall submit Bypass Event Reports to the Ministry's local office on a quarterly basis, no later than each of the following dates for each calendar year: February 14, May 15, August 14, and November 15. Event Reports shall be in an electronic format specified by the Ministry. In each Event Report the Owner shall include, at a minimum, the following information on any Events that occurred during the preceding quarter:

- a. the date of the Event(s);
- b. the measured or estimated volume of the Event(s);
- c. the duration of the Event(s);
- d. the location of the Event(s);
- e. the reason for the Event(s); and
- f. the level of treatment the Bypasses received and disinfection status of same.

(4) The Owner shall use best efforts to collect a representative sample consisting of a minimum of two

(2) grab samples of the Bypass and have it analyzed for parameters outlined in Condition 7 using the protocols specified in Condition 9, one at the beginning of the Event and the second approximately near the end of the Event, to best reflect the effluent quality of such Bypass.

## 5. OVERFLOWS

(1) Any Overflow is prohibited, except:

- a. in an Emergency Situation;
- b. where the Overflow is a direct and unavoidable result of a planned maintenance procedure or other special circumstances, the Owner notified the Water Supervisor 15 days prior to the Overflow and the Water Supervisor has given written consent of the Overflow;

(2) The Owner shall forthwith notify the Spills Action Centre (SAC) and the Medical Officer of Health of all Overflow Events. This notice shall include, at a minimum, the following information:

- a. the date, time, and duration of the Event;
- b. the location of the Event;
- c. the measured or estimated volume of the Event (unless the Event is ongoing);
- d. the reason for the Event; and
- e. the level of treatment the Overflows received and disinfection status of same.

(3) The Owner shall submit Overflow Event Reports to the Ministry's local office on a quarterly basis, no later than each of the following dates for each calendar year: February 14, May 15, August 14, and November 15. Event Reports shall be in an electronic format specified by the Ministry. In each Event Report the Owner shall include, at a minimum, the following information on any Events that occurred during the preceding quarter:

- a. the date of the Event(s);
- b. the measured or estimated volume of the Event(s);
- c. the duration of the Event(s);
- d. the location of the Event(s);
- e. the reason for the Event(s); and
- f. the level of treatment the Overflows received and disinfection status of same.

(4) The Owner shall use best efforts to collect a representative sample consisting of a minimum of two (2) grab samples of the Overflow and have it analyzed for parameters outlined in Condition 7 using the protocols specified in Condition 9, one at the beginning of the Event and the second approximately near the end of the Event, to best reflect the effluent quality of such Overflow. For raw sewage and primary treatment system Overflows, BOD5 shall be monitored instead of CBOD5.

## 6. EFFLUENT OBJECTIVES

(1) The Owner shall use best efforts to design, construct and operate the Works with the objective that the concentrations of the materials named below as effluent parameters are not exceeded in the effluent from the Sewage Treatment Plant.

<b>Table 1 - Effluent Objectives</b>	
<b>Effluent Parameter</b>	<b>Average Concentration</b> (milligrams per litre unless otherwise indicated)
CBOD5	20.0
Total Suspended Solids	20.0
Total Phosphorus	0.7

(2) The Owner shall use best efforts to:

- a. maintain the pH of the effluent from the Sewage Treatment Plant within the range of 6.5 - 8.5, inclusive, at all times;
- b. operate the Works within the Seasonal Rated Capacity of the Sewage Treatment Plant;
- c. ensure that the effluent from the Sewage Treatment Plant is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film or sheen or foam or discolouration on the receiving waters.

**7. EFFLUENT LIMITS**

(1) The Owner shall operate and maintain the Works such that the concentrations of the materials named below as effluent parameters are not exceeded in the effluent from the Sewage Treatment Plant.

<b>Table 2a - Effluent Limits</b>	
<b>Effluent Parameter</b>	<b>Average Concentration</b> (milligrams per litre unless otherwise indicated)
Column 1	Column 2
CBOD5	25.0
Total Suspended Solids	25.0
Total Phosphorus	0.85

<b>Table 2b - Effluent Limits - Total Ammonia Nitrogen</b>		
<b>Month</b>	<b>Average Concentration</b> (milligrams per litre unless otherwise indicated)	<b>Average Waste Loading</b> (kilograms per day unless otherwise indicated)
Column 1	Column 2	Column 3
January	11.0	30.5
February	14.0	38.8
March	14.0	38.8
April	5.0	14 (Apr 1 - April 15) 9 (Apr 16 - Apr 30)
May	3.0	5.3
June	2.0	3.5
July	3.0	5.3
August	2.0	3.5
September	3.0	5.3
October	3.0	5.3
November	6.0	10.5
December	9.0	15.8

(2) For the purposes of determining compliance with and enforcing subsection (1):

- a. The Annual Average Concentration of CBOD5, Total Suspended Solids and Total Phosphorus named in Column 1 of Table 2a in subsection (1) shall not exceed the corresponding maximum concentration set out in Column 2 of Table 2a.
- b. The Monthly Average Concentration of Total Ammonia Nitrogen for the calendar month named in Column 1 of Table 2b in subsection (1) shall not exceed the corresponding maximum concentration set out in Column 2 of Table 2b.
- c. The Monthly Average Loading of Total Ammonia Nitrogen for the calendar month named in Column 1 of Table 2b in subsection (1) shall not exceed the corresponding maximum waste loading set out in Column 3 of Table 2b. For the month of April, the average loading for the half-month periods of April 1 - April 15 and April 16 - April 30 shall not exceed the corresponding loading set out in Column 3 of Table 2b.

(3) The Owner shall operate and maintain the Works such that the pH of the effluent from the Sewage Treatment Plant is maintained within the range of 6.0 - 9.5, inclusive, at all times.

(4) Subsections (1) and (3) shall apply upon the issuance of this Approval.

## 8. OPERATION AND MAINTENANCE

(1) The Owner shall exercise due diligence in ensuring that, at all times, the Works and the related equipment and appurtenances used to achieve compliance with this Approval are properly operated and maintained. Proper operation and maintenance shall include effective performance, adequate funding, adequate operator staffing and training, including training in all procedures and other requirements of this Approval and the OWRA and regulations, adequate laboratory facilities, process

controls and alarms and the use of process chemicals and other substances used in the Works.

(2) The Owner shall maintain an operations manual, that includes, but not necessarily limited to, the following information:

- a. operating procedures for routine operation of the Works;
- b. inspection programs, including frequency of inspection, for the Works and the methods or tests employed to detect when maintenance is necessary;
- c. repair and maintenance programs, including the frequency of repair and maintenance for the Works;
- d. procedures for the inspection and calibration of monitoring equipment;
- e. a spill prevention control and countermeasures plan, consisting of contingency plans and procedures for dealing with equipment breakdowns, potential spills and any other abnormal situations, including notification of the Water Supervisor; and
- f. procedures for receiving, responding and recording public complaints, including recording any followup actions taken.

(3) The Owner shall maintain the operations manual current and retain a copy at the location of the Sewage Treatment Plant for the operational life of the Works. Upon request, the Owner shall make the manual available to Ministry staff.

(4) The Owner shall provide for the overall operation of the Works with an operator who holds a licence that is applicable to that type of facility and that is of the same class as or higher than the class of the facility in accordance with Ontario Regulation 129/04.

**9. MONITORING AND RECORDING**

The Owner shall, upon commencement of operation of the Works, carry out the following monitoring program:

(1) All samples and measurements taken for the purposes of this Approval are to be taken at a time and in a location characteristic of the quality and quantity of the effluent stream over the time period being monitored.

(2) For the purposes of this condition, the following definitions apply:

- a. Weekly means once each week;
- b. Monthly means once every month.

(3) Samples shall be collected at the following sampling points, at the frequency specified, by means of the specified sample type and analyzed for each parameter listed and all results recorded:

<b>Table 3 - Influent Monitoring - Inlet Works</b>		
<b>Parameters</b>	<b>Sample Type</b>	<b>Frequency</b>
BOD5	Composite	Weekly
Total Suspended Solids	Composite	Weekly
Total Phosphorus	Composite	Weekly
Total Kjeldahl Nitrogen	Composite	Weekly

**Table 4 - Effluent Monitoring - Effluent Outfall**

<b>Parameters</b>	<b>Sample Type</b>	<b>Frequency</b>
CBOD5	Composite	Weekly
Total Suspended Solids	Composite	Weekly
Total Phosphorus	Composite	Weekly
Total Ammonia Nitrogen	Composite	Weekly
Hydrogen Sulphide	Grab	Weekly
pH	Grab/Probe	Weekly
Temperature	Grab/Probe	Weekly

(4) The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following:

- a. the Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only), as amended from time to time by more recently published editions;
- b. the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" (January 1999), ISBN 0-7778-1880-9, as amended from time to time by more recently published editions;
- c. the publication "Standard Methods for the Examination of Water and Wastewater" (21st edition), as amended from time to time by more recently published editions.

(5) The temperature and pH of the effluent from the Sewage Treatment Plant shall be determined in the field at the time of sampling for Total Ammonia Nitrogen. The concentration of un-ionized ammonia shall be calculated using the total ammonia concentration, pH and temperature using the methodology stipulated in "Ontario's Provincial Water Quality Objectives" dated July 1994, as amended, for ammonia (un-ionized).

(6) The Owner shall install and maintain (a) continuous flow measuring device(s), to measure the flowrate of the influent to and effluent from the Sewage Treatment Plant with an accuracy to within plus or minus 15 per cent (+/- 15%) of the actual flowrate for the entire design range of the flow measuring device, and record the flowrate at a daily frequency.

(7) The Owner shall retain for a minimum of five (5) years from the date of their creation, all records and information related to or resulting from the monitoring activities required by this Approval.

## 10. REPORTING

(1) The Owner shall report to the Water Supervisor or designate, any exceedence of the average concentration of any parameter specified in Effluent Limits Condition orally, as soon as reasonably possible, and in writing within seven (7) days of the exceedence.

(2) In addition to the obligations under Part X of the *Environmental Protection Act*, the Owner shall, within ten (10) working days of the occurrence of any reportable spill as defined in Ontario Regulation 675/98, bypass or loss of any product, by-product, intermediate product, oil, solvent, waste material or any other polluting substance into the environment, submit a full written report of the occurrence to the Water Supervisor describing the cause and discovery of the spill or loss, clean-up and recovery



measures taken, preventative measures to be taken and schedule of implementation

(3) The Owner shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to Ministry staff.

(4) The Owner shall prepare and submit a performance report to the Water Supervisor on an annual basis, by March 31 of the year following the end of the calendar year being reported upon. The reports shall contain, but shall not be limited to, the following information:

- a. a summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Effluent Limits Condition, including an overview of the success and adequacy of the Works;
- b. a description of any operating problems encountered and corrective actions taken;
- c. a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the Works;
- d. a summary of any effluent quality assurance or control measures undertaken in the reporting period;
- e. a summary of the calibration and maintenance carried out on all effluent monitoring equipment; and
- f. a description of efforts made and results achieved in meeting the objectives of Effluent Objectives Condition.
- g. an estimate of the sludge volumes in the lagoon cells. Sludge volume is to be measured every five (5) years, but may be estimated in the interim years. A summary of disposal locations and volumes of sludge disposed of must also be provided if sludge was disposed of during the reporting period;
- h. a summary of any complaints received during the reporting period and any steps taken to address the complaints;
- i. a summary of all Bypass, Overflow, spill or abnormal discharge events;
- j. a copy of all Notice of Modifications to Sewage Works submitted to the Water Supervisor as a result of Schedule B, Section 1, with a status report on the implementation of each modification;
- k. a report summarizing all modifications completed as a result of Schedule B, Section 3; and
- l. any other information the Water Supervisor requires from time to time.

(7) The Owner shall, within thirty (30) calendar days of issuance of this Approval, submit a Municipal and Local Services Board Wastewater System Profile Information Form, and shall resubmit the updated document every time a notification is provided to the Water Supervisor in compliance with requirements of change of ownership under this Approval.

#### 11. LIMITED OPERATIONAL FLEXIBILITY (MODIFICATIONS TO THE WORKS)

(1) The Owner may make modifications to the Works in accordance with the Terms and Conditions of this Approval and subject to the Ministry's "Limited Operational Flexibility Criteria for Modifications to Sewage Works", included under Schedule B of this Approval, as amended.

(2) Sewage works proposed under Limited Operational Flexibility shall adhere to the design guidelines contained within the Ministry's publication "Design Guidelines for Sewage Works 2008", as amended.

(3) The Owner shall ensure at all times, that the Works, related equipment and appurtenances which are installed or used to achieve compliance are operated in accordance with all Terms and Conditions of this Approval.

(4) For greater certainty, the following are not permitted as part of Limited Operational Flexibility:

- a. Modifications to the Works that result in an increase of the Rated Capacity of the Works;
- b. Modifications to the Works that may adversely affect the approved effluent quality criteria or the location of the discharge/outfall;
- c. Modifications to the treatment process technology of the Works, or modifications that involve construction of new reactors (tanks) or alter the treatment train process design;
- d. Modifications to the Works approved under s.9 of the EPA, and
- e. Modifications to the Works pursuant to an order issued by the Ministry.

(5) Implementation of Limited Operational Flexibility is not intended to be used for piecemeal measures that result in major alterations or expansions.

(6) If the implementation of Limited Operational Flexibility requires changes to be made to the Emergency Response, Spill Reporting and Contingency Plan, the Owner shall, as deemed necessary in consultation with the Water Supervisor, provide a revised copy of this plan for approval to the local fire services authority prior to implementing Limited Operational Flexibility.

(7) For greater certainty, any modification made under the Limited Operational Flexibility may only be carried out after other legal obligations have been complied with, including those arising from the *Environmental Protection Act, Niagara Escarpment Planning and Development Act, Oak Ridges Moraine Conservation Act, Lake Simcoe Protection Act and Greenbelt Act*.

(8) Prior to implementing Limited Operational Flexibility, the Owner shall complete a Notice of Modifications to Sewage Works describing any proposed modifications to the Works and submit it to the Water Supervisor.

*The reasons for the imposition of these terms and conditions are as follows:*

1. Condition 1 is imposed to ensure that the Works are built and operated in the manner in which they were described for review and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the Approval and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review. The condition also advises the Owners their responsibility to notify any person they authorized to carry out work pursuant to this Approval the existence of this Approval.

2. Condition 2 is included to ensure that the Ministry records are kept accurate and current with respect to the approved works and to ensure that subsequent owners of the Works are made aware of the Approval and continue to operate the Works in compliance with it.

3. Condition 3 is included to ensure that the Works are constructed in a timely manner so that standards applicable at the time of Approval of the Works are still applicable at the time of construction, to ensure the ongoing protection of the environment. It also ensure that the Works are constructed in accordance with the Approval and that record drawings of the Works "as constructed" are updated and maintained for future references.

4. Condition 4 is included to indicate that Bypass of any treatment process of unit is prohibited, save in certain limited circumstances where the failure to Bypass could result in greater injury to the public interest than the Bypass itself where a Bypass will not violate the approved effluent requirements, or where the Bypass can be limited or otherwise mitigated by handling it in accordance with an approved contingency plan. The notification and documentation requirements allow the Ministry to take action in an informed manner and will ensure the Owner is aware of the extent and frequency of Bypass events.

5. Condition 5 is included to indicate that Overflows of untreated or partially treated sewage to the receiving watercourse is prohibited, save in certain limited circumstances where the failure to Overflow could result in greater injury to the public interest than the Overflow itself or where the Overflow can be limited or otherwise mitigated by handling it in accordance with an approved contingency plan. The notification and documentation requirements allow the Ministry to take action in an informed manner and will ensure the Owner is aware of the extent and frequency of Overflow events.

6. Condition 6 is imposed to establish non-enforceable effluent quality objectives which the Owner is obligated to use best efforts to strive towards on an ongoing basis. These objectives are to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs and before the compliance limits of Condition 7 are exceeded.

7. Condition 7 is imposed to ensure that the effluent discharged from the Works to the environment meets the Ministry's effluent quality requirements thus minimizing environmental impact on the receiver and to protect water quality, fish and other aquatic life in the receiving water body.

8. Condition 8 is included to require that the Works be properly operated, maintained, funded, staffed and equipped such that the environment is protected and deterioration, loss, injury or damage to any person or property is prevented. As well, the inclusion of a comprehensive operations manual governing all significant areas of operation, maintenance and repair is prepared, implemented and kept up-to-date by the Owner and made available to the Ministry. Such a manual is an integral part of the operation of the Works. Its compilation and use should assist the Owner in staff training, in proper plant operation and in identifying and planning for contingencies during possible abnormal conditions. The manual will also act as a benchmark for Ministry staff when reviewing the Owner's operation of the Works.

9. Condition 9 is included to enable the Owner to evaluate and demonstrate the performance of the Works, on a continual basis, so that the Works are properly operated and maintained at a level which is consistent with the effluent objectives and effluent limits specified in the Approval and that the Works does not cause any impairment to the environment.

10. Condition 10 is included to provide a performance record for future references, to ensure that the Ministry is made aware of problems as they arise, and to provide a compliance record for all the

terms and conditions outlined in this Approval, so that the Ministry can work with the Owner in resolving any problems in a timely manner.

11. Condition 11 is included to ensure that the Works are operated in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider. These Conditions are also included to ensure that a Professional Engineer has reviewed the proposed modifications and attests that the modifications are in line with that of Limited Operational Flexibility, and provide assurance that the proposed modifications comply with the Ministry's requirements stipulated in the Terms and Conditions of this Approval, MOE policies, guidelines, and industry engineering standards and best management practices.

### **Schedule A**

1. Application for Approval of Municipal and Private Sewage Works submitted by Mr. Matt G. Prentice, M.Eng., P.Eng. of Henderson Paddon & Associates Limited, under a cover letter dated June 22, 2005, including a description of the existing sewage works and a copy of the Engineering Plans of the Works prepared by Henderson Paddon & Associates Limited in 1981 and 1982;
2. Amendment to Approval initiated in an electronic mail from Mr. Jim Bromley, Senior Environmental Officer, Owen Sound District Office dated May 15, 2012, including later correspondence from Mr. Hugh Geurts, Surface Water Specialist, Technical Support Section, Southwestern Region and all other supporting documents including an electronic mail from Mr. Sharma dated September 21, 2012;
3. Application of Environmental Compliance Approval Application for Sewage Works submitted by Rakesh Sharma, P.Eng of the GSS Engineering Consultants Ltd., and received on January 19, 2016, for expansion of Chesley Sewage Works, including revised Design Brief titled " Upgrade of Chesley Wastewater Treatment Plant - Chesley, Municipality of Arran- Elderslie, December 2015 (Revised April, 2016), prepared by Rakesh Sharma, MAsc.Eng., P.Eng of the GSS Engineering Consultants Ltd., received on April 5, 2016;

### **Schedule B**

## **Limited Operational Flexibility Criteria for Modifications**

### **to Municipal Sewage Works**

1. The modifications to sewage works approved under an Environmental Compliance Approval (Approval) that are permitted under the Limited Operational Flexibility (LOF), are outlined below and are subject to the LOF conditions in the Approval, and require the submission of the Notice of Modifications to Sewage Works. If there is a conflict between the sewage works listed below and the Terms and Conditions in the Approval, the Terms and Conditions in the Approval shall take precedence.

#### **1.1 Sewage Pumping Stations**

- a. Alter pumping capacity by adding or replacing equipment where new equipment is located within an existing sewage treatment plant site or an existing sewage pumping station site, provided that the modifications do not result in an increase of the sewage treatment plant Rated Capacity and the existing flow process and/or treatment train are maintained, as applicable.

- b. Forcemain relining and replacement with similar pipe size where the nominal diameter is not greater than 1,200mm.

## 1.2 Sewage Treatment Process

- a. Installing additional chemical dosage equipment including replacing with alternative chemicals for pH adjustment or coagulants (non-toxic polymers) provided that there are no modifications of treatment processes or other modifications that may alter the intent of operations and may have negative impacts on the effluent quantity and quality.
- b. Expanding the buffer zone between a sanitary sewage lagoon facility or land treatment area and adjacent uses provided that the buffer zone is entirely on the proponent's land.
- c. Optimizing existing sanitary sewage lagoons with the purpose to increase efficiency of treatment operations provided that existing sewage treatment plant rated capacity is not exceeded and where no land acquisition is required.
- d. Optimizing existing sewage treatment plant equipment with the purpose to increase the efficiency of the existing treatment operations, provided that there are no modifications to the works that result in an increase of the approved Rated Capacity, and may have adverse effects to the effluent quality or location of the discharge.
- e. Replacement, refurbishment of previously approved equipment in whole or in part with Equivalent Equipment, like-for-like of different make and model, provided that the firm capacity, reliability, performance standard, level of quality and redundancy of the group of equipment is kept the same or exceeded. For clarity purposes, the following equipment can be considered under this provision: pumps, screens, grit separators, blowers, aeration equipment, sludge thickeners, dewatering equipment, UV systems, chlorine contact equipment, bio-disks, and sludge digester systems.

## 1.3 Sewage Treatment Plant Outfall

- a. Replacement of discharge pipe with similar pipe size or diffusers provided that the outfall location is not changed.

## 1.4 Sanitary Sewers

- a. Pipe relining and replacement with similar pipe size within the Sewage Treatment Plant site, where the nominal diameter is not greater than 1,200mm.

## 1.5 Pilot Systems

- a. Installation of pilot systems for new or existing technologies provided that:
  - i. any effluent from the pilot system is discharged to the inlet of the sewage treatment plant or hauled off-site for proper disposal,
  - ii. any effluent from the pilot system discharged to the inlet of the sewage treatment plant or sewage conveyance system does not significantly alter the composition/concentration of the influent sewage to be treated in the downstream process; and that it does not add any inhibiting substances to the downstream process, and
  - iii. the pilot system's duration does not exceed a maximum of two years; and a report with results is submitted to the Director and Water Supervisor three months after completion of the pilot project.

2. Sewage works that are exempt from section 53 of the OWRA by O. Reg. 525/98 continue to be exempt and are not required to follow the notification process under this Limited Operational Flexibility.

3. Normal or emergency operational modifications, such as repairs, reconstructions, or other improvements that are part of maintenance activities, including cleaning, renovations to existing approved sewage works equipment, provided that the modification is made with Equivalent Equipment, are considered pre-approved.

4. The modifications noted in section (3) above are not required to follow the notification protocols under Limited Operational Flexibility, provided that the number of pieces and description of the equipment as described in the Approval does not change.



**Notice of Modification to Sewage Works**

RETAIN COPY OF COMPLETED FORM AS PART OF THE ECA AND SEND A COPY TO THE WATER SUPERVISOR (FOR MUNICIPAL) OR DISTRICT MANAGER (FOR NON-MUNICIPAL SYSTEMS)

<b>Part 1 – Environmental Compliance Approval (ECA) with Limited Operational Flexibility</b> <i>(Insert the ECA's owner, number and issuance date and notice number, which should start with "01" and consecutive numbers thereafter)</i>		
ECA Number	Issuance Date (mm/dd/yy)	Notice number (if applicable)
ECA Owner		Municipality

<b>Part 2: Description of the modifications as part of the Limited Operational Flexibility</b> <i>(Attach a detailed description of the sewage works)</i>
<p>Description shall include:</p> <ol style="list-style-type: none"> <li>1. A detail description of the modifications and/or operations to the sewage works (e.g. sewage work component, location, size, equipment type/model, material, process name, etc.)</li> <li>2. Confirmation that the anticipated environmental effects are negligible.</li> <li>3. List of updated versions of, or amendments to, all relevant technical documents that are affected by the modifications as applicable, i.e. submission of documentation is not required, but the listing of updated documents is (design brief, drawings, emergency plan, etc.)</li> </ol>

<b>Part 3 – Declaration by Professional Engineer</b>	
<p>I hereby declare that I have verified the scope and technical aspects of this modification and confirm that the design:</p> <ol style="list-style-type: none"> <li>1. Has been prepared or reviewed by a Professional Engineer who is licensed to practice in the Province of Ontario;</li> <li>2. Has been designed in accordance with the Limited Operational Flexibility as described in the ECA;</li> <li>3. Has been designed consistent with Ministry's Design Guidelines, adhering to engineering standards, industry's best management practices, and demonstrating ongoing compliance with s.53 of the Ontario Water Resources Act; and other appropriate regulations.</li> </ol> <p>I hereby declare that to the best of my knowledge, information and belief the information contained in this form is complete and accurate</p>	
Name (Print)	PEO License Number
Signature	Date (mm/dd/yy)
Name of Employer	

<b>Part 4 – Declaration by Owner</b>	
<p>I hereby declare that:</p> <ol style="list-style-type: none"> <li>1. I am authorized by the Owner to complete this Declaration;</li> <li>2. The Owner consents to the modification; and</li> <li>3. This modifications to the sewage works are proposed in accordance with the Limited Operational Flexibility as described in the ECA.</li> <li>4. The Owner has fulfilled all applicable requirements of the <i>Environmental Assessment Act</i>.</li> </ol> <p>I hereby declare that to the best of my knowledge, information and belief the information contained in this form is complete and accurate</p>	
Name of Owner Representative (Print)	Owner representative's title (Print)
Owner Representative's Signature	Date (mm/dd/yy)

**Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 2192-8TQN9Z issued on November 27, 2012.**

*In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:*

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

*Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.*

*The Notice should also include:*

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

*And the Notice should be signed and dated by the appellant.*

*This Notice must be served upon:*

The Secretary\*  
Environmental Review Tribunal  
655 Bay Street, Suite 1500  
Toronto, Ontario  
M5G 1E5

AND

The Director appointed for the purposes  
of Part II.1 of the Environmental  
Protection Act  
Ministry of the Environment and Climate  
Change  
135 St. Clair Avenue West, 1st Floor  
Toronto, Ontario  
M4V 1P5

**\* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or [www.ert.gov.on.ca](http://www.ert.gov.on.ca)**

*The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.*



DATED AT TORONTO this 31st day of October, 2016

Fariha Pannu, P.Eng.  
Director  
appointed for the purposes of Part II.1 of  
the *Environmental Protection Act*

FL/

c: DWMD Supervisor, MOECC Owen Sound District Office

Rekha Chetlur, Registration and Compliance Section, MOECC Drinking Water Programs Branch –  
IMBS

Rakesh Sharma, P. Eng, GSS Engineering Consultants Ltd.

## **Appendix B**

### **Bypass Sample Analysis Reports**



Works #: 110000105

SGS Canada Inc.  
P.O. Box 4300 - 185 Concession St.  
Lakefield - Ontario - K0L 2H0  
Phone: 705-652-2000 FAX: 705-652-6365

06-April-2016

**Mun of Arran Elderslie (Chesley Lagoons)**

Attn : Scott McLeod

Date Rec. : 30 March 2016  
LR Report: CA19283-MAR16

1925-10 Bruce Rd, PO Box 70  
Chesley, ON  
N0G 1L0,

Copy: #1

Phone: 519-363-3039 ext:42  
Fax:

## CERTIFICATE OF ANALYSIS Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Approval Date	4: Analysis Approval Time	5: Riverside Pump Station By-pass
Sample Date & Time					28-Mar-16 12:00
Temperature Upon Receipt [at London Lab °C]	---	---	---	---	3.7
Temperature Upon Receipt [at Lakefield Lab °C]	---	---	---	---	16.0
E.Coli [cfu/100mL]	30-Mar-16	10:50	31-Mar-16	13:22	720000
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	31-Mar-16	17:19	05-Apr-16	14:54	8
Total Suspended Solids [mg/L]	04-Apr-16	08:05	05-Apr-16	10:52	7
Phosphorus (total) [mg/L]	31-Mar-16	21:14	01-Apr-16	13:50	0.21
Nitrite (as N) [mg/L]	31-Mar-16	16:46	01-Apr-16	15:07	0.07
Nitrate (as N) [mg/L]	31-Mar-16	16:46	01-Apr-16	15:07	2.68
Nitrate + Nitrite (as N) [mg/L]	31-Mar-16	16:46	01-Apr-16	15:07	2.75

\*E.Coli analysis was completed at the SGS Environmental Services - London Laboratory.

  
 Carrie Greenlaw  
 Project Specialist  
 Environmental Services, Analytical



Works #: 110000105

SGS Canada Inc.  
P.O. Box 4300 - 185 Concession St.  
Lakefield - Ontario - K0L 2H0  
Phone: 705-652-2000 FAX: 705-652-6365

13-April-2016

**Mun of Arran Elderslie (Chesley Lagoons)**  
Attn : Scott McLeod

Date Rec. : 02 April 2016  
LR Report: CA19010-APR16

1925-10 Bruce Rd, PO Box 70  
Chesley, ON  
N0G 1L0,

Copy: #1

Phone: 519-363-3039 ext:42  
Fax:

## CERTIFICATE OF ANALYSIS Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Approval Date	4: Analysis Approval Time	5: Riverside Pump Station By-pass
Sample Date & Time					31-Mar-16 20:45
Temperature Upon Receipt [at London Lab °C]	---	---	---	---	10.1
Temperature Upon Receipt [at Lakefield Lab °C]	---	---	---	---	7.0
E.Coli [cfu/100mL]	02-Apr-16	11:05	04-Apr-16	11:14	310000
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	05-Apr-16	18:04	11-Apr-16	16:01	16
Total Suspended Solids [mg/L]	06-Apr-16	08:29	08-Apr-16	15:36	84
Phosphorus (total) [mg/L]	06-Apr-16	19:11	07-Apr-16	13:06	0.34
Nitrite (as N) [mg/L]	05-Apr-16	21:24	06-Apr-16	17:14	0.17
Nitrate (as N) [mg/L]	05-Apr-16	21:24	06-Apr-16	17:14	2.11
Nitrate + Nitrite (as N) [mg/L]	05-Apr-16	21:24	06-Apr-16	17:14	2.28

\*E.Coli analysis was completed at the SGS Environmental Services - London Laboratory.

  
Carrie Greenlaw  
Project Specialist  
Environmental Services, Analytical



Works #: 110000105

SGS Canada Inc.  
P.O. Box 4300 - 185 Concession St.  
Lakefield - Ontario - K0L 2H0  
Phone: 705-652-2000 FAX: 705-652-6365

13-April-2016

**Mun of Arran Elderslie (Chesley Lagoons)**

Attn : Scott McLeod

Date Rec. : 02 April 2016  
LR Report: CA19011-APR16  
Reference: Hydro Drip Started Dosage  
of 5.2mg/L

1925-10 Bruce Rd, PO Box 70  
Chesley, ON  
N0G 1L0,

Copy: #1

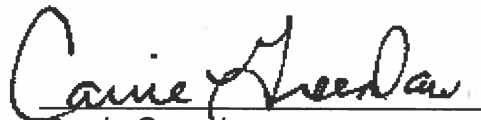
Phone: 519-363-3039 ext:42  
Fax:

# CERTIFICATE OF ANALYSIS

## Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Approval Date	4: Analysis Approval Time	5: Riverside Pump Station By-pass
Sample Date & Time					31-Mar-16 14:00
Temperature Upon Receipt [at London Lab °C]	---	---	---	---	10.1
Temperature Upon Receipt [at Lakefield Lab °C]	---	---	---	---	7.0
E.Coli [cfu/100mL]	02-Apr-16	11:05	04-Apr-16	11:14	630000
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	05-Apr-16	18:04	11-Apr-16	16:01	< 4
Total Suspended Solids [mg/L]	06-Apr-16	08:29	08-Apr-16	15:36	26
Phosphorus (total) [mg/L]	06-Apr-16	19:11	07-Apr-16	13:06	0.18
Nitrite (as N) [mg/L]	05-Apr-16	21:24	06-Apr-16	17:14	0.06
Nitrate (as N) [mg/L]	05-Apr-16	21:24	06-Apr-16	17:14	2.17
Nitrate + Nitrite (as N) [mg/L]	05-Apr-16	21:24	06-Apr-16	17:14	2.23

\*E.Coli analysis was completed at the SGS Environmental Services - London Laboratory.

  
Carrie Greenlaw  
Project Specialist  
Environmental Services, Analytical

## **Appendix C**

### **Calibration Report**



# Instrument Verification Certificate of Completion



Municipality of Arran-Elderslie  
Flow Meter Verifications

April-16

MUNICIPALITY CLIENT	LOCATION	DESCRIPTION	MANUFACTURER	MODEL	SERIAL NUMBER	VERIFICATION/CALIBRATION				
						DATE	DUE	FREQUENCY	TECH.	RESULT
Arran-Elderslie	Chesley Lagoon	Influent Meter	Milltronics	OCM-III	n/a	28-Apr-16	Apr-17	Annual	PM	PASS
Arran-Elderslie	Chesley WTP	Inlet Filter Valve #1	Endress + Hauser	Promag 50W	7704E016000	28-Apr-16	Apr-17	Every 3 Yrs	PM	PASS
Arran-Elderslie	Chesley WTP	Inlet Filter Valve #2	Endress + Hauser	Promag 50W	7704DF16000	28-Apr-16	Apr-17	Every 3 Yrs	PM	PASS
Arran-Elderslie	Chesley WTP	Inlet Filter Valve #3	Endress + Hauser	Promag 50W	7704DE16000	28-Apr-16	Apr-17	Every 3 Yrs	PM	PASS
Arran-Elderslie	Chesley WTP	Distribution FIT 5	Endress + Hauser	Promag 50W	79051D16000	28-Apr-16	Apr-17	Annual	PM	PASS
Arran-Elderslie	Chesley WTP	Well #1 Raw Water	Endress + Hauser	Promag 50W	7903D616000	28-Apr-16	Apr-17	Annual	PM	PASS
Arran-Elderslie	Chesley WTP	Well #2 Raw Water	Endress + Hauser	Promag 50W	79051A16000	28-Apr-16	Apr-17	Annual	PM	PASS
Arran-Elderslie	Chesley WTP	Well #3 Raw Water	Endress + Hauser	Promag 50W	7051B16000	28-Apr-16	Apr-17	Annual	PM	PASS
Arran-Elderslie	Riverside Lift Station	Lift Station Flow	Endress + Hauser	Promag 53W	E20151160	28-Apr-16	Apr-17	Annual	PM	PASS
Arran-Elderslie	Distribution Boundary Meter	Boundary Meter 3	Endress + Hauser	Promag 50W	7A045816000	28-Apr-16	Apr-17	Annual	PM	PASS
Arran-Elderslie	Paisley WWTP	Influent Meter	Pulsar	Flow3	F048933	29-Apr-16	Apr-17	Annual	PM	PASS
Arran-Elderslie	Paisley WWTP	Effluent Meter	Milltronics	Mult-Ranger Plus	7ML10203EA04	29-Apr-16	Apr-17	Annual	PM	PASS
Arran-Elderslie	Tara Sewage PS	Station Flow	ABB	WaterMaster	3K220000229674	29-Apr-17	Apr-18	Annual	PM	PASS
Arran-Elderslie	Tara Treated Well #4	Treated Flow Meter	Endress + Hauser	Promag 50W	C5026216000	29-Apr-16	Apr-17	Annual	PM	PASS
Arran-Elderslie	Tara Well House #2	Treated Flow Meter	Endress + Hauser	Promag 53W	83037416000	29-Apr-16	Apr-17	Annual	PM	PASS
Arran-Elderslie	Tara Well House #3	Treated Flow Meter	Endress + Hauser	Promag 53W	H603A516000	29-Apr-16	Apr-17	Annual	PM	PASS

"If we don't measure it, how do you manage it?"



Western Office  
2088 Jetstream Road  
London, Ontario  
N5V 3P6

Eastern Office  
1602 Old Wooler Road  
Wooler, Ontario  
K0K 3M0

## Instrument Verification Certificate of Completion

Arran Elderslie  
Paisley, Chesley, Tara  
Water Quality - Portable & Bench Top Instruments

April 2016

LOCATION	DESCRIPTION	MANUFACTURER	MODEL	SERIAL NUMBER	TAG ID:	VERIFICATION INFO.		
						DATE	FREQ.	DUE
Chesley	Colorimeter	HACH	PC I	UNIT 2	CHESLEY	April 14, 2016	Annual	April 1, 2017
Tara	Colorimeter	HACH	PC I	UNIT 3	TARA	April 14, 2016	Annual	April 1, 2017
Tara	Colorimeter	HACH	DR890	991298009283	TARA	April 14, 2016	Annual	April 1, 2017
Chesley	Colorimeter + Turbidity	HANNA	FASTTRACKER	08279039	CHESLEY	April 14, 2016	Annual	April 1, 2017
Paisley	Colorimeter	HACH	DR890	020190019019	PAISLEY	April 14, 2016	Annual	April 1, 2017
Paisley	Phosphate	HACH	PC II	040900022692	PAISLEY	April 14, 2016	Annual	April 1, 2017
Chesley	Turbidity	HACH	2100P	940500005333	CHESLEY	April 14, 2016	Annual	April 1, 2017
Tara	Turbidity	HACH	2100P	000800025899	TARA	April 14, 2016	Annual	April 1, 2017
Paisley	Turbidity	HACH	2100P	000800025914	PAISLEY	April 14, 2016	Annual	April 1, 2017
Paisley	Weigh Scale	SCIENTECH	SA120	17118	PAISLEY	April 14, 2016	Annual	April 1, 2017

This Instrument Verification/Calibration - Certificate of Completion is a summary of the instruments tested during our service contract. Any instrument that does not PASS verification and cannot be calibrated during this contract is highlighted for quick identification.